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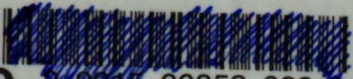
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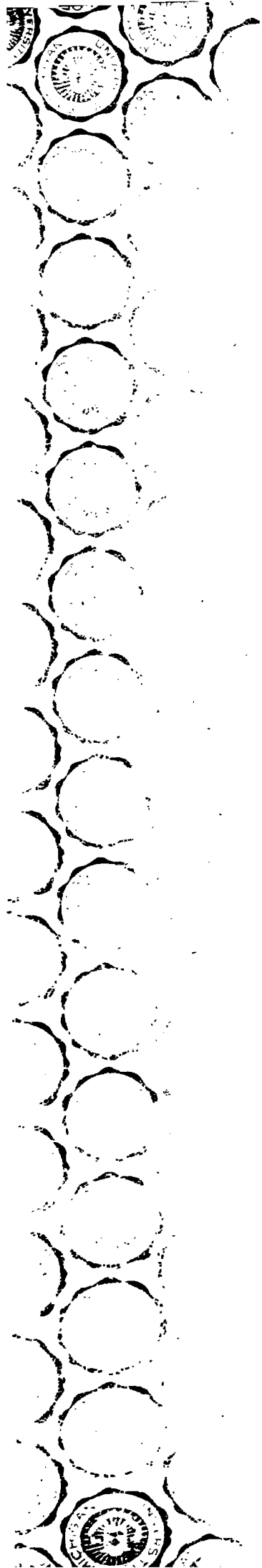
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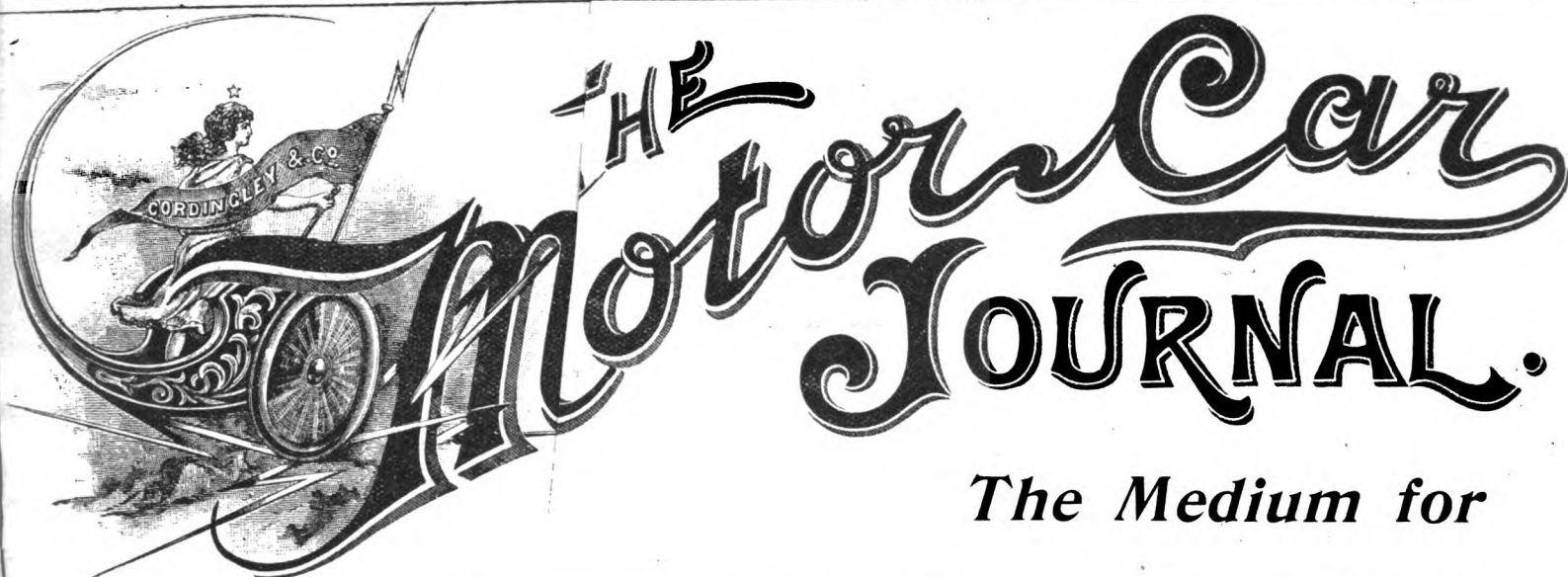


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COMMENTS.



WITH this issue the *Motor-Car Journal* enters upon its fourth year. The three volumes that have now been closed present a record of activity in the automobile industry that must have surprised even its most ardent pioneers. Automobilmism is a moving force in this country at the present time, and it is destined to play a very important part in many directions in the near future. As a promoter of social intercourse, a reviver of the prosperity of the highways, an industry that will bring wealth to many and comfort to thousands, and a factor in dealing with social problems, the motor-car is making its influence felt; and in recording its multifarious developments *The Motor-Car Journal* has a mission with which its conductors

(whose advocacy of automobilism in technical journals, years ago, prepared the way for this special publication) are proud to be associated. The success that has attended the career of this *Journal* has naturally been watched by others solicitous for the connection with automobilism that comes through advertisement channels, and during the past few months rumours have been current as to the appearance of other luminaries in the automobile system. That was inevitable. Should they come to anything, it will be merely a repetition of the experience of cycle manufacturers, who, when trade was expanding, were besieged by journalistic experiments, whose rise was sudden and whose fall was a kind of lingering sickness painful to the patient and expensive to the trade. In the youthful years of an industry there are limits to the degree of support which the business can give to sundry publications, and we are glad to recognise that the position of the *Journal* is well assured, and that the trade realises it is fully served both by journals and exhibitions.

The Exhibition.

ALREADY interest in the forthcoming motor-car exhibition is becoming general, and the fact that the Agricultural Hall will be visited by Royalty on one of the early days should decide exhibitors as to the necessity of having their displays ready in good time. The business managers are advising exhibitors to insert a penalty clause in giving out contracts for stand-fitting, so as to ensure punctuality in that important matter. An effort will be made to secure uniformity in the planning of the stands, so that an uninterrupted view of the whole exhibition can be obtained from either end of the Hall. In order to give every facility for exhibitors arranging their displays the Hall will be opened at 6 a.m. on the Wednesday preceding the exhibition, so that all work should be finished long before the hour of opening on the Saturday. Hitherto the motor-car exhibitions at the Agricultural Hall have been characterised by an advanced state of preparedness on the opening day. We are hopeful that the forthcoming exhibition will make a record so far as punctuality with regard to stands is concerned.

The Irish Automobile Club.

THE annual general meeting of the Irish Automobile Club has taken place at the Shelbourne Hotel, Dublin. A considerable number of members attended. The chair was taken by Mr. W. G. D. Goff, J.P., Chairman of the Club. The report of the committee for the past twelve months was read and confirmed, and showed the club to be in a flourishing condition and in a sound financial position, with a balance in hand of £80. The election of officers for the ensuing year resulted as follows:—President, the Right Hon. Horace Plunkett. Chairman, Mr. W. G. D. Goff. Hon. Secretary, Mr. R. J. McCreedy. Hon. Treasurer, Mr. E. U. Grimshaw. Committee: Lord Louth, Hon. Leopold Canning, E. O'Coner, D.L.; J. H. Glenn, M.D.; C. W. Hely, J.P.; Rev. Hon. B. J. Plunkett, J. F. Colohan, M.D.; Pryce Peacocke, M.D.; W. Sexton, Guillamore O'Grady, C. Yeldham, D.L.; F. Hall, B. Barrett, A. W. Perry, and Captain H. R. Langrishe. The following were elected members of the Club: The Marquis of Anglesey, Lady Garvagh, Mr. C. Jarrott, Mr. C. J. Engledew, Mr. H. B. Hill, Mr. J. M. Murphy, Dr. Sinclair, Mr. A. W. Perry, and Mr. B. Barrett.

Standards in Motor-Cars.

IN connection with the question of standards in motor-car construction, which has been referred to on several occasions in the *Journal*, it is interesting to note that the Engineering Standards Committee sat at the Institution of Civil Engineers, Westminster, on Tuesday, to hear evidence on the question of the standardisation of locomotives and the specifications for the materials used in their construction. In France *La Chambre Syndicale de l'Automobile*, of which M. Jeantaud is president, has for some time been considering the matter of standard sizes for motor-car frames, and at a recent meeting the following sizes were agreed upon:—For voiturettes, 1·8 metres by ·8 metre; for light cars, 1·9 metres by ·8 metre; for ordinary cars, 2 metres by ·85 metre; and for touring vehicles, 2·5 metres by ·95 metre. This standardisation of motor-car frames will, it is considered, greatly facilitate the work of carriage builders, who will now be able to put bodies through in series, knowing that they will fit any of the leading types of cars, instead of, as at present, having to make bodies of all sorts of odd sizes. *La Chambre Syndicale* has also under consideration the question of standard sizes of pneumatic tires and their components, and also of motor-car lamp brackets.

The Eccles Motor Fire Tender.

SOME time ago the Eccles Fire Brigade adopted a motor fire tender, which has apparently been doing good work until recently, when it was damaged in a collision with an iron pillar. One of the firemen had been learning to drive the machine, and the superintendent endeavoured to make the necessary repairs—with only moderate success. Certainly the motor was, in the opinion of the Fire Brigade Committee, quite unfit for work. The maker was then asked to give his advice, and he submitted three suggestions: (1) to repair the motor; (2) to supply a new motor similar to the present one for £40 in addition to the £80, the unpaid balance on the damaged motor; (3) to

supply a larger motor for the sum of £100 in addition to the £80. The Fire Brigade Committee recommend the purchase of a larger motor, and the matter is to be considered by the Town Council.

In the March Magazines.

MOTOR-CARS figure in both the *Strand* and *Pearson's Magazine* this month, the latter having a voiturette on the front cover and an article by Mr. Fletcher Robinson, who is concerned only with the humorous side of the subject—and very good humour he makes of it. In the *Strand Magazine* is an exciting "automobile story," by C. N. and A. M. Williamson, and as Mr. Williamson is an expert driver the tale lacks the mechanical absurdities that so often figure in such stories. At the same time, some of the incidents are sufficiently fantastical to amuse motorists as well as cause wonderment among the general public.

Ignition.

ON Saturday Captain J. A. Cole lectured on "Ignition" before the Lincolnshire Automobile Club. Having described tube ignition, Captain Cole dealt with electrical ignition, which allowed much latitude and a variance of the speeds of the engine. Having referred to dry batteries, amperemeters were next described, and although this part of the lecture was necessarily of a technical character, the apparatus and diagrams used caused the subject to be well understood by the audience. A Blake coil, which the lecturer coupled with motor-chains as articles which were produced better in England than abroad, was shown in section, as well as the soft iron core with thin wire round and covered by a condenser to take up the current and to make a quick break. A very interesting experiment was next shown: An instrument had been made by Mr. C. H. Gilbert for the lecturer, which was virtually a sparking plug in an hermetically-sealed glass tube, into which air was pumped, a gauge showing the pressure. The points were further apart than when in an engine, and at 19 lbs. pressure the spark failed. On being placed closer together the spark came at 59 lbs. pressure, then failed. Dynamos were described, also the Simms-Bosch Magneto-Electric ignition. In proposing a vote of thanks to the lecturer for the great trouble and expense he had been put to, Mr. C. W. Pennell, who presided, expressed the thanks of all present for the valuable information imparted. Dr. J. H. Pim, in seconding, said they were all very much indebted to Captain Cole, and would all benefit by the lecture.

Motor Vehicle Regulations.

ELSEWHERE we give the main features of a letter which has been sent to two thousand newspapers, and which may, therefore, be expected to be widely quoted during the next few days. It is signed by such representative men as the Duke of Sutherland, the Earl of Shrewsbury, the Earl of Onslow, Earl Grey, Lord Montagu of Beaulieu, Lord Brassey, K.C.B., Sir Redvers Buller, G.C.B., Sir Bernhard Samuelson, Bart., and others equally well known, who, apart from personal interests, have interested themselves in the prosperity and the future of automobilism. The letter declares that electric and steam trams are driven at speeds up to eighteen miles per hour, while the particulars given of the ease with which motor-vehicles can be stopped when travelling at high speeds are authoritative. It is also urged that we are, in this country, "repeating the same error of over-restrictive legislation which, in respect of electrical enterprise, stifled development in the United Kingdom so completely that the trade here has never been able to overtake the solid organisation which freer conditions enabled manufacturers to rapidly build up in Germany and the United States, where legislation does not blindly precede a new industry, but intelligently follows it." The wishes of motorists are discreetly set forth in the letter, and in conclusion the memorial suggests that members of Parliament

should be urged to induce the Government to take action with regard to what is desired. In this direction every motorist should set to work at once.

The Tare Weight.

It is satisfactory to observe that the signatories to this letter have recognised the importance of something being done to further the chances of success for the manufacture of heavy vehicles in this country. Owing to the restriction to a tare weight not exceeding three tons, the manufacture of motor-vehicles capable of carrying loads up to ten and twelve tons is prevented. This is regrettable in view of the value such vehicles would be in connection with the haulage of fruit, vegetables, and other perishable goods, to say nothing of the conveyance of heavy goods in the northern and midland districts of England.

Motor-Bicycles.

MRS. KENNARD's article on motor-bicycles for ladies, which appeared in last week's *Journal*, has created some impression among lady readers and lady journalists, and the makers of such machines owe her a debt of gratitude for the attention thus directed to a comparatively young development of automobilism. In our "Correspondence" this week Mr. J. Van Hooydonk has a further reference to the subject, and we would emphasise the suggestion with which he concludes his letter, viz., that motor-bicycles will "afford the purchaser a vast amount of pleasure if he (or she) will only make up his (or her) mind to understand what it is that makes the wheels go round." In the application of this sentence lies much of the secret of successful motor-bicycling.

Electrical Omnibus for London.

As intimated in these columns some weeks ago, the London 'bus companies are watching very intently the development in mechanical traction, and at the meeting of the London General Omnibus Company the chairman has just announced that that concern does not propose to be left behind in the matter. Last week we were able to announce that Messrs. Zadig and Company have an electrical omnibus in hand for the London Road Car Company. This will be the first electrical omnibus in the Metropolis, and all who have to travel in the City will await with interest its arrival on the streets in about three months' time. The new 'bus will not only be propelled by electricity, but will be electrically lighted throughout, and it is hoped that the cost will not be more than one-half or one-third of the cost of working horse-drawn 'buses. It will be fitted with two motors and one battery, the weight of the 'bus, exclusive of the accumulators, being about three tons. The battery will weigh about half a ton. In size the new 'bus will be similar to vehicles now upon the road, and it will accommodate twenty-six passengers.

Oil Fuel for Steam Fire Engines.

CROSSING over Blackfriars Bridge the other day to visit the headquarters of the Metropolitan Fire Brigade we noticed the motor dust-van of the Corporation of the City of London being carefully and easily negotiated through the traffic. It was heavily laden with the refuse of shops, offices, and houses, and with four men aboard naturally attracted considerable attention. At the fire brigade station we learned that the rumour which had attained newspaper publicity as to the "explosion" of a "petroleum" vehicle had lost nothing in the telling. The idea that the motor-car used for carrying the Chief Officer to the scenes of fire had met with an accident was quickly dispelled, and, as a matter of fact, that vehicle is a steam-car. There had, however, been a little incident, one of the new oil-fired steam fire engines having "fired back." In a little while coal and coke will be abandoned by the fire brigade for practical pur-

poses, and the steamers will be fitted for oil-firing. The principal advantage is that with oil fuel a working head of steam is obtained much more rapidly than with coal, and the experience of Commander Wells, of the London Fire Brigade, is that low-flash oil is much more suitable for fire engines than high-flash oil.

From Glasgow to London.

THE Scottish Automobile Club (Western Section) propose to organise a non-stop trial from Glasgow to London prior to the Automobile Club's Show, at the Agricultural Hall, in April. This trial will be open to all manufacturers registered under the rules of the Automobile Club of Great Britain and Ireland. The Standing Committee of the Automobile Club have approved of the proposal, subject to the rules being satisfactory to them. These are now in course of preparation, and manufacturers or those interested, or proposing to take part, should communicate with Mr. Robert J. Smith, C.A., 59, St. Vincent Street, Glasgow, the honorary secretary, who will supply them with the necessary information. We congratulate our Scottish friends upon the idea, and there is no doubt that the invasion of England by a number of motorists from the north of the Tweed will attract considerable attention to the industry.

Arousing Local Interest.

THE proposal is also capable of some development, for the tourists might be joined at appointed towns by the members of the various automobile clubs in England. There is no reason why the trial should not be participated in by the Manchester, Yorkshire, Nottingham, Lincolnshire, and other clubs, which could attach themselves to the main body at towns previously determined upon. Thus something attaching the interest created in the 1,000-miles trial would be secured and another demonstration given country people of the reliability of motor-vehicles. It might be worth while for the local officers of the clubs to communicate with Mr. R. J. Smith on the subject.

Horse Lovers and Automobilists.

A VISIT to the Shire Horse Show at the Agricultural Hall last week might, in one respect, be regarded as an anticipation of the Automobile Exhibition in the same place in a few weeks' time. For there were a considerable number of automobilists among the visitors, while on the Thursday Sir James Blyth and other members of the Automobile Club assembled for the annual meeting of the Shire Horse Show. Lord Llangattock was elected president of the Society, thus demonstrating anew the point that has often been emphasised in these columns—viz., that many of the keenest automobilists are friends of the horse.

Horse v. Motor Ambulances.

LONDON is to have its horse-drawn ambulances—provided by an enterprising County Council. The only criticism we have to offer is, that the Council should have first tried a motor-ambulance, so as to have had British evidence of what is a success in the United States. There electrical ambulances are a feature of "first aid" and hospital equipment. When the late President was shot an electrical ambulance was by his side within three or four minutes, and on the occasion of the recent terrible dynamite explosion in New York four such vehicles were on the scene within five minutes. We have been told by an eye-witness of the latter that the behaviour of these mechanically-propelled vehicles was perfect in every way, whereas the horses betrayed such nervousness and excitability in view of the falling brickwork and rubbish-strewn roadways that the injured were in danger of further accident when on the ambulance. The electrical ambulances glided in and out among the groups of people noiselessly and reliably, the absence of vibration and noise having a soothing effect upon the unfortunate victims of the catastrophe. Seeing

that the requirements of ambulances are absence of vibration and reliability in getting over the ground as speedily and as quietly as possible, the electrical ambulance seems to solve the problem in a perfect way. Messrs. Mark Mayhew and J. Williams Benn should urge this point upon their colleagues.

A New American Car.

A CAR of a pattern not before seen in this country put in an appearance at the Automobile Club on Thursday of last week, where it attracted much interest from the many novel points of design contained in it. Though driven by a petrol motor, it could hardly be distinguished from a steam or electric car when running. This vehicle, made by the Olds Motor Company, of Detroit, is at first sight of the usual American design, but on closer inspection proves to have no underframe, the body and mechanism being supported on two lengthy springs which reach from front to rear axle, the latter taking the drive by a central chain from the engine located under the seat. The motor has a single horizontal cylinder, with both valves mechanically actuated, and is apparently of about 4in. bore, with enclosed crank and remarkably massive flywheel outside. Its axle, carrying the speed gear, protrudes at the right side of the car, where it carries a handle in about the position of that on a De Dion voiturette, thus facilitating starting from the seat. Steering is by hinged tiller, a point certainly admitting of improvement.



A GROUP OF WELL-KNOWN MOTORISTS—MESSRS. EDGE, PEARCE, OWERS, CRITCHLEY, CAPT. LLOYD, AND CROMPTON, JUNR.

Driving and Transmission Mechanism.

THIS consists of an epicyclic gear with two brakes and a clutch, giving two speeds and reverse, the whole revolving together on the high speed, which should give a very efficient drive. A lever pivoted near the back of the seat, at the driver's right hand, actuates these in succession when pushed forward, by means of cams, and adjoining it are two small levers for switch and advance sparking. Compression is apparently very high, and is released by a heel-press. A novel point about the engine is that, though devoid of a governor, it is normally throttled, the throttle being opened against a spring by a pedal adjoining that of the brake, much after the manner of driving a Gardner-Serpollet, though the positions of the throttle and brake are reversed. Flanking the cylinder are a tank and carburettor, apparently of a surface pattern, on one side, and a silencer on the other, while a small water-tank lies above, and a centrifugal pump is driven direct from the left end of crank-shaft. Radiators, of rather small size and plain tube, lie underneath the front of car.

The most striking point about the vehicle is the almost absolute silence of its running, which seems hardly sufficiently accounted for by the large, but not obtrusive, silencer, which is furnished with asbestos lagging; and while unable to reconcile ourselves to much that is characteristic of American design, we must admit that the vehicle seems a successful effort after simplicity and "fool-proof" construction.

The Automobile Club.

UNDER the chairmanship of Mr. Roger W. Wallace, K.C., the annual meeting of the Automobile Club was held at the Club-house on Thursday of last week. There was a large attendance of members, and after the adoption of the balance-sheet for the past year and the submission of budgets for the ensuing year the election of the Club Committee took place. The annual report of the Committee recording much activity and a progressive membership having been accepted, the meeting passed to the subject of the proposed new Club-house at 119, Piccadilly, W. The Chairman announced that he had received 794 proxies in favour of the removal, and the necessary financial support was forthcoming, for members had agreed to subscribe for £16,220 worth of debentures in respect of the proposed £15,000 debentures to be issued. Mr. G. Cornwallis-West thought that provision should have been made for the accommodation of efficient repairers on the Club premises, but it was explained that there was a desire to keep clear of all trading competition. After some discussion as to the provision of seats from which to view the Coronation procession, the proposal of the Committee was adopted, and a resolution carried empowering them to make the necessary arrangements for removing from Whitehall to Piccadilly. An extraordinary general meeting was subsequently held, at which various alterations in the rules—some consequent on the foregoing decision—were made.

A WEEK-END AT BEXHILL.

WEEK-END trips are one of the new features of the present day, and the excuse to examine a private road at Bexhill-on-Sea for the purpose of deciding whether it was suitable as a course whereon the Automobile Club could hold a kilometre speed trial was taken advantage of by a number of motorists on Saturday last. The day was one of the worst of the year, and the roads were in a shocking state of grease; indeed, at the start of the run from town it was scarcely possible to steer the car. In going along the Brixton road—which is in a notoriously bad condition—every time the wheels touched a tram-line the car "shied," and evinced a disposition to waltz. We journeyed on a new 12 h.p. M.M.C. car through Tonbridge. Others went *via* Crowborough; but both contingents found the roads in a greasy state, and fast travelling was impossible and dangerous. After a short stop for a light lunch at Tonbridge, we proceeded on our way without incident until between Lamberhurst and Frimwell. We had got half-way down a hill when a perambulator with a child in it was seen stationary in the middle of the roadway. A number of children on either side were picking violets by the side of the road. On hearing the horn the children ran to rescue the child, pulling the perambulator both ways, so that it seemed certain that it would turn over. Our brakes were sharply applied, with the result that we commenced to fly round. The near-side wheels left the ground, and it appeared as if we were going over. The car went completely round twice in its own space, and the third time ran partly round on to the grass; a most unpleasant experience, and one that might have had disastrous results.

Continuing, we shortly afterwards met a village funeral, the coffin being carried in a cart, three villagers walking in their white smocks on either side, the clergyman in front, and the mourners following in the rear. Round the church gate labouring men in their suits of black had congregated, and the sight was altogether a pathetic one in its simplicity. After a short

stoppage at Battle we proceeded on our way, but had not travelled far before a troublesome horse was encountered, and in avoiding this we ran on to some soft ground, where the engine stopped and the wheels began to sink, until ultimately the car sunk nearly to the axle. The engine could not move the car of either with or without our assistance. There was no help for it, the jack was no good, so we proceeded to borrow three palisades from the adjoining fence in order to dig the car out. An hour's hard work with our clumsy implements enabled us to continue on our way, and Bexhill, bathed in sunshine, was reached at 3.30, our car being the first to arrive.

At five o'clock a M.M.C. voiturette, which we had seen at Tonbridge, appeared. Later came Mr. Tinne on a belt-driven Daimler; Captain Locock, on a 10 h.p. Wolseley; and Messrs. Astell and Phillips, on the four-cylindred New Orleans. At 7.20 Messrs. Drake and Gorham arrived on a De Dion, having been on the road since eleven o'clock, ignition troubles having delayed them; Mr. Edge and party arrived shortly after on a 16 h.p. Napier; Mr. H. Du Cros, jun., and Mr. G. Du Cros, both on Panhards; Mrs. Manville on her Gladiator, having driven the car herself all the way from London; and at 9.45 p.m. Mr. Mayhew arrived on the 50 h.p. Napier, having taken nearly seven hours to do the journey. The greasy state of the roads was mainly responsible for the slow travelling. Mr. Kenyon had started and abandoned the journey at Seven-oaks; Mr. Manville had also started on his 18 h.p. Daimler, but finished the journey by train. All had the same tale of greasy roads, and Mr. Astell had a similar experience to our own, through getting on to soft ground. Sunday was brilliantly fine, and after an examination of the track the party broke up, some going to Eastbourne, others London, others, like ourselves, to Worthing, where we were hospitably entertained at Warne's Hotel, which, apparently, is the great meeting-place for motorists on the south coast. Mr. Warne, in addition to a first-class hotel, has a fine garage, workshop, etc., and keeps a repairer on the premises. At one time there were seven cars in front of the hotel, including a Lanchester and a Teras.

On Monday we returned to town *via* Brighton and Reigate, having had a delightful trip, the car having run beautifully and tire troubles being absent.

A BALLOON race for English aeronauts is being informally talked of by members of the Aero Club.

AFTER the House Dinner of the Automobile Club on Wednesday evening next, Professor Hele-Shaw will read a paper on "Roller Bearings."

MR. E. SHRAPNELL SMITH is taking steps to arrange an Easter tour with a rendezvous at some point in the Midlands, and with this object is communicating with the hon. secretaries of the several centres of the Automobile Club, also with the parent body. A joint conference will probably be held in Manchester one day next week to consider the matter.

THE first annual dinner of the works employees of the Locomobile Company was held on Saturday last, at the Horse Shoe Hotel, Tottenham Court Road, W. The foreman, Mr. L. D. Ledbetter, was in the chair, and was supported in the vice-chair by Mr. C. Kimber. Mr. E. W. Stevens, the works manager, and Mr. W. M. Letts were present as guests. During the evening a testimonial was presented to Mr. E. W. Stevens on his retirement from the London works to New York, on account of his health. This consisted of a handsomely bound edition of Shakespeare's Works, and was made on behalf of the employees by Mr. A. Haswell. Mr. Stevens returned thanks in characteristic fashion. Mr. Letts proposed the health of the employees, and was full of confidence when he was speaking of the company's forthcoming improvements at Sussex Place, his remarks being received with much enthusiasm. Other toasts were given, and received their due share of attention; some capital songs were sung, and this, the first social function, was a huge success. The chairman was the recipient, at the hands of Mr. B. Paddon, of a handsome watch, suitably inscribed, as a "Token of esteem from the works employees to their foreman, Mr. L. D. Ledbetter."

The 1902 Benz Cars.

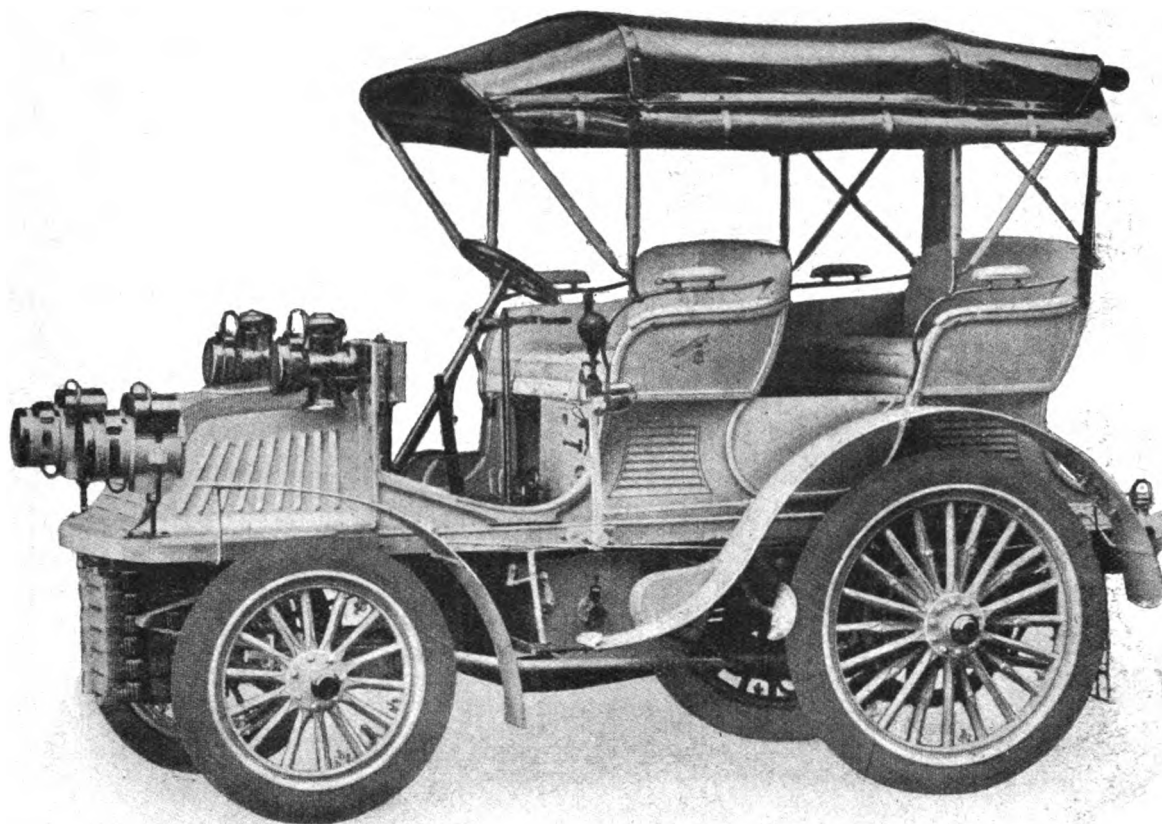


FIG. 1.—THE BENZ 20-H.P. DOUBLE PHAETON.

MESSRS. BENZ AND COMPANY, of Mannheim, who were among the first, if not absolutely the first firm, to take up the construction of motor-cars on a commercial scale, have recently so improved their vehicles that there is little or no resemblance between the latest types and the little cars which played so great a part in the early days of the automobile movement in this country. Hitherto the engine in Benz cars has always been located in the rear part of the frame. Consequently the placing of the motor under a bonnet in the fore part, as is done in the 1902 models, must be considered a radical departure. Of light cars, two are being made with seating capacity for two and four persons respectively, each being fitted with a single-cylinder engine of from 5 to 6 h.p. In touring cars, four standard types are being turned out, fitted with two-cylinder horizontal engines of respectively 10 h.p., 12 h.p., 15 h.p., and 20 h.p. The accompanying illustration (Fig. 1) shows one of the latest 20-h.p. touring phaetons with American buggy top, while Fig. 2 (on page 11) depicts the 10-h.p. tonneau. The general arrangement of the heavier class of cars is identical, the only difference being the use of larger engines, with proportionately stronger transmission mechanism and longer frames, so that one description will suffice.

To begin with the frame, this is constructed of steel and wood, supported on artillery-type road wheels by strong springs. The engine comprises two cylinders set opposite to one another, so that the connecting rods work on to a central enclosed crank-shaft. The engine, which runs at a normal speed of 600 revolutions per minute, is provided with electrical ignition, the tremblers being fitted on the induction coils, of which there are two, one for each cylinder. The water circulation for the cooling of the motor is maintained by a radiating coil and pump, the latter being

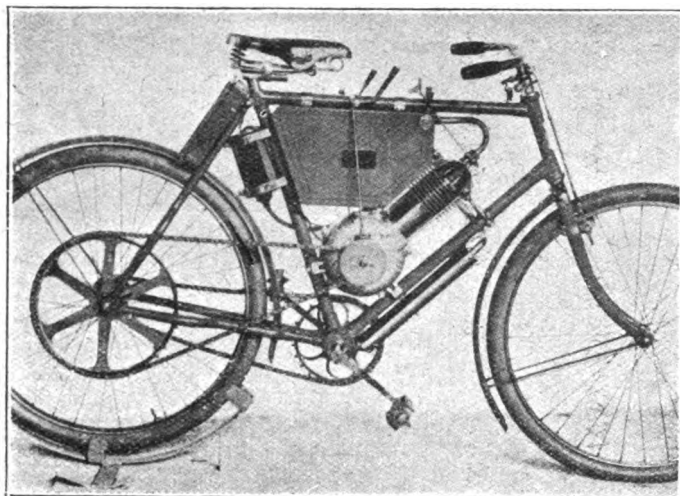
driven by a friction-wheel bearing on the fly-wheel. A float-feed type of carburettor is used, the supply of gas, and consequently the speed of the motor, being controlled by a throttle-lever near the driver's hand.

Passing now to the transmission mechanism, Messrs. Benz still retain a single straight belt to connect the motor with the change-gear shaft, the latter carrying fast and loose pulleys as well as a train of sliding spur-wheels, any one of which can be made to mesh with corresponding pinions on the differential-shaft. From the latter, the usual duplicate pair of chains and chain-wheels convey the power to the rear road wheels. Four speeds forward and a reverse motion are provided, controlled by two levers, arranged at the side of the inclined steering column. The driver has three pedals at his command—one shifts the belt on and off the fast pulleys, thus disconnecting the engine as on clutch-operated cars; another actuates a double-acting band-brake on the counter-shaft, while the third works in conjunction with a hand lever at the side of the car, and applies band-brakes on the hubs of each of the rear road-wheels, and at the same time shifts the driving-belt on to the loose pulley. Thus the driver can apply the wheel brakes and disconnect the engine either by the hand or foot, whichever he finds most convenient. Special attention has been paid to the question of lubrication, a series of oilers being fitted on the dashboard. The vehicles can attain a maximum speed of 28 miles per hour in the case of the 10 h.p., and from 42 to 44 miles as regards the 20 h.p., and, the road wheels being shod with large pneumatic tires, are very easy riding. The 10-h.p. car weighs about 15 cwt., the weight of the 20-h.p. phaeton, illustrated in Fig. 1, coming out at 21 cwts. Altogether the new Benz cars are a marked improvement in design, and are likely to be seen on the roads in large numbers.

during the coming season. Messrs. Hewetson's, Limited, are, of course, the sole British agents, and have already got several of the 1902 models on view in their extensive showrooms in Tottenham Court Road, London, W.

THE BRUNEAU MOTOR BICYCLE.

WE are this week able to give an illustration of the motor-bicycle which has lately been put on the market by Messrs. Bruneau and Co., of Rue Victor Hugo, Tours, France, which has come into prominence by reason of the fact that it secured the first place in the category of light motor-bicycles in the recent Criterium race in France. The frame of the machine follows the ordinary lines of the safety bicycle, but is of specially strong construction to withstand the strains set up by the motor. The latter is of the air-cooled type, and has a cylinder 63 mm. stroke. The normal speed of the engine is



1,800 revolutions per minute, and at this rate it is stated to develop $1\frac{1}{2}$ h.p. It will be noticed that the radiating fins only extend around the upper portion of the cylinder. The crank chamber is made of aluminium, and its exterior surface is so turned that there are no projecting corners to trouble the rider. From the motor the power is transmitted to the rear wheel by means of a strong chain, the usual pedals, chain drive, and free wheel clutch being provided to start the machine, and also to assist it up steep grades. A novel arrangement is found in connection with the pedals, in conjunction with which a special ratchet arrangement is fitted to enable the two cranks to be brought into the same plane, and thus serve as foot-rests when travelling along level country roads. The machine is fitted with a front rim brake operated by a lever on the handle-bar, and this is so arranged that when the brake is applied the electrical circuit is broken. The road wheels are 26 inches in diameter, shod with $1\frac{1}{2}$ in. pneumatic tires, the weight of the machine complete being about 77 lbs. At the recent exhibition in Paris Messrs. Bruneau exhibited a machine of the type illustrated, which bore a card bearing the legend "Sold to the Sultan of Morocco."

WE understand that the price of the 12 h.p. Belsize car has been increased, and that so many orders have been received by Messrs. Marshall and Company that they have been compelled to put on a night set of workmen to cope with the demand.

So active is the demand for motor-vehicles at Liverpool that the British and Foreign Motor-Car Company, Limited, of 27, Islington, Liverpool, inform us that they are now requiring three weeks' notice instead of the immediate delivery of cars.

FLOTSAM AND JETSAM.

BY FLANEUR.

THE bread which the Automobile Club cast upon the waters by its County Council campaign of last year is, indeed, returning in full measure. Among other successes, we have seen how the very Council with which the absurd "ten miles-an-hour" system had its origin has had the grace to cry "peccavi," and the County Councils' Association itself has demanded the abolition of any speed limitations at all. That, of course, being the expressed desire of a body representing all the County Councils, might legitimately be regarded as a final and comprehensive statement of the average councillor's position. But the subject still crops up occasionally at the deliberations of individual Councils, and in this connection the recommendations at the last meeting of the Buckinghamshire Council may be noted with interest.

BUCKINGHAMSHIRE has never been capable of being accused of overweening sympathy with the automobilist. Was it not at Beaconsfield that the gentle tactics of placing a scaffold pole across the road were adopted by the police? Was it not the Chief Constable of that county who attempted to introduce a new species of inquisition, by instructing the constables in his district to call on every local automobilist and obtain full particulars of the power and speed of his car? The County Council itself, too, if I recollect aright, showed itself to be among the ranks of the actively hostile towards automobilism. But what is the position now?

THE special committee appointed to consider and report upon the question of regulations for motor-cars have recommended. "(1) That the statutory limit of speed should be abolished; (2) that some efficient means should be prescribed whereby any motor-car or its owner could be easily identified; and (3) that the existing regulation requiring the person driving or in charge of a motor-car to stop should be amended so as to provide that where the request or signal to stop is made by a policeman he *must be in uniform.*" The italics are mine. Now it will be noticed that the first and third clauses are just what the automobilist desires, and it is particularly satisfactory that the folly of expecting him to stop for a policeman in plain clothes should have been recognised, even by outsiders.

As regards the matter of identification, it is, of course, well known to all the readers of this *Journal* that the Automobile Club will not oppose any practicable scheme. The difficulty is to find one meriting that description. In the opinion of the Buckinghamshire Committee, a general scheme of registration should be adopted throughout the country, with a separate letter for each county, and numbering to be carried out under that letter. The numbers, they consider, should be inscribed in the German fashion on both sides of a metal *plaque* fixed in front of the vehicle, and a duplicate should be carried in the rear; but they add "or that some other approved method might be adopted distinguishable by day or night."

THE members of the committee, I fear, were somewhat at sea when they drafted the second proviso, and, indeed, the Council, by a majority, referred the recommendations back because they were not sufficiently explicit as to the identification clause. A projecting *plaque* would only be visible to anyone at the side of a car, and would be no use as a means of identifying one that failed to stop when called upon. From the police point of view, it is obviously better to have numbers across the back and front of the car, not parallel to its direction; in the latter event, too, they would probably get knocked off at some time or other. But numbering of any kind is hedged around with practical difficulties, and the President of the Local Government Board himself has confessed his inability to devise a workable scheme, and is much more inclined to favour an increase in the powers

of the police. Nevertheless, the terms of the committee's recommendations are, on the whole, decidedly indicative of more enlightened views than formerly prevailed in that locality.

THE plea which a daily paper has set up in favour of the motor-quadricycle is not altogether easy to endorse. It is true that this type of vehicle has been materially improved, but its ultimate popularity is by no means assured. The original patterns, of course, were the most unmechanical abortions the automobile movement has yet produced: a 2½-h.p. engine was expected to carry two people up all hills, despite the fact of the machine having only a single speed. Between two and three years ago I bought one of these machines, but six months of it was all I could stand. I put more concentrated effort into driving that "quad" than I had ever done before, have since done, or hope to do in future; and in my time I have not been altogether idle, for I have probably ridden as far in a day on a bicycle as any non-athletic tourist—two hundred miles, to wit, in twenty-one hours, on two occasions.

engine. But though these newer factors would remove many of the disabilities under which I laboured on the 2½-h.p. pattern, the machine is still, I think, not to be compared, except in speed, with a voiturette at a trifling extra cost. The side by side position of the passengers in the car is more sociable than the tandem seating of the "quad," and is infinitely more comfortable, to boot. Owing to its lightness, the front passenger of a "quad" is jolted considerably on rough ground, while, as I found to my cost, the driver occasionally "ricks" his side severely when one wheel goes over a hummock and the other does not. I never could understand why this should be so trying, especially if driving alone without any weight in front, until I watched a "quad" owner who passed my gate a few days ago and bumped his rear driving wheel over a brick. The trunk of his body remained vertical, but the machine was tilted up on one side, and compressed the saddle springs also on one side. Now, on a car seat he would either have been jolted upwards, or his body would have departed from the perpendicular just at much as the axle was tipped up.



THE JAMES AND BROWNE 8-H.P. CAR (see page 11).

YET this was child's play to plugging uphill on a soddened surface, with an air-cooled motor, the efficiency of which decreased in inverse ratio to the work it was called upon to do. Times without number one found oneself on a hill that must be surmounted by motor-power and leg-power combined, if possible, or else one was obliged to dismount and shove the unwieldy beast by hand. Consequently one exerted every effort to keep the motor going, and the last few yards generally meant a superhuman struggle, resulting more than once in a severe strain; and not having the heart or muscles of a Sandow, I sought consolation in a car instead, which has proved a more satisfactory article. My quadricycle experiences provided more interesting incidents and situations than I have ever known on a car, and though, of course, the former was comparatively easy to move when disabled, I would not willingly go through those experiences again.

As for the improved type of quadricycle, it is a very different article, I admit, as regards reliability and power: what with its larger motor, water-cooling, a two-speed gear, and even a free

riding on a saddle is quite different, and the compression of the side when one wheel rises is sometimes extremely painful. When one considers the price of a "quad" with water-cooling and other modern improvements, and compares it with, say, a 5 h.p. Peugeot voiturette at £155, the argument is all in favour of the car. The arguments in favour of the quadricycle have never been elaborated, it is true, so far as its latest patterns are concerned, and at one time I myself thought that there might be a revival of interest in the lowly vehicle; but I would seriously counsel all who contemplate an expenditure in the neighbourhood of £150 to take stock of the small cars available before coming to a decision.

THE Nuremberg Motorfahrzeug Fabrik "Union" of Nuremberg, Germany, have sent us a catalogue of the Maurer-Union cars, the feature of which appears to lie in the transmission mechanism. A friction disc is carried on the end of the motor-shaft, any desired speed being obtained by varying the position of a sliding friction wheel on a cross-shaft.

THE WEBER PETROL CAR.

THE illustration (Fig. 3) shows a new petroleum-spirit motor-car that has lately been put on the market by Messrs. J. Weber and Co., of the Ateliers de Construction Mecanique at Uster, near Zurich, Switzerland. The motive power is supplied by an engine of 6 h.p., fitted with electrical ignition and a special method of releasing the compression at starting. The explosion and valve chambers are cast in one

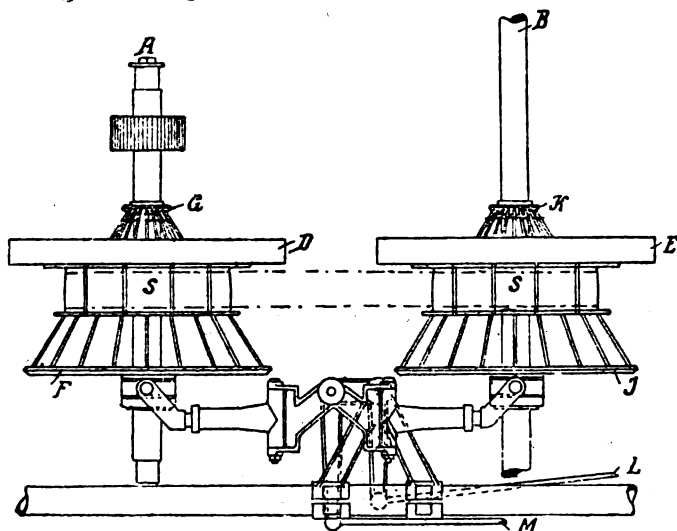


FIG. 1.

piece, while the valves are made of a special quality of nickel, said to be unaffected by heat. The cylinder is water-jacketed, a new form of radiator being used in connection therewith. The chief feature of novelty in the new car is the variable-speed gear with which it is fitted, details of which are given in Figs. 1 and 2. In these, B is an extension of the engine shaft, while A is a counter shaft which is geared to the rear axle by pinion wheels. The two shafts, A and B, are connected by a single belt. Fixed on these shafts are discs, D and E, the faces of which are provided with a number of grooves in which the segments, S, can slide.

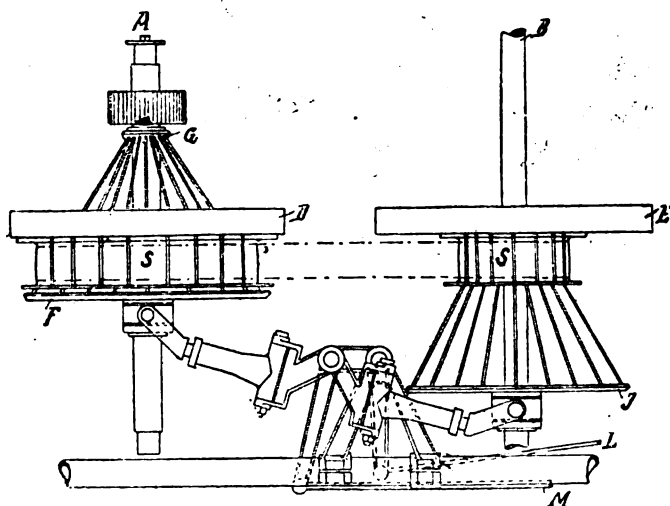


FIG. 2.

On each of the shafts are cones, FG and JK, free to move along the same. The cones are also connected up to the segments in such a way that as the cones are moved on the shaft one way or the other, the segments form a pulley of varying diameter. A single lever within easy reach of the driver controls the gear. Referring to Fig. 2, by pushing back the lever, L, the cone, FG, is moved toward the disc, D, and the segments, S, expand; at the same time and in the same proportion, the cone, JK, is moved

away from the disc, E, and the segments contracted. By the expansion and contraction of the pulleys any desired rate of speed can be obtained. A second lever, M, is provided, which acts only on one of the cones, tightening and slackening the belt as desired, thus serving the purpose of a friction clutch. A special type of Crypto hill-climbing gear is also provided, while the reverse

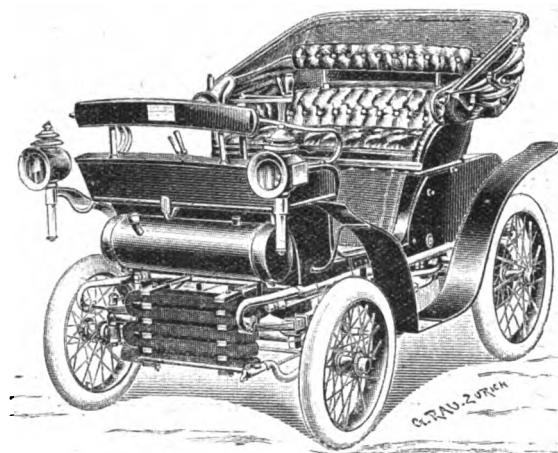


FIG. 3.—THE WEBER 6-H.P. CAR.

motion is obtained by means of a friction pulley which can, by a pedal, be interposed between the two expanding pulleys. Ball bearings are fitted to the shafts and also to the road wheels; the latter are of the cycle type, shod with pneumatic tires. The car, which weighs about 13 cwt., can, it is claimed, ascend gradients of one in five, with four persons up.

MESSRS. TRENT AND COMPANY, 199, Wells Road, Shepherd's Bush, W., have issued a neat price list of castings, parts and accessories of motor-bicycles.

A NEW catalogue of Ivel motor-bicycles has been issued by Mr. Dan Albone, of Biggleswade. It includes some delightful little views of scenes in the locality of the works.

MR. G. CALVERT, of Woodville Road, London, N., has been making some experiments with water-cooled bicycle-motors, and has arranged to introduce one having a cylinder 3 in. diameter by 2½ in. stroke at an early date.

THE Star Omnibus Company (London) is watching the developments of mechanical traction, and is anxious to obtain a successful motor-omnibus to replace horse-power. But the chairman says the directors have not yet seen a vehicle that accords with their ideas of what is wanted.

SPEAKING at the annual meeting of the Hart Accumulator Company, the chairman, Mr. G. W. Kidd, said the company was preparing to go into motor-car work, and the manager had designed a plate which he anticipated would be very useful in that connection. It was claimed to be of great electrical efficiency with reduced weight.

A FIRM of New York architects have put up a block of stables for automobiles, each of which is 18 feet in width and 64 feet in depth. On the ground floor each stable will have accommodation for six or seven cars; on the first floor will be reception rooms for the owner, and on the third storey rooms for the accommodation of the mechanic will be provided.

THE twelve cars which the Motor Manufacturing Company are sending to South Africa are being fitted with the Sirdar Rubber Company's patent buffer tires, similar to those which are being used in connection with Messrs. Thornycroft's 5-ton steam 'buses. The company's 2½ in. tires are being fitted on the Napier, Wolseley, Daimler, and other cars, the flat-top section being preferred in England. In Ireland nearly all the cars using these tires have been fitted with the 2½ in. conical section, which shoots away stones which might otherwise cut the rubber.

CONTINENTAL NOTES.

By "AUTOMAN."

THE French Government killed road-racing last year, and vowed that it should cease to exist in France, and all the Press (save the technical journals) joined in a funeral dirge with "variations." So certain did it seem that the death sentence had been passed that even the most sanguine in the automobile world had no hope. I remember a conversation I had with the Baron von Zuylen on the race-course at Berlin, whilst we were waiting for Fournier to arrive, and the talk so impressed me that I headed my article for the next issue of the *Journal* "The Last Great Motor Car Race." Fortunately, later reflection caused the striking out of this title. The same Government that less than a year ago killed road-racing has now officially brought it to life again, not only by sanctioning it, but by actually organising and promoting it. It has been, of course, on the *tapis* for some time, but it is now official, and it is surely curious reading to hear of two Government commissioners setting out to choose the routes and interview the authorities. The race is to take place in May in two sections, a racing section and a tourist section. The course will be altogether 910 kilometres (564 miles) in two stages for the racing section, and in three stages for the tourist section, over the northern roads from Paris to Arras, and thence by Doullens to Boulogne and Dieppe and back to Saint Germain. There will also be a heavy traction competition.

ROAD-RACING brings me to speak of the letter of Mr. H. A. Hector in the last week's issue of the *Journal*. Mr. Hector accuses me of "trying to throw discredit on English manufacturers," and I should not deem it necessary to reply to such a criticism, except that Mr. Hector has not followed the continual drift of my notes on this subject, nor has he noticed my oft-repeated advice to English manufacturers to come into the French racing field, and prove their equality or superiority. I should not allow myself to be dragged into a controversy as to the relative merits of the Napier or the new 20-h.p. Wolseley as compared to French cars for many reasons; but until these or any other English cars have equalled or beaten French cars in the great international races you will never get anyone outside England to believe it, and you will have a large section also in England who do not believe it until it is proved, and when it is proved one or two good results will occur: either the superior English car will get an export demand which will largely increase its sale, or the maker will have learned something valuable, and will go home and make a car to better compete with his French rival.

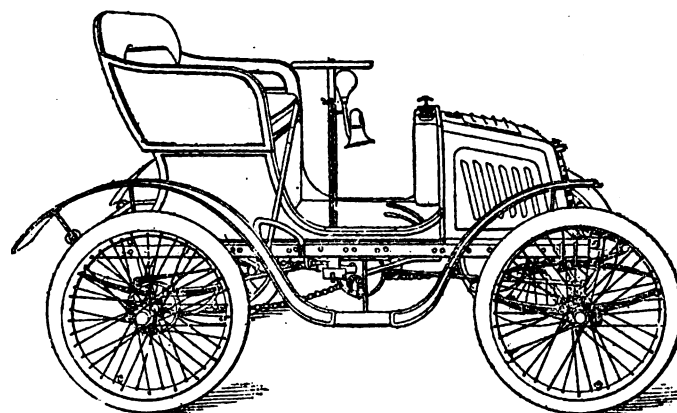
THIS, however, reminds me of an actual conversation I had some weeks ago with a typical English manufacturer of motor-cars. He was extolling the virtues of his new production, and he told me it was a better hill climber than any French car. I said I was glad to hear it, but I asked him how he knew it. He replied that he had been up to the "Cat and Fiddle," in Derbyshire, and it climbed the hill "like the wind." In further conversation he admitted that he had neither timed, nor measured, did not know the gradient, and had not tested the car against any other over the same course. Let someone who wants to encourage English trade offer a handsome annual money prize for the English car which wins in an international competition, and a new era for the English trade will quickly open up.

AMONGST the exhibits at the Paris Automobile Exhibition there appeared a car with a change of speed accomplished by means of expanding pulleys on the "Fouillaron" system. I confess that I looked on it more in the light of a curiosity than anything else, or within the range of practical politics. A car, however, with this system of change of speed has just accomplished a tour of 4,000 kilometres in fifteen days (about 165 miles per day) over muddy roads, and in the snow. The motor was an 8-h.p. De Dion, and there were two passengers. This car will figure in several

prospective competitions, so that the public will shortly be able to judge definitely of the efficiency of the new system.

M. MOSER, the Commissioner-general for the Government of Bosnia and Herzegovina, has issued through the *Auto-Velo* an invitation to the competitors in the Paris-Vienna motor-car race to visit his country as a kind of prolongation of the route. M. Moser has spent the greater part of his life in exploring Eastern Europe and Asia, and has written a very interesting book on the subject of the communications by land and water, and in a conversation with him the other day he assured me that, in his opinion, the automobile would shortly open up to the European public the vast resources and the beauties of these almost inaccessible and unknown regions. I allude, of course, to the Far East, for of course Bosnia and Herzegovina are comparatively known and easily reached by rail. In order to facilitate a visit to these countries it is proposed to take *chauffeurs* and motor-cars by train over the uninteresting part of the journey from Vienna. The proposition is being seriously considered by the Austrian Automobile Club.

LA Société de Construction de Moteurs et Automobiles la Minerve, Rue du Point du Jour, Billancourt, Seine, exhibited at the recent Paris Automobile Show, a voiturette driven by a 3½ h.p. vertical single-cylinder motor fitted with Longuemare carburettor and water circulation. The transmission is by chain from the crank shaft to the countershaft, and from thence by another chain to the driving axle. The feature of this system is the two-speed gear provided, which consists of an arrangement of



satellite pinions in drums, so that by putting the brake on one drum the high speed pinion is carried round, while when released the shaft revolves on the lower speed. The accompanying illustration shows an outline of the car, which is marketed at a popular price.

THE French Aero Club is seeking official permission to put down a plant at its park at Suresnes, near Paris, for the manufacture and storage of the hydrogen necessary for the inflation of balloons.

THE Paris Singer Electric Carriage Company, Limited, has been formed in London with a capital of £5,000 to manufacture, sell, and let on hire electric carriages, launches, flying machines, and their parts and accessories, etc.

At a meeting of the Academy of Sciences recently held in Paris, M. Soret reported some cases of fracture of the forearm caused by starting a motor-car. In one case there was a direct fracture at the junction of the lower and middle third of the radius owing to the blow of the crank handle on the external anterior face of the forearm, while at the same time the hand was forcibly extended. Contemporaneously the styloid process of the ulna was torn off. There was thus a direct fracture of the radial diaphysis and an indirect fracture of the lower ulnar epiphysis. There was no obvious deformity of the forearm, as the shaft of the ulna, which was intact, served as a splint to the radius.

THE CARLTON COMBINATION CARBURETTOR AND INLET VALVE.

IN a recent issue a brief reference was made to a novel combination of carburettor and inlet valve for petroleum-spirit motors that we had been shown. The apparatus, which has been designed by Mr. A. Gower, of the Carlton



FIG. 1.



FIG. 2.

Motor Company, of Cricklewood, is now being put on the market. Fig. 2 gives a general view and Fig. 3 a section (full-size) of the combination as adapted for use on a

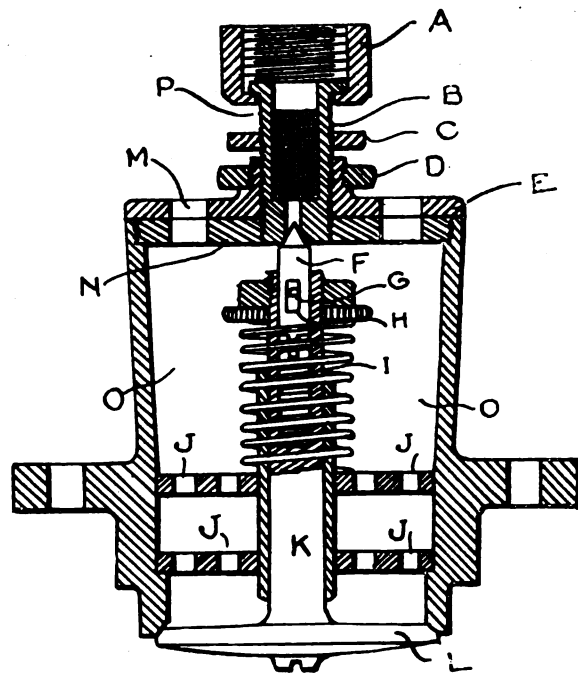


FIG. 3 SECTION.

- | | |
|------------------------------|---|
| A. Union. | H. Slot through Valve Stem. |
| B. Adjustable Seating. | I. Spring to keep Needle Valve against Seating. |
| C. Needle Valve. | J. Atomisers or Baffle Plates. |
| D. Lock-nuts. | K. Valve Stem. |
| E. Air Adjusting Disc. | L. Valve. |
| F. Needle Valve. | P. Filtering Gauze. |
| G. Pin through Needle Valve. | |

4½-h.p. high-speed motor. As will be seen, the device consists of a casing within which the inlet valve is adapted to slide and to make a joint on the seating provided at its

lower end. Just above the inlet valve a series of perforated diaphragms are arranged and adapted to act as baffles or atomisers. At the upper end of the valve stem a small needle valve is inserted so as to slide axially therein, it being kept in an outward position by a small spiral spring, its range of movement being controlled by a small pin inserted through the needle valve, and a slot in the stem of the inlet valve upon the uppermost diaphragm. The inlet valve is kept closed by a spiral spring outside the valve stem, on its uppermost diaphragm. Just above the needle valve is a valve seat formed at the end of the communicating pipe from the petrol tank. This seating is made adjustable to and from the needle valve, so that by the action of the spring the needle valve may be timed to open more or less later than the inlet valve, in order to regulate the character of the explosive mixture. At the upper part of the casing a perforated cap is fitted, and above this cap a rotating plate is provided, also perforated, the perforations being arranged to coincide with each in one position, and to be eclipsed by the intervening metal in the other position. The object of this arrangement is to regulate the amount of air drawn in at each stroke, and the suction for any given amount also affects the amount of liquid or gaseous fuel drawn in by such suction, a matter quite apart from the adjustment of the needle valve. A dust cap is fitted over the perforated cap so as to prevent dust being drawn into the engine. The gas inlet passage just about the seating of the needle valve is packed with a filtering material, such as wire gauze, to prevent any solid matter getting down to block the needle valve. The baffles or atomisers being made in such a manner, that, when the suction takes place, the explosive mixture is given a twist in its passage, and the liquid is broken up into such a fine spray against the atomisers that it becomes a vapour, and therefore a perfect mixture, the carburettor being combined with the inlet valve, is kept warm by the engine, this preventing any possibility of freezing in cold weather. We understand that this carburettor has been tried with petrol, alcohol, paraffin, and town gas with equal success, without any alteration of adjustment from that set for the first material used. The combination is being made in various sizes, Fig. 1 showing (actual size) a similar arrangement adapted for small engines of from 1½ h.p. to 2½ h.p. It is undoubtedly an ingenious and compact device, and if the claims made for it are fully borne out in practice it should meet with a large adoption.

THE Mid-European Motor-Wagon Association has extended its field of action to include motor navigation and aeronautics.

Automobile Topics, of New York, gives publicity to a report that the works at Marion, N.J., of the Automobile Company of America, have been sold to the Cannstatt-Daimler Company, of Cannstatt, Germany. It is said to be the intention of the German company to use the plant for the manufacture in America of automobiles of the Mercedes type.

PROFESSOR ELIHU THOMSON, of Swampscott, Mass., has been granted a patent on an ignition tube made of quartz. The quartz, which is fused at high temperature, possesses, it is claimed, certain very desirable qualities. It will stand to be heated red hot and plunged into water without breaking, on account of its low coefficient of expansion.

A SPECIAL reel for carrying a length of water-tank filling hose-pipe in a non-conspicuous position on steam cars has just been introduced by the Mason Regulator Company, of Boston, U.S.A. The reel consists of a cylindrical case 12 in. in diameter by ½ in. in thickness, adapted to be screwed underneath the bottom of the car, and holds 10 ft. of suction hose. The inner end of the hose is permanently connected to a revolving disc, which is in turn connected through a stuffing box by a pipe which attaches to an ejector leading to the water tank. To fill the tank, the hose is pulled out as far as necessary to reach the water supply, and steam is turned on the ejector. When the tank is filled steam is turned off, and the hose is wound up by turning handles on the bottom of the case.

HERE AND THERE.

MR. ROWLAND WINN lectured on "Motor-Car Driving" at the monthly meeting of the Leeds Association of Engineers last week.

A NEW folding stand for motor-bicycles has just been put on the market by Mr. W. Quibell, of 344, West Green Road, London, N.

A PROPOSAL by Mr. T. W. J. Britten that a motor-bicycle championship should be added to the Union list of honours is to be considered by the N.C.U.

It is rumoured that the policeman at one of the villages on the North Road, who has become so well-known to motorists, has been removed to another place.

MESSRS. T. COULTHARD AND CO., of Preston, have lately turned out a steam overhead wire inspection car for the Liverpool Corporation Tramways Department.

THE Scottish Automobile Club was to be afforded pleasure on Thursday, by the reading of a paper on "Experiences and Adventures," by the Lord Justice Clerk.

MESSRS. E. J. MORANT AND H. M. DENT are giving a luncheon to-day (Saturday) at the Crown Hotel, Lyndhurst, to celebrate the opening of their Imperial Motor and Cycle Works, Lyndhurst, Hampshire.

MR. E. W. WATSON, of Berwickshire, asserts his ability to carry forty-nine passengers in a navigable balloon, for which he has applied for letters patent, across either of the great continents, under any atmospheric conditions.

THE Electric Landauet Company, Limited, has been registered with a capital of £50,000, to manufacture, let on hire, maintain, keep in repair, clean, house, and generally to act as job masters in connection with vehicles driven by "human, animal, electric, hydraulic, or other power."

THE United Motor Industries, Limited, have decided to revert to their original practice, and supply only for cash, a decision which, we are informed, places them in a position to allow to the public no less than 10 per cent. off their list prices.

MR. F. BARON, A.M.I.M.E., of the Motor Haulage Company, of Manchester, has been appointed sole representative for the Chatel-Jeannin cars, described in our last issue, for Lancashire, Cheshire, Staffordshire, Hampshire, Hertfordshire, Surrey, and Middlesex.

MESSRS. BRAMPTON BROS., LTD., Birmingham, have sent us a copy of a reference sheet of their cutters for the milling of chain wheels for motor-cars. The cutters are made in a variety of sizes, and the sheet, which is mounted on linen, should be found useful by all builders of automobiles.

FOR some time past Algeria has been a happy hunting ground for large numbers of French and Belgian motoring tourists. With the view of furthering the movement it is now proposed to form the North African Automobile Club, with headquarters at Algiers.

MESSRS. W. J. BISHOP AND COMPANY, of 88, George Street, Croydon, are making a speciality of portable accumulators for

ignition purposes. They are specially intended to stand vibration without detriment, and, having terminals raised on insulating washers to prevent corrosion, seem well adapted for the purpose.

THE wholesale catalogue of Messrs. J. Lucas, Limited, of Birmingham, for 1902 has just been issued. Lucas's "Motoralities" include lamps, motor-cycle lamps, back lights, lamp brackets, horns, pumps, wrenches, valves, jacks, etc. Included in the lists are particulars of the firm's motor outfits for repairing detachable pneumatic tires. A small edition of the price-list is also issued in a very handy form.

THE New Rossleigh Cycle and Motor Company, Limited, have purchased the buildings, works, plant, stock, and goodwill of the Scottish Motor Company, at Hope Crescent, Edinburgh. The company will cater for all branches of the motor trade. The public service of cars will be extended, and in addition to the sale of cars and motor accessories, and of private hiring, an efficient staff of repairers will always be in attendance.

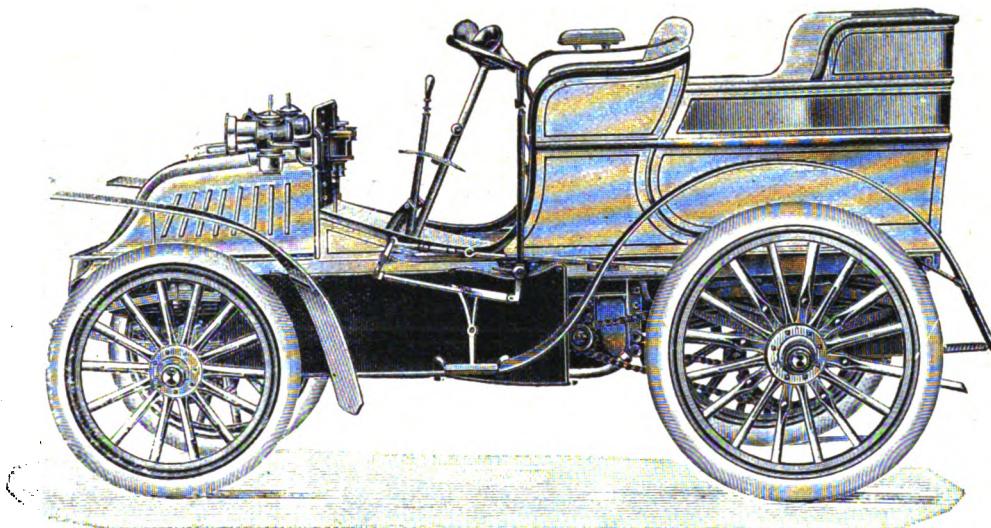
THE following from the *Daily Telegraph* will amuse some, and hurt none, of our readers:—"The motor industry shows a further tendency towards commodious and powerful cars on the one hand and cycles simply fitted with motors on the other. A decided reaction has set in against the fitting of cheap foreign motors, and manufacturers are finding out they can make the engines themselves with far more satisfactory results."

THERE are probably as many accidents due to people who drive horses or ride cycles without sufficient caution as to those who are in control of motor-cars, says the *Morning Leader*. And such accidents as do occur are more often due to the recklessness of drivers—who would have no difficulty in qualifying for a licence—than to the incompetence of beginners; so

that the plan suggested by Mr. Henniker Heaton, M.P., would be futile.

AN advance list of ball bearings for automobiles has been forwarded by the American Ball Bearing Company, of Cleveland, Ohio. This company owns the Baker patents on anti-friction ball bearings, and it is pointed out that all the parts are made on the interchangeable system. Attention may well be drawn to the self-aligning "motor bearings" for electric vehicles, which secure efficiency without the scrupulous carefulness that is ordinarily required. Self-aligning bearings are also specially designed for use on the rear axle of motor-cars, and are particularly intended for the tubular axle construction with bearings at each end.

ON page 7 we give a reproduction of a photograph of the new car recently introduced by Messrs. James and Browne, of Queen Street, Hammersmith, and which attracted much attention in the last Southsea run. The vehicle, mechanically speaking, is on original lines throughout. The motor is of 8 h.p., and comprises two horizontal water-cooled cylinders, the fly-wheel being set in the centre of the frame, with a movement in the same direction as that of the car. Four speeds are fitted, actuated by one lever, and the gear wheels are exceptionally large and strong, the teeth being $1\frac{1}{2}$ in. wide. Special attention has been devoted to the question of lubrication and brake power. The internal brakes on the rear wheels were described and illustrated in our issue of February 22nd last.



THE BENZ 10-H.P. TONNEAU (see page 5).

MOTOR-VEHICLE REGULATIONS.

THE General Council of the Automobile Club has issued a statement with regard to (a) the restrictions as to speed in respect of light motor-vehicles; (b) the restrictions as to tare weight and the width of heavy vehicles used for commercial purposes, from which we take the following extracts:—

"We agree with Rt. Hon. Lord Thring, K.C.B., in the opinion which he expressed that there is no worse law than a law which is not respected. In view of the powerful brakes with which all motor-vehicles are fitted, and the perfect control which drivers have over motor-vehicles, it is evident that the existing law which provides that even on a clear, straight road, devoid of traffic, a light motor-vehicle must not be driven at a speed greater than twelve miles an hour, does not command, and cannot command, respect or observance.

"Careful observations made in our big cities and their suburbs show that electric and steam tramcars are driven at speeds up to eighteen miles per hour. Recent experiments have shown that motor-vehicles can be stopped on the flat on a fairly dry road when travelling at the undermentioned speeds, as follows:—

From 11 to 14 miles per hour in $1\frac{1}{2}$ times the car's length.

From 15 to 17 miles per hour in twice the car's length.

From 18 to 20 miles per hour in $2\frac{1}{2}$ times the car's length.

From 20 to 24 miles per hour in $3\frac{1}{2}$ times the car's length.

"The figures given are averages. As a matter of fact, one car travelling at 13 miles per hour was stopped in 4 yards; another travelling at $18\frac{1}{2}$ miles an hour was stopped in 7 yards, and another when going at 20 miles an hour was stopped in $12\frac{2}{3}$ yards. The average weight of the vehicles, without passengers, was one ton four hundredweight. From these results it will be seen that motor-cars can, on an average, be stopped when travelling at 20 miles an hour in less distance than the ordinary horse vehicle could be stopped when travelling at 10 miles per hour.

"The law, therefore, which prohibits travel on light motor-vehicles at a speed in excess of 12 miles per hour under any circumstances, and the systematic prosecutions and heavy fines imposed for technical offences against this law, cannot but fail to damage in this country an industry which is encouraged on the Continent and in the United States of America, and which, if unencumbered by unnecessary legislation, should provide in this Kingdom work at good wages for many thousands of men.

"First, we claim that the specific speed-limit imposed under the Act of 1896 should be removed; secondly, that provided the existing speed-limit be abolished, and that only such restrictions are placed on motor-vehicles as may be reasonable and proper for the safety of other users of the road, the proviso of the County Councils' Association, viz., 'that there should be an easy and complete means of identification,' is one to recommend itself to all drivers of motor-vehicles, with perhaps the possible exception of cars which are not capable of being driven at any except slow speeds.

"The Act contains oppressive restrictions for which no rational justification exists in regard to the tare weight and width of another class of vehicles—the motor-wagon for conveying heavy goods—the development of which manufacturing industry is not less important than the manufacture of passenger vehicles, in view of the great benefits which heavy motor haulage is able to confer on the inhabitants of districts still unprovided with railways, whose industries are hampered and often destroyed by the prohibitive cost of cartage. The restriction to a tare weight not exceeding three tons is now preventing the manufacture and employment in the country of motor-wagons, which would be capable of carrying loads up to ten and twelve tons, and the use of which would reduce the cost of motor haulage to about one-third of the cost of horse haulage, thus practically extending the benefits of railway communication to every part of the country. The present Act also comprises useless restrictions on the speed of motor-wagons, which prevent the development of the use by farmers and land-owners of motor-wagons, which would otherwise enable them to send vegetables, fruit, and other perish-

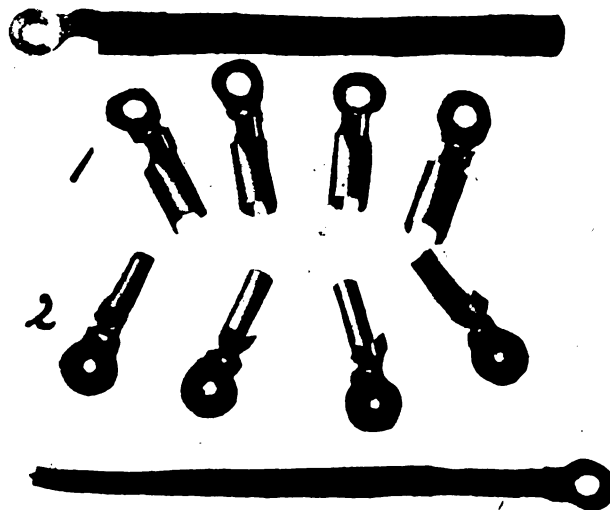
able goods direct to market without the risk and damage of the double transfer from road to rail and again from rail to road."

"We are of opinion that automobilists should have a ready form of appeal against decisions arrived at by Benches of county magistrates.

"We urge upon your readers to secure that their representatives on the County Councils and their representatives in the House of Commons should lose no time and spare no effort to induce His Majesty's Government to pass a Bill which would remove without delay the unnecessary and damaging restrictions which at present hamper mechanical traffic in this country, and, by providing for the identification of motor-vehicles, prevent the dangerous or inconsiderate driving which is indulged in by a minority of motor-drivers, and which has undoubtedly tended, in some instances, to bring the automobile movement into disrepute. The Bill might also provide an increase in the penalties for infringement of the law, if at the same time it provided for the ready form of appeal before alluded to."

A USEFUL TERMINAL CLIP.

MESSRS. ACCLES AND DE VEULLE, of Birmingham have lately introduced a useful little novelty in the shape of a special terminal clip for ignition wires, which should overcome the trouble of wires becoming disconnected owing to vibration or jolting. The accompanying illustration shows the new clip and its application



so clearly that no description is necessary. It need only be mentioned that it is pressed out of a single piece of brass, and is made in sizes suitable for the wires of both the primary and secondary circuits. The London Autocar Company, Limited, are the sole agents for London and the south for the new clip.

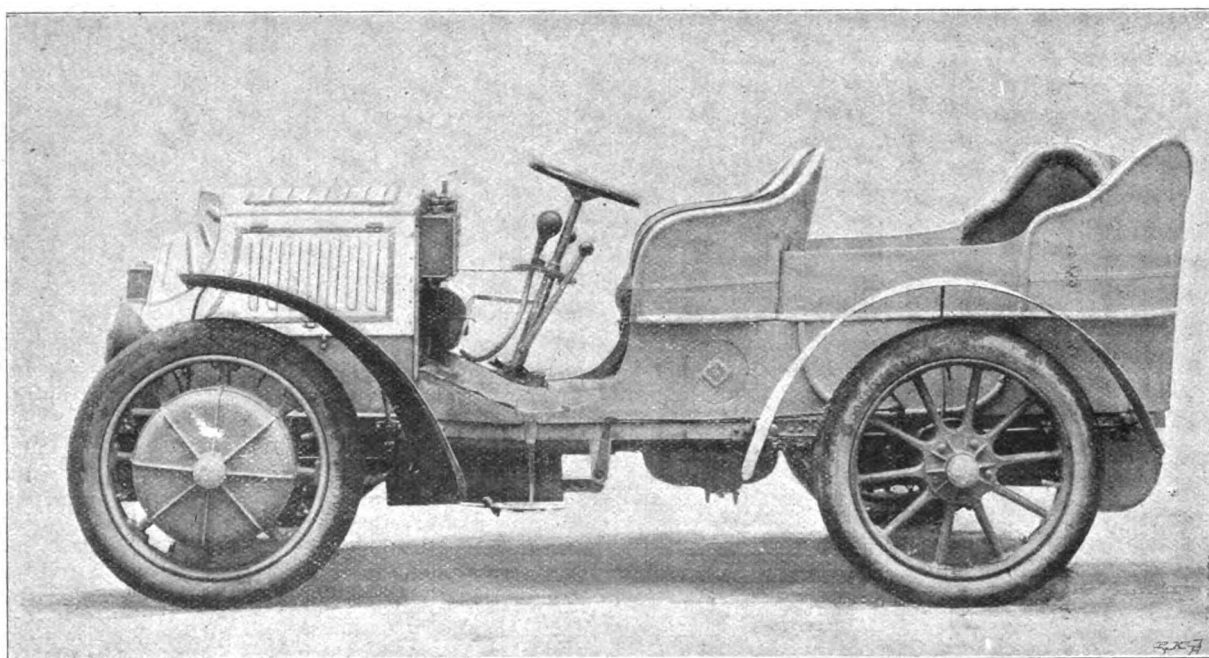
M. EMILE MORS is quoted to the effect that last year his firm turned out 350 vehicles, which output they expect to double this year.

THE Wolverhampton and Dudley Breweries, Limited, are about to utilise a steam lorry for the conveyance of heavy goods over the hilly roads between Wolverhampton and Dudley.

ON the main road between Kendal and Keswick, and between the towns of Windermere and Ambleside, is the Bridge Iron Works, owned by Mr. W. A. Fell, who is prepared to repair motor-cars. He has just commenced to stock petrol for the convenience of motorists travelling in the Lake District.

THE LOHNER-PORSCHE COMBINATION PETROL-ELECTRIC CAR.

OUR illustration shows a combination petrol and electric car that has recently been brought out by Messrs Jacob Lohner and Company, of Vienna. The frame of the vehicle is on the general lines of the Mercedes car, a 16-h.p. German Daimler motor being fitted in the fore part, under a bonnet. Instead, however, of the motor operating a change-speed gear, as in a petrol car, it actuates a dynamo, and this in turn operates electric motors on the Porsche system contained in the hubs of the two front road wheels. A small battery of accumulators is also fitted to the car, which is charged by the petrol motor and dynamo when the whole power is not required to propel the vehicle. The energy stored up in the accumulators is made use of at starting, and also when driving through crowded traffic; thus it is possible to stop the engine entirely, and still keep the vehicle in operation, and as it then will run as quietly as an electric car, there is no danger of frightening horses, etc. Instead of the usual change-speed lever, a controller is fitted, which, acting



THE LOHNER-PORSCHE COMBINATION PETROL-ELECTRIC CAR.

(Die Allgemeine Automobil Zeitung.)

on the electric motors, enables any desired speed up to, it is claimed, fifty-five miles an hour to be obtained. The petrol tank has a capacity sufficient for a continuous run of nine hours. The weight of the car complete, without water or petrol, is one ton four hundredweight. The wheel base is very long, and the centre of gravity low, so that there is no danger of the vehicle overturning. The advantage claimed for the combination arrangement is increased efficiency, Messrs. Lohner stating that there is an increase of 25 per cent. in the power given off at the road wheels in the combination car as compared with an ordinary petrol vehicle. The car is stated to be specially useful for military purposes, as, in addition to being able to travel at a good speed, it can be used, by reason of its electrical equipment, for the lighting of projectors or hospital bases, up to 200 16 c.p. incandescent lamps. The vehicle illustrated has covered a distance of over 3,000 kilometres with such satisfaction that for the coming season Messrs. Lohner have decided to construct a number of these cars fitted with petrol engines of 25 h.p., one of which is to be driven by Herr Porsche in the forthcoming Nice-Abazzia race.

MOTOR-CAR SERVICES.

OUR recent references to the interest taken in automobiles by railway managers have attracted considerable attention, and Mr. Mark Doney, of Cramlington (Northumberland), writes us an admirable letter on the subject, in the course of which he says:—"The district in which I reside is the thickly-populated coalfield of north-east Northumberland, and the only passenger railway passing through it is the North-Eastern, which for a very long period has enjoyed a profitable monopoly. Some of our large villages of 2,000 inhabitants and upwards are miles distant from any railway, and it is for such places that I have advocated motor-buses. There is a scheme projected to serve some of the towns and villages with an electrical tram service, but as this is a very large undertaking, which will take years to mature, and then leave some districts untouched, I am of opinion that motor-buses, to carry from twenty to forty persons, will meet the requirement and supersede and relieve the much-abused and over-worked horse. It is positively painful to see horses in summer time

attached to a wagonette carrying from eight to twelve passengers. This part of Northumberland, being generally level, affords a splendid field for motor-carriages, and the County Council are gradually widening and improving the main roads. There are one or two suggestions which I wish the County Council would adopt—viz., to cut down the hedges low at sharp turns in the roads, and 'exalt the valleys' where it can be done without visibly affecting the rates." Now that the London omnibus companies are making important experiments, with a view to the supersessions of horse-drawn vehicles by motor-buses, there will probably be other localities where the subject will attain prominence. Hitherto the public services at seaside towns do not appear to have been uniformly successful—although that at Bournemouth has been a conspicuous exception—but with the improvements recently introduced and a time-table rigidly adhered to, there is no reason why populations similarly located to those referred to by Mr. Doney should not be served by efficient motor-vehicle services.

THE Long Island Automobile Club is organising a series of lectures or short talks on motor-car topics.

THE USE AND CARE OF ACCUMULATORS.

AN electric spark has, up to the present, been found the most readily applied and adaptable agent for firing the charge in the cylinders of motor-car engines; and although for large-powered cars some experts prefer tube ignition, yet for small cars and motor-cycles, which will always be most in evidence, electrical ignition is universally adopted. Although magnetos and dry batteries each have their advocates, the source of current which finds most favour is a secondary battery or accumulator, and it is thought that to many motorists a few notes on the use and charging of accumulators will be acceptable.

The driver who is using an accumulator for the first time, having previously used dry cells, finds some difficulty in determining when his battery has run down, or what proportion of its original charge is still available. Suppose his engine keeps missing fire, and he suspects the accumulator is nearly run down. He pulls up, and perhaps puts his ampèremeter across the cell terminals, as he was wont to do with the dry battery. The pointer jumps violently to the end of the scale; clearly there is plenty of current here, and after looking in vain for anything

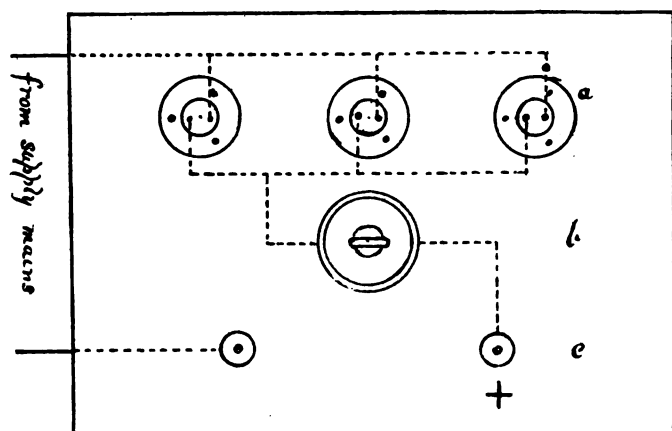


DIAGRAM OF CHARGING BOARD.

a LAMPHOLDERS. b SWITCH. c CHARGING TERMINALS.

else wrong, he starts off again, to find after a few hundred yards that he is not right yet. A two-cell accumulator gives a pressure of 4.4 volts when fully charged, falling gradually to 3.6 volts, when it may be considered empty; it will not give much after this. Yet when an ampèremeter is connected to the terminals a big current is shown, and the driver, not unnaturally, thinks there is plenty available for his coil. The reason for this is that an accumulator has very little internal resistance, while that of a dry battery is comparatively large. The ampèremeter, too, has practically no resistance, so that although the voltage of the accumulator is low, yet it meets with so little opposition that it is able to send a large current through the ampèremeter. Now when a dry battery is tested in this way, the current is limited by the internal resistance of the cells themselves, and no harm is done, provided the connection is not made for more than a few seconds; an accumulator, however, should never have an ampèremeter connected directly to its terminals, for this is simply "short-circuiting" the battery, and may damage both it and the meter. It is no uncommon thing to see a driver or mechanic deliberately short-circuit an accumulator by bridging the terminals with a file, spanner, or anything handy, just to "see the sparks." I recently saw a mechanic connect the terminals of an accumulator with a piece of stout wire. As it gradually grew red hot, he smiled complacently, as though it were a pleasing achievement, and when I ventured to suggest that it was not fair treatment he appeared quite hurt. Of course, it is due to ignorance, but such experiments are none the less ruinous, and must not be indulged in if accumulators are expected to give useful service for a few years.

It will be evident, therefore, that the current an accumulator will send through an ampèremeter (and this may be very great) is neither a measure of the current it will send through a coil, nor an indication of the amount of charge still left in the cell. To determine this latter a voltmeter should be used. It is not, however, sufficient to read the "open-circuit" voltage of the accumulator (*i.e.*, when it is doing no work); it should be sending a current through the coil at the moment the reading is taken. Therefore close switch and interrupter, and turn engine till trembler blade (or commutator) makes contact. The current will then be flowing through primary of coil, and the reading will give an indication of the charge still left in cell. If 3.5 volts or under (for a four-volt accumulator) it is practically discharged, and the "spare" should be connected up, the other one being charged at the earliest opportunity. Accumulators left discharged for long periods deteriorate considerably, owing to the conversion of some of the active material of which the plates are composed into insoluble sulphate of lead. If a voltmeter is not available, an approximate test can be made by connecting a small electric lamp to the cell terminals and observing its brightness, the lamp burning dimly when the cell is nearly discharged.

Terminals and other exposed metal work in the neighbourhood of accumulators should be smeared liberally with vaseline, which is an excellent protection against acid fumes. Accumulators can be conveniently charged where electric light is available, provided that the current is *continuous*, not *alternating*, one or two incandescent lamps being placed in the circuit to limit the current to the required amount. It is advisable, however, to requisition the services of an electrician when arranging a charging circuit, as a novice tampering with electric light wires may do considerable damage. An electrician will fit up a charging board, having on it two or three lampholders, a switch, and two terminals to which the accumulator is connected. The positive one should be marked "X," and care taken that the similarly marked (positive) terminal on accumulator is always connected to this. It will be seen from the accompanying diagram that the current has to pass through the lamps on its way to the accumulator, these regulating the amount of charging current. The charging current should generally not exceed one-fifth of the capacity of the accumulator, so that for a cell of the size generally used for quads and small cars, which have a capacity of 12-14 ampère hours, a current of a little over two amperes is required. This will be obtained by placing two thirty-two candle power lamps in the holders. This is presuming the pressure of supply is 100 volts, or thereabouts; if 200 volts, double the candle-power in lamps will be needed to pass the same current. A smaller current will be equally effective, but the charging operation will take proportionately longer. When charging at the above rate about eight hours is required. When the cells are nearly charged gas will be given off, the acid appearing to boil; this action can be distinctly heard. The vents at top of cells should be taken out during charging, to permit the free egress of gases, and any acid which may have bubbled out carefully wiped away, as a film of acid on top of the cell forms a leakage path for the current and is most destructive to the positive terminal. A little water must occasionally be poured into accumulators to make up for evaporation and keep the acid level above the plates. Once a year the liquid should be completely emptied out, and the cells refilled with pure brimstone sulphuric acid, diluted with water to a specific gravity of 1.175 degrees. This strength is roughly obtained by mixing one part acid with four parts of water by measure, the acid being poured into the water, and not *vice versa*, as the great heat generated by the first drops of water may be sufficient to split the mixing vessel.

Accumulators, owing to the large current they will give, are, in the writer's opinion, more positive in their action than dry cells, have a much longer life, and, for equal power, are lighter. Their life, however, is immensely shortened by careless usage, and it is well to bear this fact in mind, and give the accumulator at least the care its importance merits.

ALBERT E. OAKLEY.

CORRESPONDENCE.

MOTOR-BICYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—A few words on my experiences may perhaps help to throw some light on some of the questions now much discussed by motor-cyclists and converts. I find that a 2½ inch bore by 2½ inch stroke, with two 6 inch discs, gives a motor powerful enough to take one up the average Sussex and Kentish hills without pedalling, and, in this all-important question of power, the necessity of convenience in handling the machine must not be lost sight of. Superfluous increase of power means vast increase of weight throughout the whole machine; the average motor-cyclist does not wish to be always hampered with a cumbersome and unwieldy machine in order to be able, now and then, to negotiate a few miles of Alpine track. Experience has proved to me, and many others, that narrow phosphor bronze bearings are out of the question with a high-speed motor, so that I have adopted hardened steel bushes, with broad bearing surfaces throughout—including the connecting rod; this means everything in the power and life of the motor. A chain driving direct transmitted the power too irregularly, causing a jerky strain on the bicycle and tires, to say nothing of the rider. A speed-reducing gear I find chatters considerably. A belt, however, allows just the necessary amount of play, and if a properly grooved and roughed pulley is used there need be practically no loss of power by slipping.—Yours faithfully,

A. E. BOOKER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—“J. A.” in your issue of March 1st asks for impartial information as to a satisfactory motor-bicycle. I may say that I was for some time unjustly prejudiced against bicycles fitted with motors, which is the best way to describe the first so-called motor-bicycles. It is only just lately that I have been able to thoroughly test an Ariel motor-bicycle, and I must admit that I was surprised and delighted with the running of the machine. To anyone who has had previous experience with internal combustion engines and electrical ignition, I can see no difficulty either in driving this and similar machines, or in doing all necessary road-side repairs.

There is no vibration due to the motor except at low speeds, say below eight miles an hour. Another great advantage in these belt-driven machines is that the only noise is due to the exhaust, and that is very slight, unless the throttle valve is fully open, which is very seldom necessary.

In muddy weather I do not find that with ordinary care the machine skids any worse than an ordinary safety fitted with the same size tires. I may conclude with the advice to all riders of this type of machine to carry, besides the usual spare parts, a spare belt, or at least a part of one, and fasteners. These precautions having been taken, I cannot see what is to prevent one from using a motor-bicycle for touring and indeed all-round work with perfect trust in its reliability.—Yours truly,

CONVERTED.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to “J. A.” in your issue of 1st inst. re motor-bicycles, I am sorry to see that he has been unable to make a machine go more than fifty miles at a stretch. If a motor-bicycle will go and work well for fifty miles it will go 5,000, providing it receives fair usage, and I consider that any rider with average common sense will find the motor-bicycle as reliable as a car for touring, and go for at least 200 miles in a day without adjustment.

I myself have ridden the Werner; in fact, have had all patterns from the first electrical ignition, and have only had to make two railway journeys in 10,000 miles, and I have done 200 miles and over in a day. I have only had to pay for such things as new belts, etc., and I feel certain what one rider can do so can another with a motor of decent make. But I will say, if a rider is so helpless as to be unable to adjust a trembler or shorten the driving belt, he had better leave motoring alone.—Yours truly,

HENRY KENNETT, JUNR.

MOTOR-BICYCLES FOR LADIES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am thankful to Mrs. Kennard for the honest criticism that she bestows upon ladies' motor-bicycles in your columns, but at the same time I much regret that I was denied the pleasure of a personal interview with that lady, for I feel certain that some of the points in which she thought the Phoenix was deficient would, after my explanation, appear in a different light.

Taking the first remark, concerning the inability of removing the exhaust valve without burning the fingers owing to the close proximity of the exhaust tube, Would not the valve be as hot as the tube, and require cooling down in the rare event of its having to be removed shortly after the stoppage of the engine? The said tube is so fixed that its removal is a far easier matter than the removing of even the valve, and the reason of the tube being there at all is to carry the exhaust right away under the machine, a point which evidently has been overlooked by Mrs. Kennard, for the fact of the silencer being in a position where it would be covered by a lady rider's skirt in some machines does not seem to have occurred to her. The chain cover also, I could have shown, was only sprung on, and could be instantly removed.

The exhaust valve lifter might appear to be placed too far away, and this, I would like to have pointed out, merely requires a touch of the thumb, and

is placed so as not to obstruct the grip of the handles. As to its being questionable whether it is an advantage to do away with the switch handle, it is far easier to interrupt the current by a mere touch of the thumb and have a firm grip on the handles than by the usual rotating handle, besides having the command of freeing the engine by means of the exhaust lift by a little further movement of the same thumb lever.

With the necessary open frame to accommodate a lady's skirts there is not much room to waste, and it takes a good deal of ingenuity to give a fair quantity of petrol space, and also pack away the accumulator, coil, carburettor, lubricating tank and pump without in any way having any projecting attachments on the machine; and, after all, appearance does have to be studied if the machine is expected to become a favourite with the ladies.

With regard to your correspondent “J. A.,” he seems to have been singularly unfortunate in his experience of motor-bicycles, and I cannot help thinking that his idea of weight—60 lbs. gross—probably has something to do with the results he has so far obtained. By looking for a machine light in weight, there is just the risk that he has overlooked the points which are really essential in a touring machine. True many of us are enthusiasts, but all cannot be called mistaken, and some machines at least have done good work. Personally, I have undeniable proof of riding a motor-bicycle from Land's End to Linton, 91 miles, without any hindrance, and after losing over half an hour, reaching Exeter, 124 miles, in 6½ hours. Devon and Cornwall are about as bad for roads as a tourist can expect.

I am merely quoting this ride as an instance, but I know of many good performances that have been done, not racing, but merely touring for pleasure. Motor-bicycles are not yet by any means perfect, and at times, when submitted to extraordinary tests, have been known to fail. At the same time, even now the majority of these handy machines can afford the purchaser a vast amount of pleasure, if he will only make up his mind to understand what it is that makes the wheels go round.—Yours faithfully,

J. VAN HOODYDONK.

CORRECT HORSE-POWER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to your correspondent “Uncertain Horse Power,” I would like to say that I have driven cars fitted with the so-called 5 and the 8 h.p. M.M.C. engines. Early in the season I had the former, and, being rather anxious to see what the 5 h.p. engine developed, after one or two little improvements had been made, I had it put on the brake. It was found to develop 6·2 at 1,450 revolutions. I sold that car and gave the order for a car fitted with 8 h.p. engine, and this developed 8·5 at the same number of revolutions, so that the 8 h.p. claim is within all reason. What the makers call it is not much to do with me; I am satisfied that my present voiturette is 8 h.p., and, as it has now run about 5,000 miles without anything happening, except the replacement of inlet valve seating washer, I consider that it is satisfactory.—Yours faithfully,

F. GUY LEWIN.

QUERIES re BELT-DRIVEN CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Can any of your readers afford any information as to what is the best and most economical method of driving a belt-driven car down hill, both as regards saving of petrol, wear and tear, and cooling? I, of course, mean an ordinary hill, where one is not obliged to use both compression and brake to keep the car steady. Is it best to throw the belt on to the loose pulley and let the car run, or to close the throttle and run on the compression, or can some kind of valve lifter be fitted to take off compression, and so keep the belt on fast pulley, letting the car drive the engine?—Yours truly,

H. ELLIOTT.

QUERIES re STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am unable to give “Rusticus” any information about the Clark apparatus, but I will endeavour to answer his other queries. First, a steam car boiler of the “Locomobile” type, for some unexplained reason, does not fur to any appreciable extent, even with hard water. Second, a steamer (Locomobile) will climb any hill that a horse and trap can climb, with two passengers up. I have frequently taken two friends and myself, total weight about thirty-six stone, in a two-seated Locomobile up a lengthy hill, with an average gradient of one in ten, with power to spare. If “Rusticus” cares to purchase a Contour Road-book of England (South-East division) he will be able to select his own test hill, and he will have the satisfaction of knowing exactly what the gradient is and having a very useful book when he becomes, as I hope, a fellow “Boulder on a Boiler.”—Yours truly,

RICHARD SLATER.

THE CONVERSION OF TRAMCARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—There is one project on which I would like to have the opinion of your readers, and it is with regard to the adaptability of motors to cast-off tramcars, thus transforming them into motor buses. For instance, Newcastle has sold all its tramcars and adopted a new and complete trolley system of electrical trams. Some of the old cars were nearly new, and in excellent condition, and to me it seems a great pity that they should rust and rot. Could they not be fitted with one pair of hind wheels, and the front end of car placed upon a four-wheeled bogie motor of, say, 12 to 16 horse-power? So far as my knowledge goes at present, I should think a

steam-propelled engine would be best adapted for this purpose.—Yours truly,
MARK DONEY.

GREASE FOR MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In an article which recently appeared in the *Morning Leader* enumerating the defects and shortcomings of motoring, one great nuisance mentioned was that of dropping a gravy-like fluid in a stream on the road—a reference to the working out of the oil from the gear-box. When I say oil, this requires some qualification, as it is usually grease when put in, but is beaten up into an oil by the rapid motion of the cog wheels in the gear-box. Motorists should be careful to avoid this nuisance by using a proper grease, viz., one which will not melt under the heat generated by the rapid friction of the cog wheels.—Yours truly,

HENRY HARRIS.

AXLES ON MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I was very pleased indeed to notice that you referred to the one-sided strain, and in fact severe strain, upon the springs of motor-carriages driven without chains and direct from the engine to the back axle. There is no doubt about it that all the carriages of this type that were on the market last year suffered from the defect you mentioned, and that now the manufacturers are trying to put large horse powers into this type of carriage this defect will be much accentuated. I think, however, it is only fair to point out that De Dion Bouton's vehicle with the direct drive has not this defect owing to the "cardan" axle principle, which enables the gear-box to be absolutely firm and rigid with the frame, and places no side strain upon the springs.—Yours faithfully,

J. W. STOCKS.

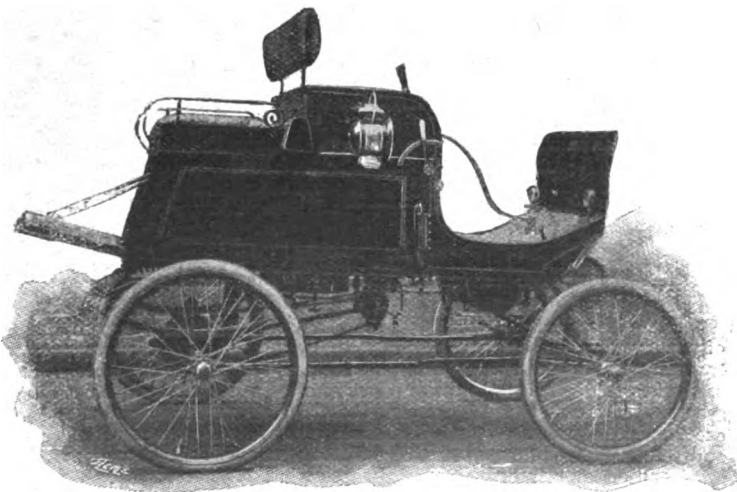
W. V. writes:—"Will any of your readers say if there is any reliable formula for finding what the effective or b.h.p. of a motor-engine ought to be; where the diameter of cylinder, stroke of piston, and number of revolutions are known. If there is no reliable formula, what is the best method to obtain the desired results?"

With reference to the offer of Mr. S. F. Edge to run a Napier car 200 miles a day for some considerable time, a reader of the *Journal* has written offering his services in certifying as to weight, etc.

FURIOUS DRIVING CASES.

R. H. HENDERSON, of 15, Calthorpe Street, Gray's Inn Road, W.C., was summoned at the King's Heath (Birmingham) Police Court for furiously driving a motor-car on the 14th ult. Police-sergeant Burford stated that on the day in question he was on duty on the Pershore Road, King's Norton, when he saw the defendant coming down Church Hill at a tremendous rate—exceeding twenty miles an hour. Witness shouted to him to go steadily, but he took no notice, and continued at the same speed. Shortly after he had passed witness he nearly collided with a butcher's cart. When defendant was climbing the Station Hill the motor stopped, and witness then caught up with him. Defendant explained that the reason he was going so fast was that "the frost had frozen the carbon." Arthur Foster, the butcher's boy referred to, said that he had never seen a motor-car go so fast before. It nearly ran into him. Superintendent Chare having remarked that the police had no means of stopping the cars, the Bench fined defendant 50s. and costs.

LEON VINT, of Leon Vint's Globe Choir and Scenorama, has been fined £10 and costs for furiously driving a motor-car near Cheltenham. One witness said the car was travelling at the rate of between thirty and forty miles an hour, and a police-constable said the pace was between twenty and thirty. The defendant, who wrote from West Bromwich, said he had sold the car and was riling with the purchaser. He denied that the pace was so great.



THE WESTON STEAM DOG-CART.

At Plymouth Police Court, Peter McCall was summoned for furiously driving a motor-car in Beaumont Road on [December 14th. Mr. P. T. Pearce, for defendant, said the chief constable Mr. Sowerby informed him that since the original summons was issued there had been an improvement in regard to the speed at which motor-cars were driven. Whilst unable to admit that the car in question was being driven too rapidly, he was quite content, if the chief constable withdrew the summons, to abandon his claim for costs, amounting to about £5. The managers of these cars would not for a moment tolerate any unnecessary or improper speed, and they had warned their drivers that if they drove the cars unduly fast they would be subject to punishment. The chief constable said there had been an improvement in regard to the rate of speed, but there was still much ground for improvement. The case was further adjourned for a fortnight. The summons against William James Welshman, at the same Court, for driving a motor-car at a greater speed than eight miles an hour in Union Street on February 5th, was adjourned until next Wednesday.

ALLEGED NEGLIGENCE.

IN the Westminster County Court, on Monday, Judge Woodfall heard a claim by Miss Lilian Mabel Guild, of Windsor, to recover from De Dion-Bouton (Limited), of Regent Street, damages for personal injuries sustained through the alleged negligence of their servant. It appeared that Miss Effie Evans, journalist, of Cincinnati, Ohio, was staying at the Savoy Hotel, and the plaintiff became her guest there. Miss Guild had accepted a situation in Albemarle Street, at a salary of 25s. with commission on business introduced, that brought her average earnings up to £4 weekly. The two ladies had been invited to a motor ride on October 12, and the car was driven up to the Savoy for them. As they turned on to the Embankment the car-driver lost his head, and stopped in front of a hansom cab, and the car upset. They were rescued, and plaintiff, who felt ill, returned to the Savoy. She had not recovered from the shock now, and had been prevented from earning the £4 a week. Living at the hotel cost £3 2s. a day, and there was the doctor, at a guinea a visit, nurse, massages, etc., in addition.

The defence was that the cabman caused the accident and drove away before his number could be taken. The car-driver was experienced in Birmingham and London, and behaved in the best way possible. Miss Evans said at the time he was not to blame. Mr. R. J. Drake, counsel for the defendants, commented on the heavy items of the claim—£136 for hotel expenses alone—the total amount being £270. His Honour found the defendants' driver was negligent, and assessed the damages at £185, finding for the plaintiff for that amount with costs.

INSUFFICIENT LIGHTS.

FREDERICK CRACKNELL, a motor-car driver, was summoned for driving a motor-car at Eton on February 5th, without showing a red light in the reverse direction to which he was travelling. The constable stated that there was a head light on the car, but the two side lamps, which showed a red light in the rear, were out. Defendant said they must have been shaken out by the bad road between Slough and Eton, and the powerful head light he had on prevented him from noticing it. Fined 10s.

A CORDIAL invitation to M. Santos Dumont to bring his airship to Llandudno has been sent by the local Improvement Association, who point out that Great Orme's Head is convenient for launching and the bay suitable for manoeuvring his aerial craft. The aeronaut is now in London on a short business visit, and hopes to make an ascent from the metropolis in May or June. On Tuesday he dined at the Royal Thames Yacht Club with Mr. Frank Butler, among the other guests being Sir Vincent Barrington, the Hon. C. S. Rolls, Mr. Pollock and Mr. Leslie Bucknall.

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COMMENTS.

AT the close of the Automobile Club's Exhibition at the Agricultural Hall in April next, notice will be given by the proprietors, the Messrs. Cordingley and Co., to terminate the present agreement with the Automobile Club.

Roads in Europe.

THE Secretary of the Roads Improvement Association, Mr. Rees Jeffreys, took the opportunity of a recent lantern lecture on "Alpine Cycling" to compare English roads with those of other countries, and not at all favourably. Here we had, he said, either mediæval trunk roads that took the hills as they came, or turnpikes made for the particular convenience of local landlords. Like other travellers, he had found the Swiss roads much inferior to those of France, Austria, and Italy, and as a road user he wished that the French had continued to rule the country after Napoleon's time; a marked contrast was found in the state of the roads as one crossed and recrossed the frontiers. The gradients were, however, in all cases easy and skilfully engineered, the only dangerous portions being at the bends of the *tournequets*, many of which are rendered less risky by judicious banking up.

Motor Tracks.

MOST of the well-known lovers of horses have come round to the side of automobilism, and very gratifying is the support accorded to the movement by leading members of the aristocracy. The Duke of Portland has given directions that the twist in the road at Welbeck shall be removed in order that the road may be used by the Automobile Club for speed contests. Lord Suffield's estate near Cromer, and the Earl de la Warr's private road at Bexhill have also been placed at the disposal of automobilists—thus furthering the idea of a motor-car track whereon trials and races may be possible. In early issues of the *Journal* this idea was elaborated, and probably the proposal may ultimately lead to something definite and tangible. We hear that the Earl of Radnor is making a magnificent drive at Folkestone. The road is to be 100 ft. wide, and will include two carriage drives besides a "gallop" 30 ft. wide for horse-riding. Why cannot something of the kind be provided for automobilists?

Another Hint on Motor-Houses.

A RECENT idea for the due and sufficient warming of a motor-stable, in process of being carried out, consists in its combination with a greenhouse, the latter adjoining the wall of the former, while the same heating apparatus serves for both. Perhaps if such a combination became popular we might have a chance of seeing parades of decorated cars, a spectacle which, in spite of one or two attempts, has not caught on in this country, picturesque though it be. And when the "petrol springs," once referred to in a contemporary, give out, the owner might alter his carburettor and grow his own alcohol. Joking apart, though, the idea is not a bad one, and might often be a convenient arrangement.

The late Mr. Bryan Donkin.

WE regret to learn of the death of Mr. Bryan Donkin, which took place at Brussels last week. He was born in 1835, and educated at University College, London, and the Ecole Centrale des Arts et Métiers of Paris. He then entered the engineering works founded by his grandfather at Bermondsey. Mr. Donkin made extensive investigations in thermo-dynamics, and amongst the results were important improvements in the steam engine. In recent years he had devoted much attention to explosion motors, and had taken a great interest in the automobile movement.

Motor-Car Imports and Exports.

THE Board of Trade returns for February being now to hand, we hasten to publish the figures relating to the imports and exports of motor-cars and cycles. To deal first with the exports of automobiles of home manufacture, the shipments during the past month amounted to twenty vehicles, of a value of £6,379. Of parts, the exports attained a value of £190, making a combined total for February of £6,569, as compared with £10,992 in January last. As regards the imports of foreign cars and cycles, these of course show larger figures. In all, 213 cars and cycles were imported into this country last month, the value of the same being returned at £47,759. The value of the 'parts thereof' is given as £4,923, so that we get a combined total of £52,682, as compared with £43,855 in January last. Some of these imports were only of a temporary character, being re-shipped to foreign destinations. Thus last month the re-shipments comprised sixteen vehicles, amounting in value to £3,216, and £972 of parts, bringing down the net imports in February to £48,494. During the first two months of the current year British imports of foreign automobiles have reached a total of just under £90,000.

The Wolseley Works.

IN the annual report of Vickers, Sons and Maxim, Limited, the attention of shareholders is particularly called to two of the firm's subsidiary companies which were acquired during last year, viz., the Electric and Ordnance Accessories Company, Limited, and the Wolseley Tool and Motor-Car Company, Limited, of Birmingham. The latter firm start the present year with most favourable prospects, and with orders that will find them full employment till late in the year. Their works are now turning out one motor-car per day, and it is hoped shortly to increase the output.

A Pioneer at Sheffield.

AMONG the flour milling firms at Sheffield Messrs. Price and Sons, of the Town Mills, Millsands, deserve recognition as being the first firm in that trade in the great cutlery centre to adopt a motor-vehicle in their work. This is a five-ton dray, similar to that by which the Lancashire Steam Motor Company, Limited, won distinction in the Liverpool trials. It is not the intention of Messrs. Price and Sons to use it for their town traffic, as the first cost is said to prohibit its economical employ-

ment on short journeys, but they expect to effect a great saving on country journeys over four miles long, and in working hilly districts, which will, no doubt, be to the mutual advantage of themselves and their customers. It is satisfactory to observe that the Sheffield newspapers, in referring to the innovation, testify to its quiet and easy running, and to the fact that "horses take little notice of it."

Tracks in Parks.

PENDING the time when every holiday resort—if not every town of any importance—will have its motor-track, a correspondent suggests that arrangements might be made to allow motorists to indulge in fast travelling in the parks at certain hours. Writing from Dulwich, he points out that Dulwich Park has a ring-road very nearly a mile round without any unduly sharp bends, which would provide an admirable course. He does not propose that fast riding or driving should be permitted at a time when it would annoy other users of the parks, but between the hours of five and six or seven in the morning the very few people who find their way into these pleasantries would probably be rather pleased than otherwise if a little excitement was thus gratuitously provided for them. In America it is a recognised thing in the parks and in the vicinity of many of the large towns for owners of fast trotting horses to speed them at certain hours, and it provides an interesting spectacle. The extension of the idea to this country could be easily managed—but for the prejudice of people in authority.

The Exhibition.

ON April 19th the doors of the Agricultural Hall, Islington, will open upon an exhibition of motor-vehicles that will be the most representative display ever seen outside France. In fact, in many respects the forthcoming display will vie with that held in Paris recently. Not only is all the ground space of the Hall booked, but the Minor Hall will contain a fine collection of vehicles for heavy traffic. In the gallery will be a splendid show of cars, parts, accessories, etc., while the display of motor-garments will give new interest to the Exhibition. More than two hundred firms will be represented, and new inquiries for exhibiting space are coming forward every day.

Round the World.

SPECIAL interest at the forthcoming Exhibition will be centred in the 30-h.p. Panhard car with body-work by La Carrosserie Industrielle, of Paris, which will be on view during the first three days of the Show. This will be one of the finest examples of French automobile manufacture ever seen in this country, and the curiosity of the public will be further aroused when it is generally known that this particular vehicle will be driven by Dr. Lehmann in his tour round the world. This projected journey has already been the subject of much comment in the Press, and the fact that it will commence from the Agricultural Hall on Wednesday, April 23rd, should serve to attract a large attendance on that day.

The Law of the Inn.

ONE day this week a London journal published an article on "the regeneration of the inn; how automobilists may help," in which it was urged that motoring would do much to restore the prosperity of our country hostels. In another column was the report of a case in which some travellers, who had journeyed through Surrey by motor-car, appealed from a County Court decision, and raised an important point as to the obligations of innkeepers under the common law to provide shelter to travellers on demand. The defendant was the landlord of the Chequers, Horley, who refused to accommodate the travellers on being roused from his slumbers at two o'clock in the morning. The motor-car had broken down, and they tramped through the

rain to the Chequers, where the landlord declined to entertain them. They sallied forth, hired a brougham, and drove home to Crawley, one of the travellers contracting rheumatism as the result of the adventure. He endeavoured to obtain compensation, but failed, the County Court judge giving a verdict for the landlord. The appeal has been dismissed, the Lord Chief Justice explaining that the rule as to common law was that an innkeeper must provide accommodation for people who came to him as travellers, and who were in a position to pay him; but he could not think the authorities went to show that where an innkeeper provided a certain number of beds and a certain number of sitting-rooms, and received guests who occupied the former and had the use of the latter, he was under a legal obligation to receive and shelter as many people as came to his house as the rooms would hold without overcrowding. He did not think there was a legal right, apart from the circumstances of the case, on the part of a traveller to be allowed to pass the night in a public sitting-room.

Motor Omnibuses.

NOT only have the London papers again declared that the motor-omnibus is coming, but the scheme for a motor-omnibus service for suburban traffic in Birmingham is maturing, and early in May an experimental service will be started between Harborne and Hagley Road, Birmingham. The sanction of the Watch Committee has already been obtained, and the necessary capital is being privately subscribed. The new vehicle, which will be of Birmingham manufacture, will be capable of seating sixteen passengers inside and six out, with seats for the driver and conductor. The engine is of 20 h.p., and is water-cooled. It is so arranged that the exhaust from it may be optionally used for heating the interior of the vehicle in cold seasons. The omnibus will be fitted with an adjustable cover, which may be removed in fine summer weather. Solid rubber tyres will be provided, and the omnibus, which will have a total weight when fully loaded of about three and a half tons, is designed to travel at twelve miles an hour, but the average speed will probably not be more than eight miles.

In the Air.

M. SANTOS DUMONT has been examining the grounds of the Crystal Palace with a view to ascents therefrom during the present year. The organisation in connection with these will be in the hands of the Aero Club, through which Mr. C. A. Pearson has offered a prize of £4,000 to be given to the successful aeronaut who makes a trip in the air from one given point to another. It is reported that this journey is to be from London to Birmingham, but such a distance is an absurd length for an airship as yet in an experimental stage, and some such distance as from the Crystal Palace to Ranelagh is more likely to be ultimately selected. According to the Hon. C. S. Rolls, there are more than a hundred people at work in this country on the construction of navigable balloons and airships, and should the competition take place, as it is likely to, in June, it will be one of the features of a busy year.

The Aeronautical Institute.

ON Friday, the 7th inst., a meeting of the Aeronautical Institute and Club was held at St. Bride's Institute, London, when a paper was read by M. Auguste E. Gaudron dealing with the progressive improvements in the navigable balloon from its inception in 1852 to the present time. Giving credit for the first practical design to Henri Giffard, who made his experiments in 1852, the lecturer dealt in detail with the demonstrations of Dupuy de Lôme in 1870, Gabriel Yon in 1880, the Brothers Tissandier in 1881 (who introduced electricity as a motor power for balloons), and with the successful ascents made by Messrs. Renard and Krebs in 1884. M. Gaudron did not express himself favourably in regard to the attempts of Herr Schwarz in 1898 to

produce a metallic balloon, declaring that all such designs were doomed to failure owing to the liability to fracture upon coming to earth. For a similar reason he discounted the merits of the Zeppelin airship of 1900, where stiffening was attempted by means of a lattice framework of aluminium. In conclusion, the lecturer instanced the demonstration at the Alexandra Palace in 1898, as the only occasion when a navigable balloon has been experimented with in public in this country. M. Gaudron was in charge, but the day was windy, and the motor not working well, consequently the results were not all that could be desired.

Motor-Cars and Agriculture.

Mr. HANBURY, the Minister for Agriculture, was very emphatic in his advocacy of motor-cars to the members of the Yorkshire Agricultural Union on Saturday. He said he hoped to see such vehicles competing with the railways for the conveyance of goods to villages. To secure such a desirable result he said they would have to be allowed to travel at a reasonable pace, and that the roads of the country would have to be put into a better state than they were at present. Everyone who knows anything of agriculture is coming to the conclusion that the automobile will be a friend to the farmer, and that its adoption will do much to revive the prosperity of those associated with the soil. We hope Mr. Hanbury will make his views known to his colleagues in the Government.

A Trans-American Trip.

THE Winton Motor Carriage Company, of Cleveland, have lately sent us a little booklet describing the attempt made in May last by Messrs. A. Winton and C. B. Shanks to make the trip in a motor-car from San Francisco to New York. As we reported at the time, the attempt ended in failure, but after reading the account of the roads met with, one can hardly be surprised at the result. Though no one can question the amount of grit possessed by Mr. Alexander Winton, yet too much grit and too much sand, when they comprise all there is of an alleged American road, are too much even for the most ardent motorist, hence the abandonment of the enterprise. After several days' difficult work the car stalled in a sand hillock near Winnemucca, Nevada, and could not proceed. The two automobilists took the train for Cleveland, and the vehicle was despatched by goods train as soon as it could be dragged out. Elsewhere, on page 24, we reproduce some interesting photographs which will give an idea of the difficulties encountered. Mr. Winton is said to be in no wise convinced that he cannot make the Trans-American trip, and will, it is reported, attempt it again with a vehicle specially built to combat the peculiar conditions which confront a motor-car in a run across the American Continent.

Helping the Public.

At the annual meeting of the Automobile Club, Mr. G. Cornwallis-West raised a question as to the competency of repairers of motor-vehicles and the varying charges for similar repairs in different towns. We confess to some sympathy with him in his complaint on the latter score, but there are many difficulties in the "standardisation of prices" in connection with a young industry to which mechanics are not yet accustomed. Associated with this question is the way in which those who have vehicles for sale treat their customers. The seller must put himself in the position of a physician who prescribes for a patient after a thorough diagnosis of the symptoms. The mechanical aptitude of the purchaser, the nature of the roads over which the machine is to be used, character of the service, care to be given the machine, etc.—all of these points must be fully considered, and if, after duly weighing them all and advising accordingly, the seller finds his customer recalcitrant and determined to have what he wants rather than what will give him satisfaction, then the prudent course is to decline to sell. It is better to lose a few undesirable

customers than to lose one's reputation, for this constitutes the future probability of profit in a business, and many in the trade have lost it by adopting this narrow and short-sighted policy of giving people what they desire regardless of consequences. It is not always wise to give the public what it wants.

Vehicles for Heavy Traffic.

GREAT is the interest now being taken in motor-vehicles for heavy traffic, and most of the firms engaged in such work are busily employed. In fact, the demand is greater than the supply, and the future of this particular branch of the industry is well assured. Several leading contractors are waiting till the exhibition at the Agricultural Hall ere placing their orders, and there is no doubt that both for passengers and for goods traffic there is a busy time in prospect for the makers of large vehicles. They have waited long, but the harvest should be a good one, amply compensating for previous disappointments. We understand that the new Manchester to Liverpool motor mail-van service, which was to have been inaugurated on the 1st inst., has been delayed owing to the prevailing activity in the industry. Messrs. G. F. Milnes and Co. are supplying the vans to be used in the work, and it is hoped to have the service in operation at the end of the month.



THE HON. C. S. ROLLS AND MR. MARK MAYHEW ON THE FORMER'S 20-H.P. PANHARD.

The Easter A.C. Tour.

THE headquarters of the Automobile Club during Easter will be the Royal Links Hotel, at Cromer, and there the members will meet on the night of Good Friday. On the Saturday speed trials will probably be arranged on Lord Suffolk's private road. There are three roads to Cromer from London, and of these Messrs. Hargreaves and Edge recommend the following:—

	Miles.
Finchley Road Station and Whetstone to	
Barnet	13½
Hatfield via Potter's Bar	9
To Baldock	12
Baldock to Royston to Great Chesterford ..	21
Great Chesterford to Newmarket	16½
To Thetford	19
„ Norwich	29
„ Cromer	23½
	143½

On this particular road there is a stretch of about twenty miles with scarcely a cottage on it. The alternative routes are via

Epping and Colchester, or *via* Bishop Stortford and Saffron Walden.

A Little Flutter.

A PARAGRAPH or two in one of the London halfpenny journals has caused quite a flutter of excitement in the trade, and we have received several letters from well-known gentlemen denouncing the style of business that seeks to obtain fancy prices for automobiles. British makers point out that premiums are not obtained on their cars with their sanction, and they regret the appearance of the paragraph, which is calculated to do harm to the motor-car industry by delaying the placing of orders, and also by encouraging financial speculators and promoters to enter the trade. These, without technical knowledge, are not likely to add to the credit of the business. Whilst we agree with our correspondents to a very large degree, we would remind them that although such statements may be widely circulated, they are not likely to influence intending buyers of cars, who are content to rely on the automobile journals and the opinions of motoring friends for advice.

A Portsmouth Automobile Club.

A MEETING of Portsmouth motorists was held in the Mayor's Parlour, at the Portsmouth Town Hall, on Friday, the 7th inst., under the presidency of the Mayor (Major W. T. Duprée), for the purpose of electing the officers of the newly-established club. Mr. Sapp (secretary, *pro tem.*) having read letters of apology for non-attendance from the local Parliamentary representatives, Mr. Vernon Inkpen pointed out the many advantages of a combination of automobilists in the town. Major Duprée was unanimously chosen president. Mr. J. H. A. Majendie, M.P., Mr. R. J. Lucas, M.P., Ald. Jenkins, and Mr. Vernon Inkpen were elected vice-presidents, whilst Messrs. J. F. White and Ernest Sapp were appointed treasurer and secretary, respectively. The Committee was elected as follows:—Dr. Knight, Major Dawson, Messrs. Sherwell, Cox, Barnes, Hine, Rose, Glasier. Dr. Claremont and Mr. Clover were appointed honorary auditors. The historic George Hotel, Portsmouth, was decided upon as the headquarters of the Club.

Photographs Wanted.

Now that the severity of the winter season is over, motorists are going forth into the highways and byeways. Week-end trips are already beginning, and we would repeat the invitation we have given in previous years to readers to favour us with interesting snapshots of motor-vehicles taken amid scenes of country beauty, or in localities of historical associations.

Motor-Cycling in Dublin.

THAT motor-cycling has secured a position among the sports of the Irish capital receives confirmation in the formation of a motor-cycle club in Dublin. This was decided upon at a meeting held in the Hotel Metropole, Dublin, on Friday, the 7th inst. There was a large attendance, Mr. J. B. Dunlop presiding. The chairman pointed out the advantages to be derived from such a club, and also touched upon carburettors, the position of the engine, side-slip, and other matters of technical interest. Subsequently, Mr. Dunlop was elected president of the club—which was given the name of the Dublin Motor Cycling Club. Mr. R. J. Mccredy was elected captain, Mr. J. C. Percy, hon. secretary, and Mr. F. A. Wallen, treasurer. A further meeting will be held on Friday next, when the committee will be elected and rules approved for the future conduct of the organisation, upon the excellent promise of which, Mr. Percy, as the convener of the initial gathering, deserves the hearty thanks of Irish motorcyclists.

Professor Hele-Shaw's Paper.

DOUBTLESS the technical character of the title of Professor Hele-Shaw's paper at the Automobile Club on Wednesday was partially responsible for the somewhat meagre attendance of members. The subject of "Roller Bearings" is an important one, but does not ordinarily lend itself to after-dinner treatment. Professor Hele-Shaw, however, had gone to much trouble and expense to give actuality to his lecture, and, by means of specially prepared models, diagrams, and experiments shown by the aid of the lantern, was able to delight and instruct his audience in a way that made the evening unique in the annals of Club discussions. Mr. Worby Beaumont was in the chair, and after the paper a very interesting discussion took place, those participating therein including Messrs. Lyon Sampson, Tinne, Bird, Mays, Shrapnell Smith, and Kitto.

Roller Bearings.

PROFESSOR HELE-SHAW pointed out that whether they considered the question of starting from rest, or of easy running when in actual motion or of uniformity of action, the roller bearing presented great advantages for motor-cars. Seven great difficulties however, presented themselves, these being as follows:—(1) The concentration of load at a point. (2) The expense and difficulties of obtaining rollers truly circular and cylindrical. (3) The rubbing of the surfaces of the rollers themselves. (4) The difficulty of adjustment. (5) Twisting or the want of parallelism of the rollers relatively to each other when slightly worn. (6) The difficulty of providing for end action or side pressures. (7) Hammer blow and shocks with motor-cars, when wearing has occurred. After dealing with some of the bearings now on the market, reference was made to an ingenious device by Mr. Brennan, in which the cage for roller bearings is made from an alloy, having a melting point at a temperature less than that which would destroy the hardness or temper of the rollers contained therein, which in this case takes the form of balls. Professor Hele-Shaw elaborated a mode of adjustment by the adoption of cones, instead of cylindrical rollers, and concluded by a suggestion that a committee of the Club should be formed, to hold a series of experiments on types of roller bearings for motor-cars.

The Scottish Automobile Club.

At the meeting of the Western Section of the Scottish Automobile Club last week, the chairman, Mr. J. R. Nisbet, asked the views of the members on the proposed "non-stop" run to London. The general opinion was that absolute non-stop over such a distance, though quite possible, was not desirable, nor would it carry any weight with the public mind; the public would be quite satisfied to know that motor-vehicles could run given distances between meals and sleeping hours. It is probable, therefore, that the Committee will run the trial over either two or four non-stop sections. At the next meeting, on the 25th inst., Mr. Napier will read a paper on "Motor Troubles."

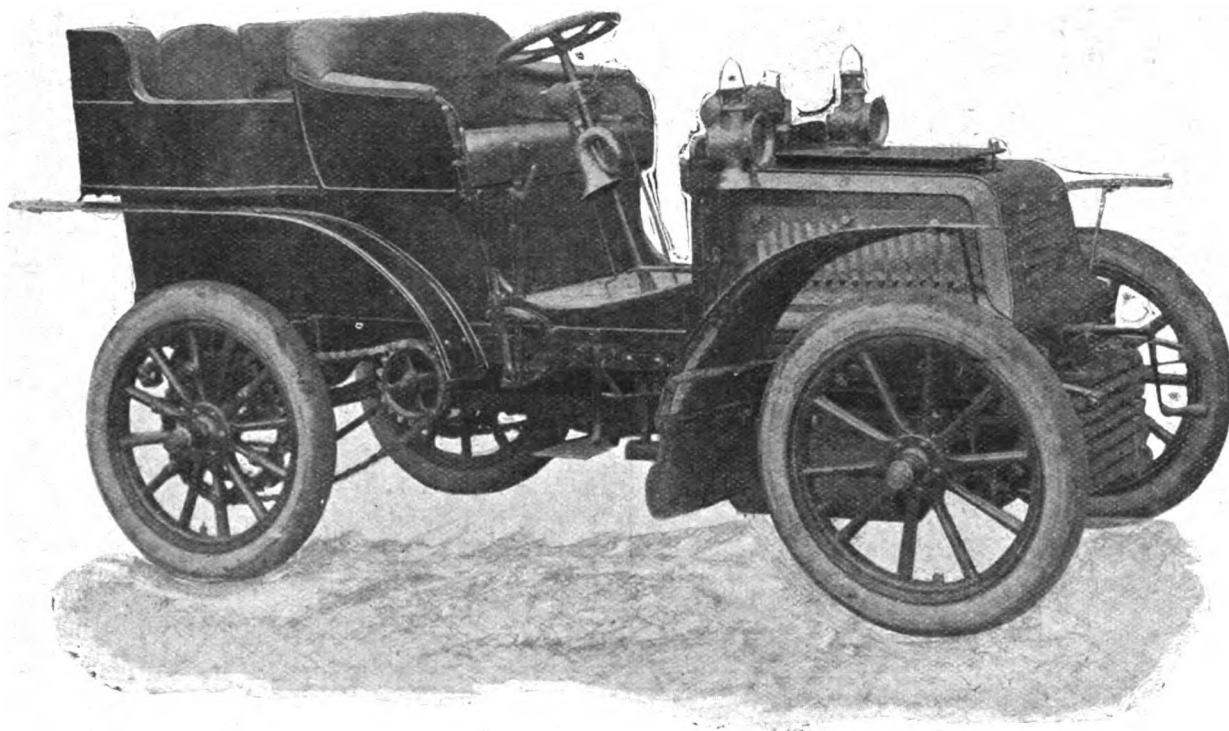
AN enthusiastic New York motorist writes that there is no one spot in that beautiful region skirted by the Hudson River that has been so richly endowed by Nature, or been as thoroughly and intelligently developed by man, as Ardsley-on-Hudson. Considered from every point of view, it is an ideal retreat for those who can command the best, or those who, retiring from the rush of modern civilisation, have time to enjoy life among thoroughly attractive surroundings. To Ardsley is a run out from New York of about twenty-five miles over very good roads, and during the summer months it is well patronised by automobilists. In view of this, the Locomobile Company of America, with their usual enterprise have lately established an automobile station at Ardsley. On another page of the present issue we give an illustration of the station where storage accommodation and facilities for re-charging and repairs are afforded, not only for steam-cars, but also for petrol and electric vehicles.

THE BRUSSELS MOTOR-CAR SHOW.

AN automobile exhibition was opened by Prince Albert of Belgium in the Palais du Cinquantenaire, Brussels, on Saturday last, and will close on Monday next. It has been organised by La Chambre Syndicale de l'Automobile, under the auspices of the Belgian Automobile Club. The show is very interesting, there being altogether 133 exhibitors. It has been well patronised by French firms. Of French-built cars we noticed specimens of the Panhard, Mors, De Dietrich, Delahaye, Hurtu, De Dion, Renault, Darracq, and Clement. Germany is represented by the Cudell and Scheibler vehicles, while Holland has an exhibitor in Messrs. Spyker Brothers, of Amsterdam, who show the Trompenburg cars, which are shortly to be brought before the notice of the English motoring world. Belgian-built automobiles are, of course, well to the front, these including the Linon, Gobron-Nagant, Vincke, Vivinus, Dechamps, Delin, F.N., Pieper, Pipe, Germain, and Belgica cars, which are already fairly well known. Messrs. Longtin and Le Hardy De Beaulieu, of Jette-Saint-Pierre, exhibit a 10 h.p. light car, which, while

THE BRUSH LIGHT CAR.

REFERENCE has already been made in the *Journal* to the light car which is being put on the market by the Brush Electrical Engineering Company, Limited. We are now able to publish an illustration of the vehicle, together with a brief description. The motive power is supplied by a vertical two-cylinder petrol motor, developing 10 b.h.p. at a normal speed of 800 revolutions per minute. As a description of the engine was published in our issue of January 25th last, it need only be here mentioned that it is fitted with a centrifugal governor acting on the admission pipe, provision being also made to control the throttle valve from the driver's seat. Either electric, magneto-electric, or tube ignition can be fitted. The water-circulation for the cooling of the cylinders is maintained by pump and radiators, the former being of the centrifugal gear-driven type, the gear being enclosed in the crank chamber. Three speeds forward and a reverse motion, controlled by a single lever at the side, are provided. The engine transmits its power through a pedal-controlled friction clutch to the change-gear box, and thence by bevel gear to a cross



THE BRUSH LIGHT CAR.

following the general lines of the Panhard, comprises several novel features. The four-cylinder engine is fitted with a regulator acting on the admission, while the water-circulating pump is mounted directly on the engine-shaft. A special form of spring clutch is employed between the motor and the change-gear box, for which it is claimed that there is no thrust strain on the shaft, and that oil does not detrimentally affect its action. M. J. Lefert, of Ghent, and M. O. De Ruyter Demessine, of Brussels, both show electrical vehicles, while steam cars are exhibited by the agents for the Locomobile and Messrs. J. Miesse and Co., of Brussels. In general appearance the latter closely resembles a petrol vehicle. It comprises a number of special features, and we hope to illustrate and describe it in an early issue, especially as we learn that arrangements have just been completed for its introduction on the English market. No English cars were to be seen, but among the motor-cycles, of which there is a big display, we noticed specimens of the Singer machines.

AN automobile exhibition is being organised at the Hague, Holland. It is to be opened on the 30th inst.

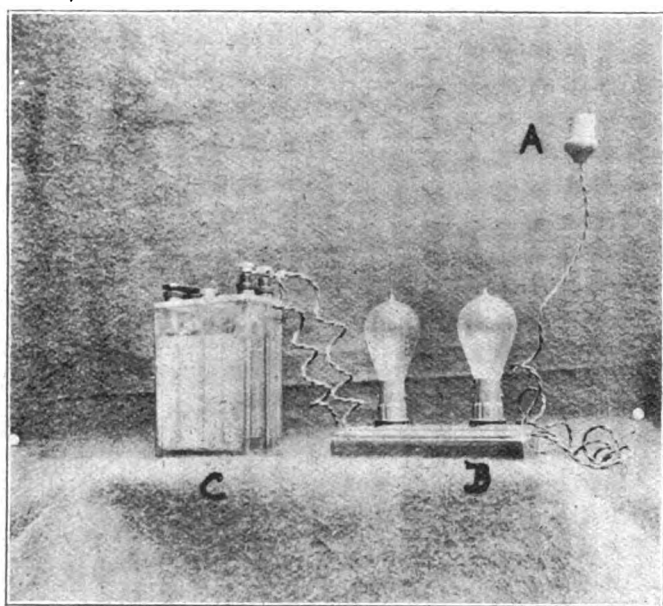
THE American Darracq Company has been formed in New York to import Darracq cars into the United States.

differential shaft, the usual duplicate pair of chains and chain-wheels connecting this with the rear road-wheels. Non-reversible inclined wheel steering is adopted, while both hand and foot brakes are available, each acting equally well, be the car travelling in a forward or backward direction. The frame—of wood and steel—is supported by long springs on artillery wheels of equal size (32in. diameter), these being shod with 3½in. pneumatic tyres. The weight of the chassis comes out at 10½ cwt., while the tonneau illustrated complete, with petrol, water, tools, etc., ready for a run, weighs 15 cwt. The vehicle, which can attain a speed of thirty miles per hour, is the outcome of much study on the part of its builders, who have just opened large show-rooms at 66, Great Russell Street, London, W.C.

ON Monday a meeting was held at Northiam to consider the advisability of starting a service of motor-cars between Northiam and Rye and the former place and Hastings. It was decided to form a company for the purpose, and £2,000 was mentioned as the probable amount of capital which would be required at the outset.

AN ACCUMULATOR CHARGING BOARD.

IN connection with the article on the "Use and Care of Accumulators," which appeared in our last issue, the General Electric Battery Manufacturing Company, of 461, Coldharbour Lane, Brixton, S.W., have brought to our notice a useful little charging board they have just introduced, enabling those motorists and agents who have a supply of electrical energy (continuous current) available to charge ignition accumulators on their own premises. From the accompanying illustration of the device it will be seen that it comprises a board which can be fastened to a wall or table near any convenient electric lamp in the house or dépôt. A is an adapter which connects the board with the source of electrical energy, it being made so as to fit into an ordinary lamp socket. B are holders for two incandescent lamps, by which the necessary resistance is obtained. Flexible wires extend from one end of the board for connection with the accumulator C, which requires recharging. The board can be used in connection with any ordinary continuous-



current mains (100 volts or 220 volts). To charge small accumulators up to seven ampère-hour-capacity on a 100-volt circuit one 16 c.p. incandescent lamp is sufficient; for larger capacities two lamps are necessary. On circuits of over 100 volts 32 c.p. lamps must be used in place of those of 16 c.p. The lamp or lamps are made to act as switches as well as resistances. The adapter is first put in place and then the wires are connected up to the accumulator, no current passing until the lamp is put into place. By means of the arrangement small batteries can be recharged in about six hours. The charging board is neatly made and provided with long lengths of well insulated flexible connecting wires, and in view of the low price at which it is being put on the market it should meet with a large sale. The General Electric Battery Company have also sent us samples of a useful clip for attaching ignition wires to terminals in such a way that there is no danger of the connections becoming loose owing to vibration or jolting.

THE motor bus service in Manor Road and Queen Street, Scarborough, has been suspended for a few days so that the cars may be thoroughly overhauled before the busy season.

A COLOMBO firm has ordered two motor-cars to be used in the Southern Province of Ceylon for the conveyance of passengers and goods.

ACCORDING to a policeman giving evidence against a motorist at the King's Heath police-court, "the frost had frozen the carbon," with the result that the speed of the car was accelerated.

CONTINENTAL NOTES.

BY "AUTOMAN."

THE Gordon-Bennett cup race is still enveloped in the mists of uncertainty. When, where, or whether the contest will be held is as yet undecided, on account of the attitude of the Government, who still show no signs of relenting in their attitude towards any automobile races on the French roads, always excepting the alcohol race which is being organised by the Minister of Agriculture. In the meantime, M. Journu has been spending the last two months in an endeavour to obtain the Ministerial sanction to a Paris-Bordeaux contest, in which alcohol will be the carburant. M. Journu has personally visited the nine departments and 158 mayors of the communes through which the road from Paris to Bordeaux runs. All the mayors, without exception, have signed a petition to the Government calling on it to authorise the race. Innumerable signatures of officials and notabilities in the various districts have also been obtained, and deputies by the score are adding their names to the list. The petition points out that the automobile industry has brought prosperity to many branches of trade and manufacture in the provinces, and found work for 100,000 workmen. "That this industry will bring further benefits owing to the efforts of the A.C.F. in substituting alcohol, which is a national product, for petrol, which is imported, which substitution will result in bringing into the hands of the French farmer millions of francs which formerly went into the hands of foreigners. That an automobile race exclusively for cars driven by alcohol, thanks to the publicity which would result from it, is the best means to generalise the use of this product, and to show that it can advantageously replace petrol." These are two clauses from the petition.

M. JOURNU has explained to me the following very strong reasons in favour of the Paris-Bordeaux race. In the first place, the course is already well known to *chauffeurs*, and from the nature of the roads high speeds are attainable, whereas the course already chosen for the Ministerial race is over roads which are not so good, and where certainly the average speed will be lower. Should, however, the average speed in the Ministerial race not equal the average speed of last year's Paris-Bordeaux, the public will certainly say that it is because alcohol has been used. On the other hand, as it is pretty certain that this year's speed on the Paris-Bordeaux course will outdo last year's, an alcohol race would bring home to the public the qualities of alcohol, and make the demand increase in considerable proportions.

It is probable that the efforts of M. Journu will be crowned with success, and then the Gordon-Bennett cup race might be held over the now classic course, but for one difficulty—would the A.C.G.B.I. agree to run with alcohol instead of petrol? The French competitors would raise no objection, having already studied the question, and knowing that it will make no difference to their speed. Opinions on this point are divided amongst authorities of the A.C.F., and some fear that the English competitors, not understanding the gravity of the situation, may raise objections, as they have no interest in alcohol *versus* petrol, and no experience of the results. On the other hand, the French authorities would, I feel sure, gladly put all their experience at the disposal of English competitors to bring about the desideratum.

ON Wednesday last week the *Auto-Velo* held a sequel to the "Criterium of Consumption," which consisted in a second competition amongst the winners, called the "Winners' Pool." In the original competition there had been such extraordinary results that there was prevalent in the minds of many people a doubt as to whether time had been available for a serious measurement in verification of the results. It was therefore decided to ask the winners to run the course over again, and special pains were taken with regard to the exactitude of the figures. The results

have proved even more astonishing than those of the original competition. I give them below :—

Firm.	h.p.	Total weight with passengers.	Fuel consumed.	Consumption in litres per kilometric ton.	Classification per kilometric ton.
I. Voiturettes.					
Peugeot ...	5½	550	4 litres 800	0.0889	1
Peugeot ...	5½	550	4 „ 900	0.08909	2
Georges Richard	3	510	5 „ 580	0.109	3
II. Light Cars.					
Darracq ...	6½	750	4 litres 850	0.0646	1
Georges Richard	5½	600	4 „ 985	0.0830	4
Korn ...	6	733	5 „ 500	0.0750	3
De Dion ...	6	865	6 „ 330	0.0731	2
Gladiator ...	6	760	6 „ 998	0.0920	6
Peugeot ...	8	1030	8 „ 890	0.0838	5
III. Cars up to 1 ton.					
Chenard and Walcker	12	1,070	5 litres 500	0.0514	1
Bardon ...	5	918	6 „ 470	0.0704	2
IV. Heavy Cars.					
Georges Richard	8	1,240	10 „	0.0806	1
Delahaye ...	7½	1,240	10 „ 650	0.0858	3
Delahaye ...	12	2,060	15 „ 130	0.0734	2
V. Heavy Traction Cars.					
Gillet-Forrest ...	10	1,833	13 litres 290	—	2
De Dietrich ...	12	2,890	12 „ 900	—	1

The general classification in kilometric tons is as follows :—

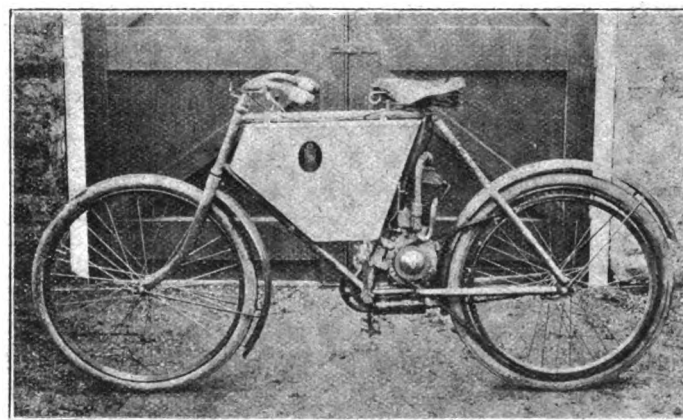
1. Chenard and Walcker ... Car under ton.
2. Darracq ... Light car.
3. Bardon ... Car under ton.
4. De Dion-Bouton ... Light car.
5. Delahaye ... Heavy car.
6. De Dietrich ... Heavy traction vehicle.
7. Korn ... Light car.
8. Georges Richard ... Heavy car.
9. Georges Richard ... Car under ton.
10. Peugeot ... Light car.
11. Delahaye ... Heavy car.
12. Peugeot ... Voiturette.
13. Peugeot ... Voiturette.
14. Gladiator ... Light car.
15. Georges Richard ... Voiturette.
16. Gillet-Forrest ... Heavy traction car.

These results give plenty of food for reflection, and open a new field to the emulation of the different manufacturers. The competition has proved itself to be of the greatest utility, and it is to be concluded that it will become an annual event of importance, and that it will gradually reduce to a science the economical use of fuel. The entirely new and unknown car of Chenard and Walcker has again scored a pre-eminent success.

OWING to the difference of opinion and divergence of views which were expressed at the meeting of the A.C.F. some few weeks ago, when a general meeting was held for the purpose of creating an association affiliated to the A.C.F., but with a very small subscription in order to bring into touch the great masses of the humbler automobilists and enable them to contribute towards the encouragement and the propagation of the industry, the subject has been officially dropped for the time being by the A.C.F. On the other hand, there was founded last week the "French Automobile Association," which is to take up the position of the proposed association. Amongst the founders are to be seen the names of nearly all the chief founders of the A.C.F. The subscription is to be as follows: 20 francs for ordinary members, 15 francs for members of the Touring Club of France, and 5 francs for the members of the A.C.F. The wise decision has been come to to make the headquarters in the Avenue de la Grande Armée, for it is there that the greatest number of *chauffeurs* and *mecaniciens* are to be found, and the new society will constitute a popular meeting place for petrol talk.

THE WESTFIELD MOTOR-BICYCLE.

MR. WESTFIELD, of the Rising Sun Cycle and Motor-Works, 330, Brockley Road, Crofton Park, S.E., has sent us a photograph, reproduced herewith, of a motor-bicycle he has lately put on the market, and which comprises a number of special features. The frame of the machine is of strong construction and is somewhat longer than usual, to admit of the 1½ h.p. Kelecom air-cooled motor being supported in a vertical position behind the main down tube. A modified form of Longue-mare carburettor is employed to furnish the explosive mixture. Electrical ignition is employed, its reliability being increased by the employment of a positive form of make and brake contact. The main frame of the machine is filled up by a metal case divided into compartments, that for petrol having a capacity sufficient for 100 miles, and that for lubricating oil 200 miles. The accumulators, induction coil, spare parts, etc., are also carried in this case. All wiring about the frame, and the handle-bar switch has been dispensed with, there being only 4 in. of high-tension wire and 6 in. of low-tension wire outside the case. The machine is started and stopped by a small lever on the handle-bar,



which, by means of a Bowden wire, actuates a combined switch and exhaust-valve lifter. Ample brake power is provided, there being a combined free-wheel and back-peddalling brake in the rear wheel hub, and a rim-brake on the front wheel. The power of the engine is transmitted by a belt to a light metal pulley on the hind wheel, the motor being started by the usual pedals and chain gear. We are informed that the machine can attain a speed of 30 miles per hour on the level and ascend all but the steepest hills without assistance.

It is likely that some trials of electrical vehicles will be held shortly after the Coronation, the programme including a series of daily runs from London to Brighton, Ascot, Windsor, Sandown, and other places in the vicinity of the Metropolis.

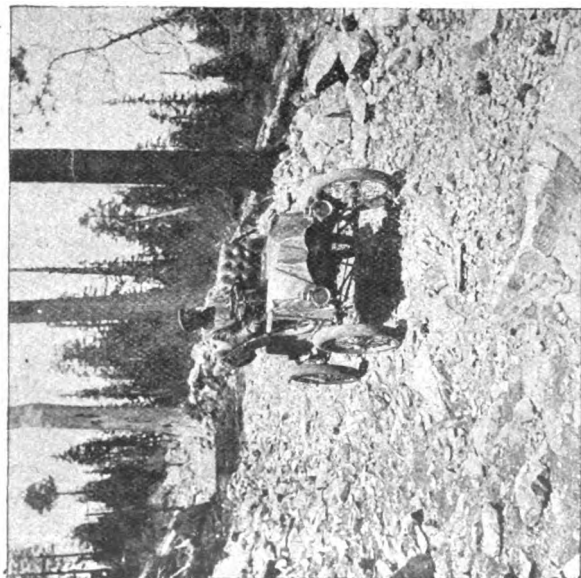
MR. WALTER CREBER, of Barhead, N.B., has received the Automobile Club's medal gained by his Albion car during the Glasgow trials. It is the only medal gained by a Scottish-built car. Mr. Creber has also received the Club's driving certificate in connection with the same trials.

A NEW motor coat in Irish frieze, and rendered rain proof by a special quicksilver process, has been introduced by Messrs. H. J. Nicoll and Co., of 114, Regent Street, W. The coat is lined with soft leather which is pliable to the movements of the body, and fur wind-traps are inserted into the ends of the sleeves.

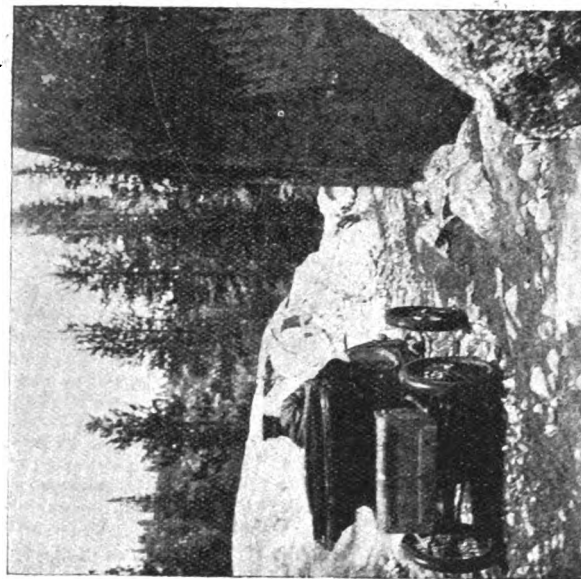
MESSRS. JOHN CHILD MEREDITH, LIMITED, have just introduced a slight modification in the carburettor for bicycle-motors lately illustrated in these columns, they having found by experiments that by allowing for a greater volume of air to be admitted the power of the motor is considerably increased. The carburettor is now being provided with an additional air inlet underneath the petrol control valve, the lever on top of the device being dispensed with.

A Trans-American Trip.

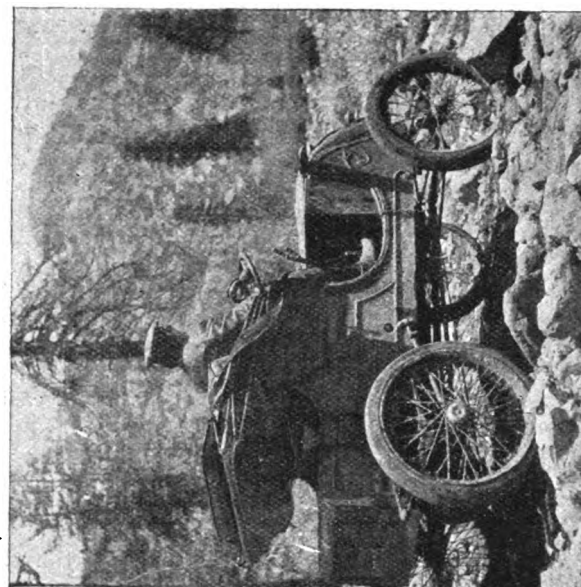
(See page 19.)



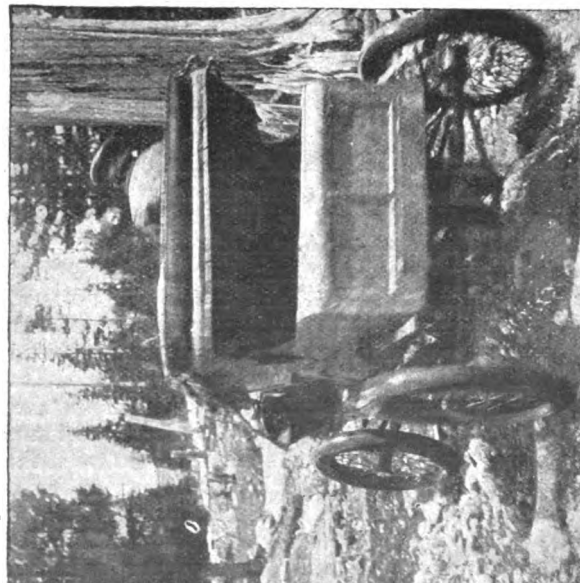
TYPE OF ROADS FOUND IN THE HIGH SIERRAS.



"NEW HAMPSHIRE ROCKS" IN THE HIGH SIERRAS.



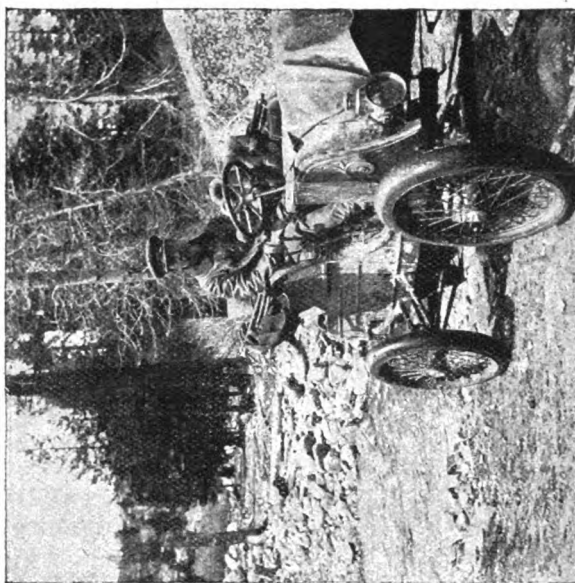
ANOTHER SPECIMEN OF ROADWAY (?) UP AMONG THE CLOUDS



FIGHTING THROUGH THE MOUNTAINS.



DEEP INTO APOGE MUD.



JUST OUT OF A ROCK-BEDDED STREAM.

Mechanical Flight Up-to-Date.*

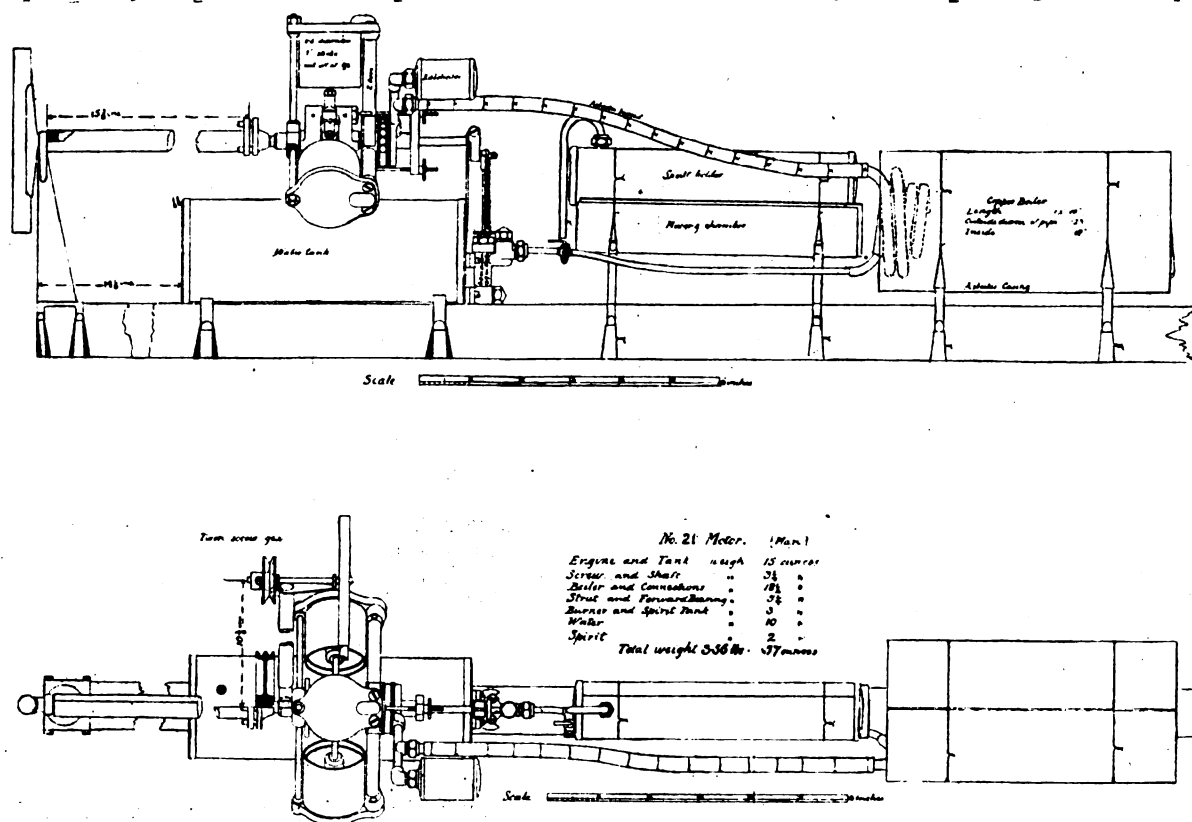
By SIDNEY H. HOLLANDS.



CHAPTER V.—continued.

THE reader may now turn to the illustrations of two of Mr. Hargrave's early compressed air motors and pressure reservoirs for winged (flapping) models. It will be noticed that both of these motors are mounted on, and embodied with, their respective cylindrical pressure reservoirs. In one case (Figs. 3 and 4) a novel form of oscillating cylinder arrangement is used, actuating the wing-arms by means of a three-throw crank-shaft and suitable double-jointed connecting-rods, the cylinder having a detached piston valve, worked off an eccentric. This latter design is an ingenious means of ensuring a positive motion of the wings and of the pressure-distributing valve. By the way, in these little high-pressure motors one learns early the necessity of using some form of balanced-pressure distributing valve. Mr. Hargrave adopted the piston valve in his later models. I used

The large Maxim steam motor (Fig. 7) is now so generally familiar that it is really almost superfluous to describe or illustrate it. It is unquestionably the lightest large motor ever made for its power. It may not, perhaps, be so generally known that these twin engines were of two-cylinder-compound type, with cranks at 180 degs., and with a quite original self-adjusting connecting-rod head. In short, there were so many original "dodges" among the accessories of this big machine that a separate chapter would be needed to describe them. The generator was provided with an efficient system of forced circulation, feed-heating, and gas-firing (vaporised gasoline), and worked at a pressure of 320 lbs. per square inch. It was fitted with a separate regulator for each of the twin motors. The following experiment—which I witnessed on the Maxim machine—will give an idea of the remarkable efficiency of the firing arrangements. On one of the trials of this machine, just before starting, the steam-pressure stood at



FIGS. 1 AND 2.—ELEVATION AND PLAN OF HARGRAVE'S ROTATIVE STEAM AERIAL MOTOR (1895).

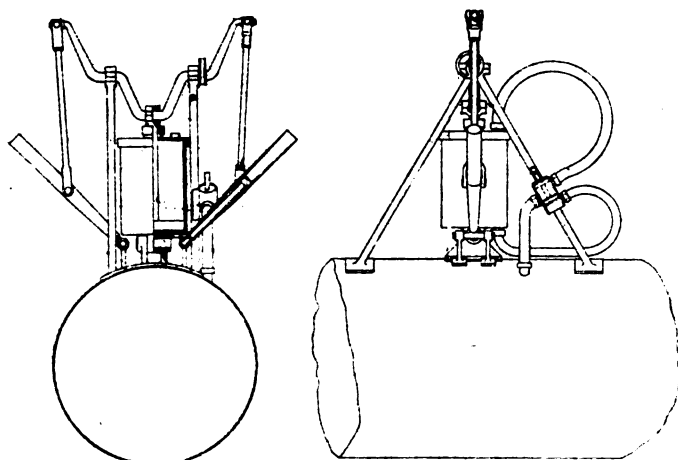
another form, giving less leakage, after discarding three-ported unbalanced slide valves. The other of these two models of Mr. Hargrave's has a fixed cylinder within the pressure reservoir, with an ordinary three-ported slide worked off a small auxiliary crank-shaft, used for that purpose solely. The inner ends of the wing-arms are directly connected to the piston-rod head, and the fulcrums are on double-splayed rocking standards (see Figs. 5 and 6). The two latter little motors were among the earliest of Mr. Hargrave's compressed-air-driven models. The two next illustrated are designed for steam pressure, and have very light and efficient instantaneous coil generators. A cleverly-designed tappet-gear for actuating the piston valve is used with the non-rotative type for flapping flight. The other motor, driving a rotating propeller, is a neat little three-cylinder engine, with a rotating valve (Figs. 1 and 2). Particulars of weight, etc., of these will be found accompanying the illustrations.

175 lbs. per square inch. The steam was turned full on to the engines, both regulators open full bore, and the feed-pumps, of automatically variable stroke, put into full gear, pumping water into the generator at the rate of 5,000 lbs. weight per hour. In spite of these trying conditions, the steam-pressure rose from 175 lbs. to 275 lbs. in about one minute, the gas-furnace being turned full on. The ratio of weight of motor for power actually developed in this machine was about six pounds per effective horse-power. At the present time all other than steam, petrol, or spirit motors may be said to be excluded from the field of aeronautics. Electrical power—which some still pin their faith to for this purpose—is immensely too heavy.

Reverting now to explosion or internal combustion motors, which, for present practical purposes, we may narrow down to

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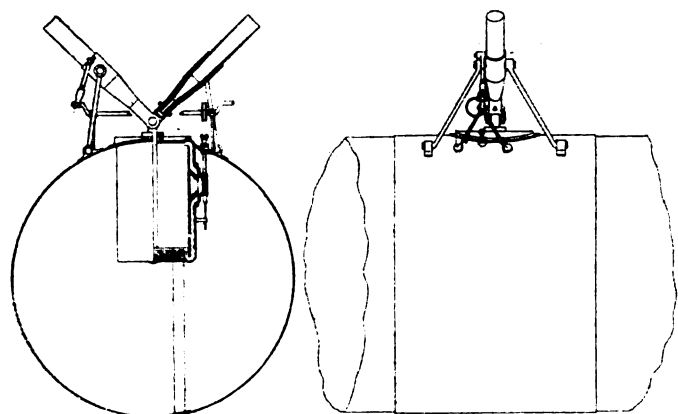
the petrol motor, motors of this class are necessarily rotative and of high speed. Certain types of aviator demand a *non-rotative* reciprocating motor of comparatively low speed; and, as the introduction of intermediate additional mechanism to translate the motion from rotative to reciprocating is inadmissible in this application, the petrol motor is again at a disadvantage compared with the steam engine, which may be of either type with equal facility. In short, the petrol or spirit motor is only adaptable to the driving of rotating propellers. Santos Dumont, although he adopted the petrol motor for his inflated "airship," once made the remark that "motors of this class resemble the fair sex in



FIGS. 3 AND 4.—HARGRAVE'S COMPRESSED-AIR AERIAL MOTOR (1885).

being very capricious." Now, although we must naturally expect, and gracefully submit to, a certain amount of this commodity in an otherwise charming woman, we fortunately are not restricted to a motor that displays a quality so out of keeping with the imperative demands of safe aerial navigation.

The lightest petrol motor yet produced was, I think, without doubt, the Kane-Pennington—even after largely discounting the original claims—having cylinders of thin-drawn steel tube, etc. The earliest forms of this motor, which were the lightest, had



FIGS. 5 AND 6.—HARGRAVE'S COMPRESSED-AIR AERIAL MOTOR (1885).

however, two particularly bad features: in the first place, they were not provided with any efficient means of cooling, neither radiating flanges nor water-jacket; and in the next place, they had not an enclosed crank-chamber. Consequently this motor could not run continuously. Later, when it was found necessary to apply water-cooling, the weight was thereby, of course, considerably augmented. It appears to me, however, that thin steel tube, surrounded with a much thinner outer tube enclosing a narrow water-jacket (provided with very efficient circulation), in combination with a thin steel enclosed crank-chamber (not necessarily a casting, but if a casting, an alloy of aluminium and magnesium preferable), due provision being made to take the thrust on the crank-shaft, which latter member would, of course, be hollow, with redundant metal cut away from the cranks; it appears, I say, that this modified construction might be adopted

with advantage as a substitute for the prevailing construction and materials in aiming at the lightest practicable petrol motor for aeronautical use.

The lightest produced recently (of the latter), and now placed on the market, is that of Messrs. De Dion-Bouton a (special), 40-h.p. four-cylinder water-cooled motor, weighing 400 lbs., or 10 lbs. per h.p. This is a considerable advance in lightness on Santos Dumont's 20 h.p. Buchet motor, and a great advance on

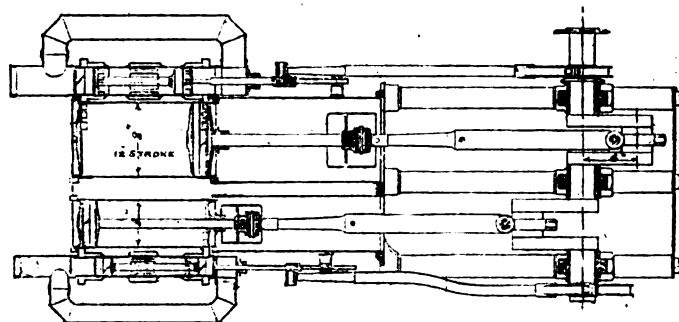


FIG. 7.—HORIZONTAL SECTION OF MAXIM ENGINE.
Normal Working-pressure, 280 lbs. per square inch; Speed, 350 revolutions per minute.

the 35-h.p. Mercedes used by Herr W. Kress, of Vienna, on his experimental aviator, as this motor weighs no less than 700 lbs., or 20 lbs. per h.p. We may take it that the lightest petrol motor at present available weighs 10 lbs. per h.p. The lightest steam motor now producible is about 7 lbs. per h.p., including water for an equal duration of power. Now the steam engine is certainly not "capricious," and, as we see on comparison of the foregoing figures, has a 30 per cent. higher power ratio, besides its adaptability to non-rotative types.

MR. ROLAND BROWNE has opened offices at 13, Regent Street, S.W., in connection with the Lanchester Engine Company, Limited.

A MOTOR-BICYCLE race is included in the list of events to be run off by the Putney Athletic Club on the Putney track, on Easter Monday.

THE shed built in the grounds of the Aero Club at St. Cloud, near Paris, for the accommodation of M. Santos Dumont's airship, has been sold for £40. It is to be taken to pieces and re-erected in the outskirts of Paris for use as a motor-car garage.

WRITING with regard to the remarks of Mr. Letts, as to gasoline cars in the United States, in our issue of the 1st inst., a correspondent points out how they go to confirm what Mr. C. Jarrott said in an interview which appeared in the *Journal* on April 20th, 1900, to the effect that the "prospects of gasoline in connection with motor-cars are decidedly improving, and many of the United States manufacturers are turning their attention in that direction."

DURING the coming summer Mr. H. J. Wimshurst, of Coventry, the travelling agent for the Progress Motor Company, proposes to carry out a series of tours on a Progress car. His first journey will commence on the 27th inst., and will be by way of Lichfield, Stone, Knutsford, Warrington, Liverpool, Wigan, Preston, Lancaster, Kendal, Windermere, Keswick, Penrith, Carlisle, Newcastle, and Sunderland, returning to Coventry via Middlesbrough, Scarborough, York, Harrogate, Doncaster, Nottingham, and Leicester.

THE Miesse Steam-motor Syndicate, Limited, has been registered with a capital of £50,000 to acquire the benefit of an agreement between Jules Miesse, of Brussels, of the one part, and the British Steam Traction Syndicate, Limited, of the other part, and the sole agency for the United Kingdom and British colonies for the sale of steam generators made in accordance with English Patent No. 4,855 of 1900, and all motors, motor-carriages, and vehicles made by the said Jules Miesse or furnished with the said steam generators; to adopt an agreement with Mr. V. C. Doubleday, and to carry on the business of motor, motor-car, and vehicle manufacturers, etc.

HERE AND THERE.

At Cannes, Nice, and Homburg those interested in the social season are in a flutter of excitement over the likelihood of visits from King Edward VII. Hotels and garages at these three resorts are being overhauled in view of the possibility of Royal patronage, and excitement has been increased by the report that one of the King's motor-cars has been sent to Cannes. During his last three visits to the Continent His Majesty has shown great interest in motor-cars, and the Homburg season of last year was made memorable by the trips which the King took on a steam car.

LAST week the Cheshire Hunt had a meet at Whatcroft, the gathering being the largest and most aristocratic of the present season. To automobilists it was specially interesting, as the Duke of Westminster took some friends from Chester on his motor-car, and the Earl of Shrewsbury also ran out to the hunt on his automobile. Evidently the protest of some masters of the hunt against the use of motor-vehicles in connection with hunting meets has fallen flat, and followers of the hounds rightly recognise that there is no loss of dignity in being up-to-date.

THE Earl of Craven attended Warwick Races on Saturday on board Mr. Oliver Stanton's Daimler carriage, "Le Chat Noir," which attracted so much attention on the occasion of the Southsea run. Lord Craven is an enthusiastic automobilist, and the Daimler Company are constructing a splendid 22-h.p. carriage specially for him.

AMONG military men who are in the habit of employing motor-cars when visiting their stations is Colonel Knox, J.P., the officer now in command of the Kilkenny Militia. While driving his car in the High Street, Kilkenny, the other day, one of the wheels of the vehicle came off and the Colonel was thrown with such force that he was rendered unconscious. Latest reports give the news that he is progressing favourably, which intimation will be welcome relief to his friends.

PHOTOGRAPHY adds a delight to motoring, not only in the country but also in the town. Ladies who are in the habit of motoring in Hyde Park, and who also delight in the pleasures and disappointments of amateur photography, should apply for the necessary permission to photograph in the park to Sir F. J. S. Hopwood, K.C.B., of the Board of Works, Whitehall, S.W.

TUNBRIDGE WELLS has been well identified with the automobile movement—thanks to the example and enthusiasm of Sir David Salomons. The Tunbridge Wells and District Motor Company is showing great activity and intend placing a new 20-h.p. car on the road without delay. This will be followed in a fortnight's time with an additional car. The motor is of the Benz type, and the vehicle will carry eighteen passengers. The company inaugurated its passenger service in July last year, and the venture has not only proved a boon to the public of the district, but is a success financially. A "garage" has recently been added to the company's premises, and repairs also undertaken. Mr. G. Allen is the general manager.

MOTORISTS in the Thames Valley will be glad to know that the agitation for the freeing of Maidenhead Bridge from toll continues. Unfortunately the Town Council seems rather loth to tackle the matter with anything like firmness. Dilatoriness was ever a characteristic of some local bodies.

THE Right Hon. Sir J. H. A. Macdonald, K.C.B., Lord Justice Clerk of Scotland, has been delighting Scottish automobilists, as he recently charmed the members of the parent club in London.

with incidents of early motoring days. In those incidents Mr. Koosens, of Southsea, figures prominently, the extracts given from the diary of Mrs. Koosens being most delightful reading. Mr. Koosens was present at the meeting of the new Club at Portsmouth last week, and said he had covered 75,000 miles on his motor-car without having had a smash—a fact which should induce the president of the club, Major and Mayor Dupree, not to delay his intention to become an automobilist.

TRAVELLING in an automobile the King and Queen of Italy recently went from Rome to Albano. When near Ariccia the vehicle ran into a ditch, but fortunately no one was hurt. A number of peasants came to the aid of their Majesties, righted the car, and the journey was continued.

MRS. CECIL POWNEY, a popular London hostess, was present with Major Cecil Powney at the opening ceremony in connection with the Imperial Motor and Cycle Repairing Works, Lyndhurst, on Saturday. Major Powney presided at the luncheon at Ye Olde Crown Hotel, and proposed success to the new venture, which toast having been enthusiastically drunk was responded to by Mr. Hamilton Dent, in the absence of Mr. Edward Morant, of Brockenhurst Park. Mr. Dent said they intended to do all they could for the development of automobilism in the New Forest district, and it was the intention to have several cars on hire for trips in that delightful region during the summer. The roads are in splendid condition and on Saturday about thirty-five motor-cars were within sight of the new works, some of which had been driven down from London.

BARON AMHERST OF HACKNEY and Sir C. E. Hamilton, Bart., have been elected to membership of the Automobile Club.

SINCE Mr. E. J. Coles appeared with his automobile on the stage of the Alhambra there has been no serious attempt made to amuse the public with a motor-car performance. Of course, motor-vehicles have appeared in pantomimes and in theatrical pieces, but they have been mere incidentals. It is rather strange that the motor-car has not been educated to undergo dramatic evolutions and fantastic gyrations. Something, however, is being done in that direction by a gentleman who was once connected with a well-known public service of motor-vehicles, and who hopes shortly to indulge in motor-car somersaults on the stage of a London music-hall. Special apparatus to give the necessary drop in which to perform the evolution is being prepared, and doubtless considerable interest—not to say some anxiety—will be felt in the result.

TOLLIUS.

THE Mid-European Motor Car Union intends to hold an automobile race from Berlin to Hamburg on June 17, with the object of testing the safety of the materials used in the construction of the vehicles.

THE Caledonian Motor-Car and Cycle Company, Limited, of Aberdeen, who are already the Scottish agents for Peugeot vehicles, have also been appointed sole agents for the Peugeot motor-carriages in Ireland.

THE encouragement of motor-cycling is to be considered by a special committee of the Automobile Club.

A NEW motor fire-tender is to be purchased by the Eccles Town Council to replace that damaged under circumstances reported in these columns last week.

ROTHSCHILD'S MOTORS, LIMITED, has been registered with a capital of £1,000 to acquire the benefit of and carry on the agencies for the sale in this country of the motors and motor-cars of the Deutsche Automobil-Industrie (Frederich Hering), of Gera-Untermhaus, in the German Empire, and of the Lux'schen Industriewerken Motorfahrzeug Abteilung, of Ludwigshafen-on-Rhine.

THE MERCEDES-SIMPLEX 40 h.p. CAR.

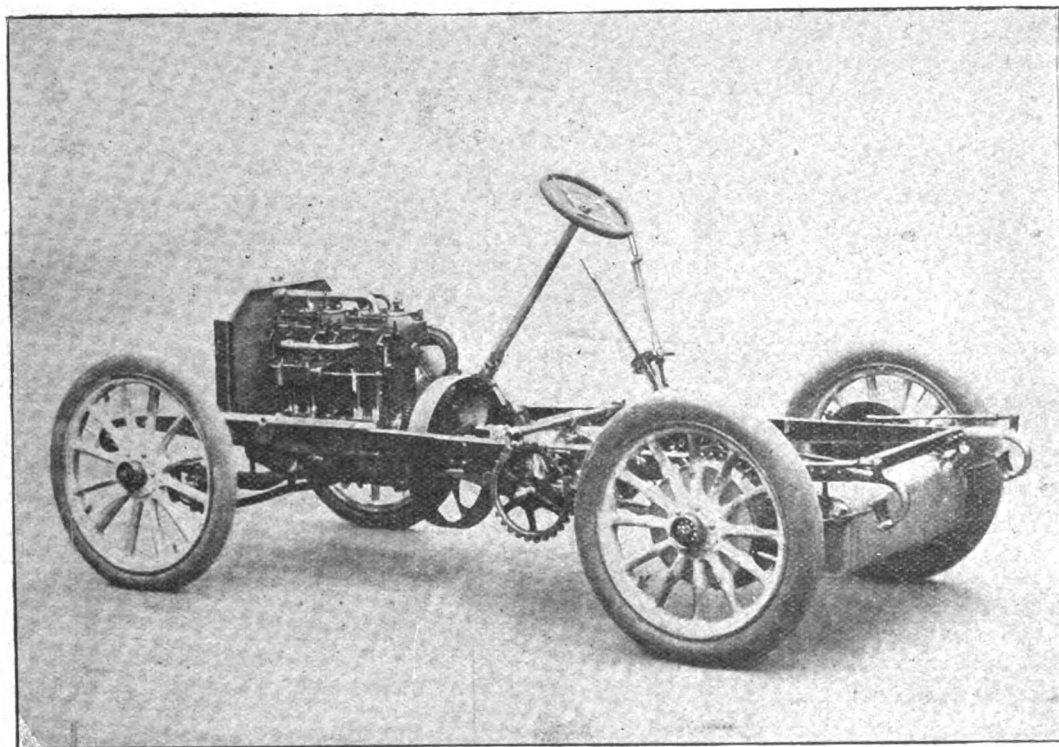
GREAT expectations are attached to the new models of the Mercedes car, the first of which has lately been turned out from the works of the German Daimler Company at Cannstatt, and of which we are now able to publish a few particulars. It only resembles the 1901 Mercedes in outside appearance. The four-cylinder motor has been denominated the "Mercedes Simplex," and the term is said to be justified by its appearance, no mechanism being visible except the four exhaust valve stems. Ignition is by a new style of alternating current apparatus without springs, rods, or contact breakers, and requiring no accumulators or coils; it is claimed to have the advantages of the magneto, and avoids the wearing parts of the latter.

The old governor has been discarded, and the motor is now controlled by a throttle-valve on the induction pipe, by means of which the speed of the engine may be varied from 200 to 1,200 revolutions per minute. The water-cooling apparatus remains as before, employing one and a half gallons of water only, but the draught-inducing fan between the cooler and the motor has been

THE PRESS ON MOTOR-CARS.

THE Automobile Club's letter to the Press, which we published last week, has drawn forth a series of articles which constitute a splendid tribute to the progress that automobilism is making in this country. A few extracts from some of the leading journals will be of interest to our readers:—

The *Times* says:—"Punishment, sharp and severe, should fall on those who insist in crowded streets upon driving at a perilous speed. The vain or hare-brained driver of an automobile, who in London or its suburbs tears along at the maximum speed, is a nuisance to be put down with a strong hand. But why, on a solitary part of the Great North Road, for example, with a straight run before the driver, he should not be free to travel at the rate of twenty miles an hour is not clear. Such a restriction is so unreasonable that it is not, and will not be, observed. We should gladly see a reconsideration of the whole question of speed in the light of recent improvements in motor-cars and of varying local conditions. No longer a toy, an article of luxury,



THE NEW "MERCEDES-SIMPLEX" 40-H.P. CAR.

(*La France Automobile*.)

dropped. Instead, the engine fly-wheel is made to serve as a fan, vanes being formed on it, as will be seen from the illustration. The speed gear-bearings, and practically all other bearings of the vehicle, run on balls; these bearings are on the Maybach system, and have a friction coefficient of .012. A special form of clutch is used between the motor and the change-gear box. The clutch is so arranged that when disengaged the speed of the motor is automatically reduced. The frame is mounted on equal sized wheels, the weight of the complete 40-h.p. chassis coming out at only 17 cwt.

WE hear that John Child Meredith, Limited, of Birmingham, are about to put a new 10 h.p. car on the market. The motor will be of the two-cylinder slow-speed type.

THE Vacuum Oil Company, of York House, Norfolk Street, W.C., have sent us samples of their lubricating oils for air and water-cooled motors, which are claimed to be especially efficient owing to their great friction-reducing properties.

for the amusement of a small minority, the light locomotive should be allowed to serve the public to the full extent of its capacity. The motor-car and wagon industry is at present in the state in which it is most susceptible of meddling, ill-advised legislation. At present the demand for serviceable motors exceeds the supply, and the probability is that, if these restrictions continue, the foreign producers will gain further advantages. No one would openly ask to be free from any conditions as to speed or otherwise which may be reasonably asked by foot passengers or owners of carriages. The communication which we have noticed leaves a strong impression that the industry has been kept in leading strings too long, and that the existing relations should be recast in the light of facts which were unknown or doubted in 1896."

Commenting on automobilism as a "manacled industry," the *Globe* says:—"If we are not to lose for ever the foreign and colonial markets, and if we are to keep pace with the steadily growing demand at home, it is absolutely necessary that every obstacle to the progress of this industry should be removed, and

that every inducement should be provided both for our manufacturers and our mechanics. The preservation of the public safety is, of course, a prior consideration, but the existing restrictions are shown to be due to ignorance and to panic, while the petty persecutions to which rural policemen and local boards and magistrates subject the owners of motor-cars are little short of scandalous."

While urging drivers of motor-cars to be careful, the *Nottingham Express* declares "it will be a serious misfortune if short-sighted legislation should cripple an industry which has a tremendous future in front of it."

To anyone who calmly considers the question, says the *Daily Telegraph*, it must be obvious that, "so far as the safety of the public is concerned, a motor-car at twenty-five miles an hour is less dangerous than a horse-drawn vehicle at half the speed, for the car can be stopped or turned about in a manner which no horse that was ever foaled can approach."

ACCORDING to the *Morning Leader* "it is impossible that the weighty protest of the Automobile Club should pass unheeded."

IN generally endorsing the letter from the automobilists the *Spectator* says:—"We may add our agreement with the proposal that a ready form of appeal should be given from the decisions of magistrates. We by no means think that the automobilist is always right and the country magistrate always wrong, but there is so much popular prejudice against the motor-car that it is only just that its driver should have an appeal to a tribunal which can be relied on as being without any unconscious bias."

THE *Glasgow News* says the protest is "justifiable," and that the "legal restrictions on automobilists ought to be put on a reasonable basis."

THE MATHOT EXPLOSION RECORDER.

THE Mathot apparatus for registering explosions is particularly interesting, because it permits of practically controlling the conditions of operation of internal combustion motors. Although it has been possible up to the present to control the state of regulation of such motors by means of diagram indicators, the results have been relatively satisfactory only when the velocity of the motor to be tested has remained within the limits of from 300 to 400 revolutions per minute. Since the motors of automobiles exceed such velocity, and easily reach the figure of from 1,000 to 1,800 revolutions, the most skilful experimenter cannot obtain a diagram under such conditions, and consequently cannot ascertain what phenomena are taking place during the running of the motor.

The apparatus devised by M. R. Mathot, on the contrary, owing to its ingenious construction, permits of following in an absolute manner, for a determinate time, the conditions of operation of any motor whatever be its rotary velocity. The apparatus is secured through the medium of a cock *r* to the explosion chamber of the motor to be tested. It consists of an arrangement analogous to that of diagram indicators, but the drawing is done upon a band of paper that unwinds in a continuous manner. The cylinder *C* is provided with a piston which is encircled by an opposing spiral spring *S*. A clockwork movement, housed in the box *b* actuates the band of paper, which unwinds from the spool *p* and passes over the drum *p'*, where it receives the imprint of the tracer *t*, and then winds around the spool *p'*. Besides, a small tracer *f* marks the "atmospheric line" upon the band of paper in passing over the drum *p*.

In order to prevent the piston *P* from "seizing" through the high temperature produced by the explosion, the cylinder *C* is provided with a jacket *e*, in which a circulation of water is assured by a small rubber tube fixed to the nozzle *e'*.

The apparatus having been secured to the motor, its piston is forced by each of the explosions to a height corresponding to the power of the latter, and the tracer controlled by the lever *t* registers them, one alongside the other upon the band of paper in motion. The velocity of the latter with respect to the number of revolutions of the motor to be tested is so regulated

that the lines representing the explosions shall be plainly juxtaposed. Their succession indicates not only the number of the explosions and revolutions within a given time, but also their regularity, their alternations with the "miss-fires," and their pressure in atmospheres measured by the scale of flexion of the opposing spring. The diagram obtained permits of determining experimentally the most favourable dimensions to give to the

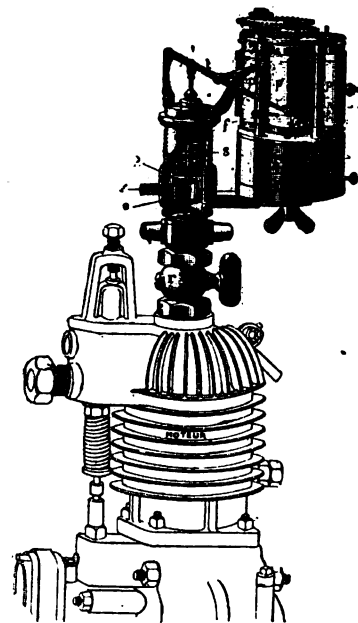


FIG. 1.

admission and exhaust valve, by reason of the different velocities; of avoiding the resistance during suction and the counter-pressure during the exhaust that are the principal causes of losses of useful effect in high-speed-motors; and of estimating the role of compression, etc. The accompanying diagram shows that it is possible, from the indications given, to regulate, in an analytical manner, the operation of a motor, to ascertain what proportion of air, gas or hydro-carbon gives the strongest explosion, and to control the influence of compression, velocity, time of sparking, etc.

It is possible, also, to fix the amount of the resistance during suction and exhaust. To this effect, it suffices to compare the origin of the lines of explosion with the atmospheric line

At 800 revolutions 4-h.p., with 80 per cent. explosions. At 600 revolutions 4½-h.p., with 66 per cent. explosions.

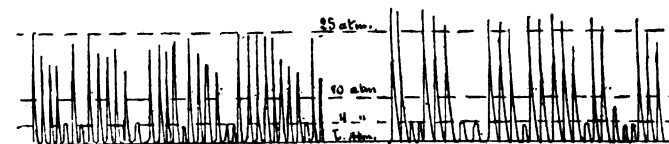


FIG. 2.—Part of a diagram taken from a 6 h.p. motor running at 75 per cent. load, showing the increased efficiency obtained by a reduction of the speed and the changing of the carburettor.

marked by the tracer *f*. The complex phenomena that accompany the operation of explosion motors are by this apparatus verified in a scientific and positive manner, and its use by manufacturers will undoubtedly permit them to introduce modifications into the arrangements that they have adopted, with the effect of improving the efficiency of their motors.

FROM Messrs. A. Darracq and Company, of Suresnes, near Paris, we have received a copy of the 1902 catalogue of Darracq cars. In addition to general views of a variety of different types, a number of pages are devoted to a description, accompanied by sectional illustrations, of the various parts of the motor and the mechanism. Altogether the catalogue is very complete and interesting.

FLOTSAM AND JETSAM.

BY FLANEUR.

THE day of Club touring is regarded by many as being over, and for future undertakings of this kind it is proposed to arrange a definite object at the rendezvous, in the shape of speed trials, or some kindred attraction. It is true that last year's tours were not numerous attended, but the reason is not by any means, it seems to me, that combined touring has lost its popularity, but rather the difficulty of making an automobile tour that really is combined. Experience has shown that there is nothing so unsociable as a tour on motor-cars, notwithstanding the fact that there is a closer bond of common interest among automobilists than almost any other body of men. Not many people will deny that the cause of this unsociability is entirely mechanical. Motor-cars are of all types and powers, and to keep them together, unless in an organised procession, with a pilot who must not be passed, is impossible. A 20-h.p. car cannot be expected to go the pace of a 6-h.p. Even with two cars of less obvious disparity, the pace of which is virtually equal on the level, one will prove itself a little stronger on the hills, and get up on its third or second speed when the other has to change on to its second or first. So the gap gets longer and longer, and nothing but a mishap of some kind or other to the front car will bring the two together again.



THE LOCOMOBILE STATION AT ARDSLEY-ON-HUDSON (see page 20).

It is not easy to see how this state of things can be avoided, excepting in the case of cars of nearly equal power, whose owners mutually agree to keep one another company. If one draws gradually out of sight of the other it is not difficult to pull up for a few moments. The result is occasionally as surprising as it is gratifying. On one long journey, for example, to which I may refer, I formed one of a party of three tourists, and the cars we drove had little or nothing to choose between them in respect of power. The slight differences that did exist would have doubtless become accentuated in the course of the day's run, but we had agreed to keep practically together. Now, quite apart from the sociability of this arrangement, each one of us benefited thereby in turn. Two punctures were the fate of one, and though these, of course, he could have repaired alone, the job was more quickly done with the assistance of his friends. Another ran out of lubricating oil, and his car, moreover, was one in which a central reservoir fed most of his bearings, so that when he "dried up" it would have been serious if one of his companions had not had a plentiful reserve supply.

The third member of the party, near the close of the day, happened to break down completely, and his car was towed to a place where it could be stored for the night; otherwise it would

have had to be left on the roadside, five miles from any station. He then boarded one of the other cars. Each of the aforesaid incidents, be it noted, happened when the car which was the subject of the particular mishap was in the rear, and if the other drivers had not, on missing the absentee, gone back to find him, there would have been distinct inconvenience to each member of the party in turn, for it was Sunday evening on a comparatively deserted road in midwinter. Clearly there are occasions when sociability pays!

As a set-off against a good deal that automobilists have had to put up with in the past, and in magisterial and certain other quarters have still to endure, one may note a distinctly improved feeling, on the whole, where the public is concerned, when driving in the suburbs particularly. I rarely encounter a hostile glance

nowadays, though often one of careful criticism, as though the spectator were looking out for a car to buy, and speculating as to what the one might be that I was driving, and whether it would suit his individual requirements. What is particularly gratifying, however, is that in some cases one meets with distinct friendliness from people who know absolutely nothing about motor-cars, technically speaking, but have recognised that they have come to stay, and regard them with some amount of interest accordingly. A day or two ago I was driving on a friend's car, and we stopped to oil up, after a long run, on the outskirts of a large town.

The car gave a back-fire after we pulled up, and a very loud one it was. A gentleman who was in the garden of a large villa near at hand promptly came out to inquire if he could be of any assistance! From the questions he asked about the car it was obvious that he did not know one end of a car from the other, nor whether ours was of the steam, electric, or petrol type. He had come to proffer his services out of sheer good nature, and I, for one, could wish that everyone equally uninformed as yet in automobile matters were as free from prejudice and hostility.

THE recharging of accumulators is to some automobilists a simple matter, to others it is not, according to the distance that one lives from a charging station. I was staying lately at a country house at which three cars were kept, and there was no place within fifteen miles where the batteries could be recharged. In urban districts, of course, this case could hardly be paralleled, but even then there must be not a few car owners who would like to be able to charge their accumulators in their own house if that were possible. The electric lighting of even suburban houses is not yet general, however, but it is rapidly extending, and if only the continuous current were employed one might look forward to a time when the automobilist could draw upon his household supply as a matter of course.

UNFORTUNATELY, however, the use of the alternating current for urban installations is becoming the rule rather than the exception, and to recharge from an alternating current is impossible without a special apparatus. Such an apparatus, however, does exist. I was discussing automobile matters the other evening with a gentleman who is the borough electrical engineer of a well-known Surrey town, and he told me all about an appliance by the aid of which an accumulator can be recharged from an alternating current. It is called the "Batten patent rectifier," and appears to be a very ingenious device. Not being a professional electrician myself, I should hesitate to say anything about it but for the fact that it was brought under my notice by one whose imprimatur was of both practical and independent value alike.

THE technical description of the "rectifier" is as follows:—
 "This apparatus is a polarised relay, whose tongue moves synchronously with the alternations of the current, and sends unidirectional impulses into either of two paths, which it opens for itself, and is independent of alterations of frequency or voltage. It will work with a much lower percentage of wasted energy than would result from doing the same work on a direct-current circuit through charging lamps. It will start at once at full load, without speeding up, without expert attendance, and without delicate mechanical starting devices. It will carry six ampères at 50 volts, and a larger current at lower voltages. The apparatus is formed of a step-down transformer and a polarised relay, which consists essentially of one or more electro-magnets, and of a polarised armature carrying a contact piece. The armature is free to move or rotate through a small angle on its pivot, and is polarised by means of two permanent magnets, the two similar (say south) poles of which are touching one another. By means of two soft iron studs these convey their magnetism up to the centre of the soft iron armature, and induce a consequent north pole there, with the result that the two ends of the armature become south poles, and do not change their polarity.

"If an alternating current is passed through the electro-magnet it produces alternating magnetism in its ends; that is to say, the magnetic polarity changes rapidly north and south. They will therefore alternately attract and repel the ends of the armature, where the magnetism remains constant, and the armature will oscillate backwards and forwards between the poles of the electro-magnets exactly in synchronism with the alternations of the current energising them. In order to make use of these oscillations to convert alternating current into unidirectional or direct current, the armature is made with a contact piece of silver, which at the end of its movement makes contact with twin stops. The alternating current from the secondary of the transformer traverses the armature and contact piece, and passes on through any circuit connecting these stops to the return lead of the secondary of the transformer. When the current is passing through the electro-magnets in the positive direction, the armature carrying the transformed current will always be attracted to the same side, and will make contact with the same stop; during the next fraction of a second, when the current has changed its direction to the negative, the armature will move over to the other side and make contact with the other stop. These stops will, therefore, each receive impulses of one kind only, and these impulses can be carried through an electric circuit where work is to be done; thus, instead of an alternating current, two unidirectional or direct current circuits are obtained."

APPLICATIONS from members of the Automobile Club for seats at 119, Piccadilly, W., to view the Coronation procession, are now being received.

A SERIES of articles by the Hon. C. S. Rolls, on motor-cars as the method of conveyance in the twentieth century has commenced in some provincial newspapers.

In connection with the Liskeard Literary Institution, Mr. G. H. Micklewood, who recently lectured at Plymouth, has just given a lecture on "Motor-cars and Road Traction."

MISCELLANEA.

MESSRS. F. G. BROWN AND CO. have established an automobilists' agency at 8, London Street, Fenchurch Street, E.C.

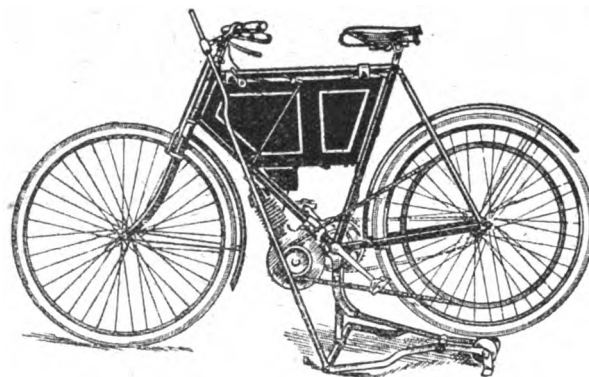
SIR DAVID SALOMONS has entered for the *caravane* from Paris to Nice. He will drive his 20 h.p. Panhard.

THE Swiss Automobile Club is organising a hill-climbing contest over a distance of 20 kilometres, for the month of August next.

A MOTOR-CAR exhibition is to be held in Berlin from May 15th to 26th next. It is being organised conjointly by the German Automobile Club, the Mid-European Motor-car Union, and the German Motor-car Builders' Association.

THE Gordon Motor and Cycle Company, of Seven Sisters' Road, Finsbury Park, are about to open a garage at the rear of their premises large enough to hold any size of car. An inspection pit is in course of construction, and when the alterations are finished the company will be in a position to execute repairs of all cars.

REFERENCE has already been made to the stand for motor-bicycles devised by Mr. A. Craig, of Putney. We are now able to illustrate the arrangement which supports the machine at the bottom bracket and at the handle-bar, the rear wheel resting lightly on a roller, which gives about the same resistance as would result in driving upon the road. The bicycle can consequently



be mounted and started in the ordinary way by pedalling, and thus tried before starting out for a run. The stand, which will also be found useful when cleaning and adjusting the machine, has been put on the market by the Ormonde Motor Company, of Wells Street, London, W.

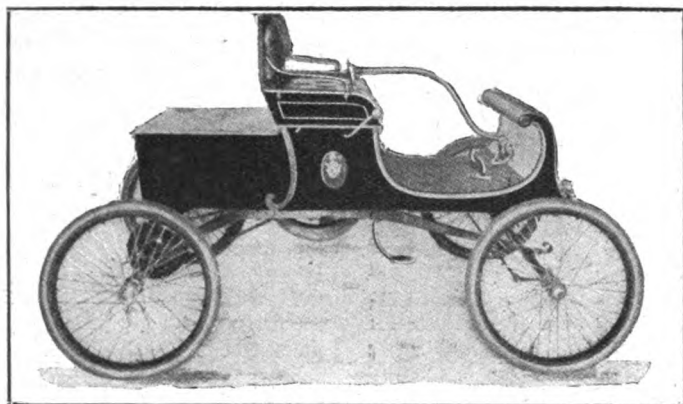
DURING this week a 8 h.p. motor-car has been leaving the Great Central Station (Joint), Stalybridge, four times a day, carrying at each journey an average of twelve bales of cotton, or 2½ tons, and returning to Mossley with loads of yarn and other goods. The vehicle can do the journey in 40 minutes, easily making four journeys per day.

A REPORT by Mr. H. Sturmev with regard to the inauguration of a motor-car industry at Exeter is now under consideration by a special committee of the Exeter Chamber of Commerce. He suggests that for the establishment of a business to make a car, retailing at £500, three acres of land would be required, and a capital of from £47,500 to £65,000. Upon the sale of 300 cars at £500 each Mr. Sturmev estimates a net profit of £25,000. He adds that such a result could not, of course, be obtained the first year.

AT Easter the English Motor Club will make Worthing their headquarters, making tours from that centre into the surrounding country. On the 12th prox. they will have a run to the "Swan" at Bedford, and on May 3rd to the "Mitre" at Oxford, where they hope that the Reading Club will be able to join them. On May 31st a contest in the grounds of the Crystal Palace will be organised, and on July 12th the hill climb up Tilburstowe, which attracted much attention last year, will be repeated.

AN umbrella for all vehicles, including motor-cars, and known as the "Benham," has been introduced by Messrs. Sangster and Co., Ltd., 140, Regent Street, W.

WE are now able to give an illustration of the new American petrol car described in our last issue. It is known as the Olds-



mobile, and is made by the Olds Motor Company, of Detroit. It will be on view at the forthcoming show at the Agricultural Hall.

A COPY of the catalogue issued by the Elmore Manufacturing Company, of Clyde, Ohio, U.S.A., has reached us. It gives particulars of a light 5-h.p. petrol car they are now turning out.

CAPE TOWN is being agitated over a proposed regulation of the Divisional Council that motor-cars shall be restricted to a speed of six miles an hour in the city and suburbs and to a maximum of eight miles an hour on country roads.

THE Bradford Motor Car Company stock Pratt's motor-spirit and Carless Capel's petrol, and have, at the present time, fifty-two motor-cars in stock. They do a large business in letting motor-vehicles on hire.

A REPAIRING department and garage has been opened by the Daimler Motor Company, Limited, at Brownlow Mews, Guildford Street, London, W.C.

THE Thornycroft Motor Wagon Company of America is about to be incorporated to acquire and work the patents, improvements and rights in the Thornycroft steam wagons in the United States and her possessions.

MR. CHAS. E. MILLER, of 97, Reade Street, New York, has sent us a copy of a most complete list of motor-car parts and accessories he has just issued. The catalogue, which extends to over seventy pages, appears to include everything for steam and petrol vehicles, from a spring up to a complete car.

THE Municipal Council of Footscray, near Melbourne, Victoria, has for years been trying to persuade the Railway Department to lower the railway fares on the Williamstown line to the same rates as charged to other Melbourne suburbs. The Council's efforts having been unsuccessful, it has lately been in correspondence with the Helios Incandescent Gas Light and Automobile Company, and a sub-committee has arranged to consider the offer of the company to run a service of passenger motor-cars between Melbourne and Footscray.

A CAPITAL catalogue has been issued by the Hozier Engineering Co., Ltd., of Hozier Street, Bridgeton, Glasgow, the manufacturers of the well-known Argyll motor-cars and delivery vans. Some excellent illustrations of the works of the company are given, and also sketches and plans of the Argyll 8-h.p. light car, fitted with various bodies, including a tonneau, double phaeton, and two-seated, as well as a good type of delivery van. Several illustrations of the details of the car are also reproduced, including the back axle, which is hung on roller bearings. The gearing is also fully described, and we notice that the clutches in the gearbox are now slightly dovetailed into each other so that no strain can be transmitted on to the striking fork.

EFFORTS are being made to form an automobile club in Blackburn.

MESSRS. PANHARD AND LEVASSOR, of Paris, are building six 16-h.p. motor-lorries for service in Madagascar.

AN automobile club has just been formed at Bruges, Belgium.

THERE is a coffee estate in British Central Africa for which the owner would accept £2,500, and take motor-cars in part payment.

THE Aero Proprietary, Limited, has been registered with a capital of £1,100, in 1,000 £1 preference shares and 2,000 1s. ordinary shares, to assist aerial navigation, to provide a club-house, etc.

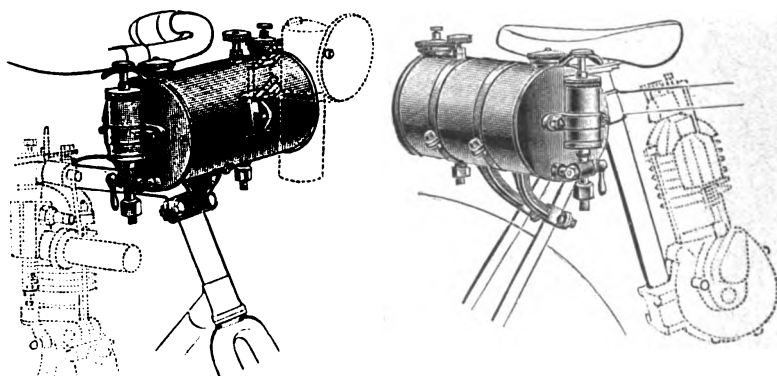
THE *Scientific American*, of New York, has just issued a special "Automobile and Outing" number. It includes several interesting illustrations and descriptions of a variety of modern American steam and petrol cars.

THE Provincial Gas Traction Company, Ltd., has been registered with a capital of £6,000 to construct a system of tramways between Neath and Briton Ferry, Glamorganshire, and to carry on business as motor-car and van proprietors.

Two years ago five of the employees of the Motor Manufacturing Company at Coventry joined the Imperial Yeomanry and left for the front. We regret to hear that one of these, Trooper George Drury, has died at Klerksdorp from wounds received on the 28th ult.

MR. A. W. GOODALL, who has been connected with the motor industry for many years, and who was until recently manager of the Roadway Autocar Company, Ltd., has been appointed by the Brush Engineering Company, Ltd., manager of the large motor-car showrooms this concern are just opening at 66, Great Russell Street, London, W.C.

FROM the United Motor Industries, Ltd., of 42, Great Castle Street, Oxford Street, W., comes a copy of their new lubricator list, which is one of the most comprehensive of the kind we have seen. The list includes a description of automatic automobile lubricators in which each outlet can be regulated to a nicety. Each outlet has a drip feed that is easily regulated by a plug, and once given the drip required it works without attention. Round oil-distributing lubricators, cups adaptable for motor-tricycles and bicycles, tanks for motor-cycles, reservoirs for voiturettes, etc., are all illustrated and described in this list. The accompanying illustrations show the special tanks for carrying spare quantities of petrol and lubricating oil on motor-bicycles that have been put on the market by the United Motor Industries. The tanks are divided into two compartments, one holding five pints of petrol and the other a pint of lubricating oil, a pump being also provided in connection with the latter. The tanks



are made in two forms, one with clips to attach to the head of the machine, the other with clips for attachment to the back stay, and will be found useful by those motor-cyclists who wish to travel in remote country districts, where they cannot rely on obtaining fresh supplies of petrol and lubricating oil.

CORRESPONDENCE.

FRANCE COPYING ENGLAND.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice that your correspondent, Mr. Hector, in the issue of the 1st inst., seems to have a bias in favour of English cars. I think he is hardly right in trying to set up the horizontal cylindered Wolseley as comparing well with the French productions. Everyone who has driven horizontal cylinder cars know their disadvantages, and that is the reason why every up-to-date foreign firm has given them up. The Benz, with its horizontal cylinder, is hardly considered a representative German car to-day, and the Peugeot, while they continued horizontal cylinders, fell from a first rank into a second or third.—Yours truly,

GEO. HENDERSON.

COST OF MAINTENANCE.

To THE EDITOR OF *The Motor-Car Journal*.

SIR.—In reply to recent inquiries in your *Journal*, I give the following account of my yearly expenditure in connection with my car, which is fitted with an 8 to 12-h.p. motor. It has run nearly every day a distance of 30 to 40 miles.

	£	s.	d.
Petrol, 1s. per gallon	60	0	0
Re-covering and repairing tyres	85	0	0
Paraffin, grease, polish, brushes, rubbers, etc.	25	0	0
Lubricating oil and acetylene	27	5	8
Insurance and motor licence	24	4	0
Replacement of broken or worn-out parts	25	0	0

My mechanic had seven years' apprenticeship as engineer, and for over three years was superintending building and examining motors for one of the largest firms in Paris. He does all repairs to the car, and we have never been delayed more than twenty minutes on the road for a temporary repair. He has £150 a year and house found. I expressly give the above statement, as I think it is only fair to our industry and skilled workmen, as well as to our safety, to employ a thoroughly experienced engineer and not an 18s. a week man who would do more harm than good to a motor. The result would be similar to that I met on a run last year from Dover to London, when I came up to a gentleman with an 18s. per week driver who had a slight break-down, as he called it, and had been nearly four hours in finding out where the fault lay. Neither owner nor driver had been able to locate it, and on my saying that it would be more profitable to pay a good mechanic, he replied that he did not see the fun of paying such an enormous sum as £2 or £2 10s. a week and have fellows half of the time idle. My engineer in the meantime had found out the hitch and was just in the act of getting some tools out of my car when he overheard the remark of my chance acquaintance. He then said that if such was the case he absolutely refused to give a helping hand; so we left him. I later found out that the car had to be taken away by horses and had to be repaired by a mechanic. Therefore I quite agree with your correspondent H. J. D., and would ask what sort of a man would M. B. have for his £50 a year.—Yours truly,

A MOTORIST.

THE NAPIER CAR.

To THE EDITOR OF *The Motor-Car Journal*.

SIR.—Mr. Edge has now put his claims more definitely, and we regret that from the historical point of view it behoves us to show that at least some of these are without foundation.

1. With regard to the "Panhard" type of car that Messrs. Napier are making, Mr. Edge claims that Messrs. Napier were the first to use aluminium water-jackets; but, as we said before, the substitution of one metal for another does not demand any great inventive genius, nor do we consider that it possesses sufficient merit to talk about.

2. Straight exhaust valves stems. We have always used straight stems on all the valves of automobile motors and never thought of using any other, and we made the first automobile petroleum motor-vehicle made in this country. The photograph of this first petroleum car is on the walls of the Automobile Club. Indeed, taken literally, it seems almost an absurdity to us to think of making other than straight stems for an exhaust valve. Our Mr. Roots exhibited a tricycle vehicle-motor with straight exhaust valve stems in the year 1893 or 1894 at the Stanley Show, and some of these motors were sold in France. With one exception, our Mr. Roots was therefore the pioneer in this country of automobile internal combustion engines. It will be seen by a reference to illustrations of Mr. Roots' construction of petroleum motor-tricycle in 1892 and the subsequent De Dion motor-tricycle how very similar the arrangement was.

3. The "boldness" of this lies only in its incorrectness, for certainly automobile vertical and horizontal motors had been made before with "electric ignition only." It is evident that Mr. Edge is not well acquainted with the previous motors that have been made in this country, or with the history of the subject.

4. Mr. Edge claims to have first used "enclosed valve gear and cam-shafts. The motor referred to, which propelled the first petroleum motor-carriage in this country, had enclosed valve gear, and cam shafts.

5. With regard to his fifth claim, this may be correct, but Mr. S. F. Edge appears to object very much to "unconfirmed statements" in the

remainder of his letter, and yet this appears to us to be of that description It would be interesting to know the weight of the 40-h.p. Buchet.—Yours faithfully,

ROOTS AND VENABLES.

MOTOR-BICYCLES.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—Several correspondents have honoured by notice my letter in the *Journal*, but they have not apprised your readers where a motor-bicycle may be found to be as satisfactory as those they allege they have met with themselves. I am reminded that persons who do not learn to adjust tremblers, to explore electrical apparatus, to prevent short circuiting and numerous other weaknesses, and who do not care to foul their clothing with many unclean operations, should not presume to ride motor-bicycles; but I do not perceive that makers propound such a doctrine, but rather claim that riders will discover no troubles to surmount. I contend that manufacturers and agents are the people upon whom devolves the duty of seeing that their wares are equal to expectation, and not their customers. —Yours truly,

J. A.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—If Mr. Booker finds his 2½ in. by 2½ in. by 6 in. discs strong enough to take him up average Kentish hills, will he tell us what it is, who made it, and what the horse-power is, as these arithmetical formulæ express nothing to most of us? If it will run up the by-roads near Hind Head without pedalling, it will take any Alpine trail, as the worst Alpine carriage road I ever saw is infinitely better graded with an easier gradient than the best English one. Of course there are many bad Alpine roads, just as there are a few, very few, good English ones. But when he talks of there being practically no loss of power in a belt by slipping—well, I would like to see that belt! Mr. Kennett is also to be envied for his experiences. I can only say that, first, I do not remember any occasion on which I have ever ridden fifty miles without something going wrong; and, secondly, I am hunting for the machine which will take me two hundred miles a day, day after day. What is wanted is a powerful engine fitted to a strong bicycle. Where is it to be found?—Yours truly,

JOSEPH PENNELL.

TYRES.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—Another vexatious question for motorists has arisen in connection with tyres, and I should be glad of information on the following points:—(1) Are users of the Michelin tyres responsible to Dunlop's, and those bought before the amalgamation? (2) When did the amalgamation take place? (3) Can any prohibition be issued against private users of Michelins bought in France and used in England? (4) Are tyres bought with cars allowed to be sold with cars if not new? (5) What is the number of the patent, and is it so drawn out that any tyre made of rubber is an infringement? Having not the slightest interest, save in the welfare of the motorist with a moderate pocket, I think it a pity that some enterprising firm cannot keep out of this great monopoly and manufacture as good tyres at a reasonable price; and so be beneficial to all, except shareholders in these monopolies, which, I understand, are taking up the manufacture of cars, so that the consumer will have no option as to what tyres he will have.—Yours faithfully,

AUGUSTE KENT.

AUXILIARY ENGINES.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—I was lately induced to buy a 3½-h.p. Benz car. As a beginner I have had lots of fun, but the car always brings me home safe and sound. On level roads the speed is quite sufficient, but on hills we quarrel, Crypto being the order of the day. I wish to ask: Could not some of our smart motor-engineers fit a small auxiliary engine, say, of the De Dion type, with a lever and clutch, to assist on hills?—Yours truly,

ERNEST SMITH.

C. W. K. C. writes:—"Would any reader kindly let me know if any motor-bicycle exists in which petroleum is used and not petrol? I wish to take a motor-bicycle to India with me, but the difficulties of obtaining petrol out there seem so great that I have decided to get one driven by petroleum, if possible. Would acetylene gas be any use in the place of petrol?"

In connection with the New American car referred to in our last issue A. S. L. writes:—"In the description of this car one characteristic point is omitted, viz. the very low speed, about eleven or twelve miles an hour only. The engine is of 4 h.p., yet with a ½ h.p. less the De Dion travels at eighteen miles per hour. Is the loss of power due to the mode of silencing, or is there some mistake about the real horse power of the motor?"

MESSRS. F. WILKINSON AND Co., of Cornbrook, Manchester, are introducing a number of new accessories for steam-cars made by the Locke Register Company, of Salem, Mass., U.S.A. One is a water-tank filler, which consists of a suction device operated by a steam valve, the water being sucked up and the tank filled in a very few minutes, with no material reduction in the steam pressure. The other new devices comprise a steam engine cylinder lubricator, actuated by the condensation of steam, and an improved throttle-valve.

FORTHCOMING EVENTS.

MARCH.

- 22.—Annual dinner of the Lincolnshire Automobile Club at Lincoln.
25.—Quarterly 100-miles Trial of the A.C.G.B.I.
27.—Start of A.C. Easter Tour for Cromer.

APRIL.

- 6.—Commencement of Nice Automobile week.
8-17.—Nice-Abbazia Race.
11-27.—Automobile Exhibition at Copenhagen.
19-26.—AUTOMOBILE CLUB'S EXHIBITION at the Agricultural Hall.
23.—Special day at the EXHIBITION at the Agricultural Hall.

MAY.

- 3.—Hill climbing Trial on Dashwood Hill.
16.—Start of A.C.G.B.I.'s Whitsuntide tour.
19.—Speed trials at Bexhill.

FURIOUS DRIVING CASES.

ARCHIE THOMAS was summoned at Bristol for driving a motor-bicycle at an alleged furious pace. The defendant pulled up near Bath Bridge, and according to the evidence of the police he was travelling about sixteen miles an hour. The magistrates imposed a fine of 10s. and costs.

At Newcastle Police Court, Frank L. Ellingham was summoned for having on February 21st, while driving a light locomotive in Grainger Street, unlawfully failed to comply with a certain regulation contained in Article IV. of the Light Locomotive and Highways Order, 1896, by driving it at a speed greater than was reasonable and proper having regard to the traffic. The defendant was further charged with having, on the same date, driven his car on the wrong side of the road when meeting another carriage. Defendant pleaded "Not guilty." Police-Constable Johnson stated that at 9.30 a.m. on February 21st he saw the defendant driving a motor-car along Blakett Street. He went over to the right hand side of the road, and passed round the Monument on his wrong side. He went down Grainger Street on his wrong side, meeting all the traffic. He so increased the speed of his car as to catch up a tram which was about a hundred yards in front of him on rounding the Monument, and which was travelling at a rate of at least five or six miles an hour. The motor-car would be going at fully eleven miles an hour. Defendant's employer gave evidence that it was on his instructions that the car was driven round the Monument behind the tram. He denied that the car was travelling at excessive speed. His car had gone about 25,000 miles, and only had one accident, when a hen was killed. He had driven round London, and this boy was a very careful driver. Councillor Beattie (chairman) said the magistrates were bound to administer justice, and would impose a fine of 10s. and costs in each case.

THE STORAGE OF PETROL.

WILLIAM PARRY, of the Minerva Motor Repairing Department, 158, High Holborn, W.C., appeared at Bow Street Police Court to a summons charging him with keeping petroleum spirit, for the purpose of light locomotives, in a storehouse situated within twenty feet of another building, without giving due notice to the local authority, contrary to the regulations made by the Secretary of State, under Section 5 of the Locomotives and Highways Act, 1896. Mr. W. E. Helman Pidsley supported the summons on behalf of the London County Council; Mr. Cobbing appeared for the defendant. Mr. Pidsley said that according to the regulations everyone who kept petroleum spirit within twenty feet of a building or timber-stack should give notice to the local authorities, and renew the notice every year. A short time ago one of the County Council's inspectors visited the defendant's premises in High Holborn, and found in the workshop two cans with screw-tops, each containing one gallon of petroleum spirit. One portion of the spirit had been taken from the tank of a motor-bicycle, the other had just been brought in from the yard. The cycle from which the petroleum was drawn was fixed in a stand five feet from a fire burning in an open grate. Of course, with such an inflammable spirit this was a very dangerous proceeding, especially as the workshop was in the centre of a dwelling-house. Mr. Cobbing said the defendant had no intention of breaking the law. He had only just started this business, and no doubt would in due course have given the requisite notice. It was not unlawful to have petroleum spirit stored in a tank attached to a cycle, but there could be no doubt that in this case a technical offence had been committed, and the defendant was very sorry for what had happened. The defendant was fined £4, and 2s. costs.

ALLEGED NEGLIGENT DRIVING OF A MOTOR-CAR.

At Marylebone County Court, on Tuesday, before Judge Stonor and a jury, Mr. E. G. Holt, a cab driver, brought an action against Mr. F. Frentzel and Dr. E. Lehweß. The claim was for £50, in respect of personal injuries said to have been sustained owing to the negligence of the defendants or their servants in the driving of a motor-car. Mr. Bartlett Ellis, counsel, appeared on behalf of plaintiff, and Mr. Staplee Firth, solicitor, for both defendants. The case was before the court on January 28th, when, after a long hearing, the jury were unable to agree. The judge then said that the case would have to be tried before another jury. Plaintiff's counsel now explained that his client, who was seventy-two years of age, was driving a four-wheeled cab on the night of March 20th last year along Bayswater Road towards Notting Hill. The old man was driving quite slowly after his day's work, and keeping well in to his near side. When the cab had got between Albion Street and Hyde Park Street a motor-car, driven, it was said, by Dr. Lehweß, came along behind and struck the hind wheel of the cab. The impact was so forcible that the plaintiff was pitched off his

box into the gutter, sustaining the fracture of two ribs and other injuries. Mr. Ellis added that after the accident the plaintiff was taken to St. Mary's Hospital, and subsequently treated at home by another medical man, but, owing to the injuries, he developed pleurisy and pneumonia. The plaintiff bore out his counsel's opening statement. He added that Dr. Lehweß and Mr. Frentzel had called upon him once or twice, and on each occasion left half a sovereign. Cross-examined: It was not a fact, however, that he was asleep at the time of the accident, or that the reins were hanging loose upon the horse's back. Although he heard the noise of the motor-car coming up behind he did not hear the horn of the car sounded. He denied that his cab suddenly turned immediately in front of the motor-car, in order to go up Hyde Park Street.

After corroborative evidence was given, Mr. Frentzel, one of the defendants, said he was a motor engineer, but also dealt in motor-cars. The car in question was an Orient Express, one of the smallest four-wheel motor-cars made. It was he who was driving the car, and he was going quite slowly. As he overtook the plaintiff's cab he sounded his horn two or three times. The cab, however, suddenly turned just in front, and struck the motor-car. He noticed that the cabman had his head down, and going from side to side, as though he was asleep. If the plaintiff's cab had gone straight along, or he had given the usual warning with his whip before he turned, the collision would not have happened. Dr. Lehweß corroborated the evidence given by Mr. Frentzel. He was sure that the plaintiff was sitting on the box of the cab fast asleep, and that the cab turned suddenly in front and struck the motor-car. He was not driving the motor-car, although he had a waterproof coat on, such as is sometimes used for motoring.

His Honour put to the jury questions as follows: (1) Which of the defendants do you think was driving the motor-car at the time of the accident? (2) Was the driver of the motor-car guilty of negligence, causing the accident? If so, (3) what damages is the plaintiff entitled to? In his summing up, the judge said there could be little doubt but that Mr. Frentzel was the driver of the motor-car, and not Dr. Lehweß; and that if the jury found in favour of plaintiff the damages should only be moderate. The jury returned a verdict to the effect that Dr. Lehweß was driving the car, and that he was guilty of negligence, causing the accident, and they assessed the damages at £30. The judge: I give a new trial. It is a very bad verdict.

RE THE AUTOMOBILE MANUFACTURING COMPANY, LIMITED.

UNDER the winding-up order recently made against the Automobile Manufacturing Company, Limited, the statutory meetings of creditors and shareholders were held at the Board of Trade Offices, Lincoln's Inn, on Tuesday. The chairman said that he was not yet fully in possession of the facts in connection with the company, but it appeared to have been registered in April, 1900, with a capital of £100. This capital, however, was almost immediately increased to £15,000. The company was promoted to acquire the goodwill and assets of two businesses, one being that of an electrical engineer, while the other was carried on under the style of the Southern Motor-Car Company. No valuation appeared to have been made of the assets taken over by the company, which was registered without articles of association. A prospectus, dated June 14th, 1900, invited subscriptions for 5,000 shares. All the shares were applied for, but the allotment of some was cancelled; of the total shares allotted 2,240 were subscribed for by directors of the company. The consideration for the sale of the business was £10,130, payable as to £10,000 in shares of the company and £130 in cash. There were three matters which called for inquiry, namely, the cancellation of the allotment of some of the shares, the issue of debentures in July and August last to secure directors of the company against an advance made by the bank, and the question of one of the directors' liability on £1,000 of vendor's shares. A draft statement of the company's affairs was furnished, showing liabilities £3,787 4s. 11d., and assets £3,718 5s. 10d., while, as far as the official receiver could ascertain, the total deficiency with regard to the shareholders amounted to some £6,000. A resolution was passed leaving the matter in the hands of the official receiver as liquidator.

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THE Motor-Car Journal.

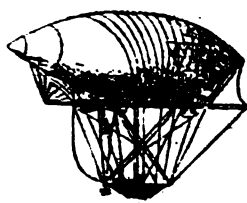
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COMMENTS.



AT a meeting of the Aeronautical Society in London last week, Dr. Burton, of Beckenham, read a paper, in the course of which he described a flying machine of his invention, which he is constructing for the War Office. It is a combination of the gas vessel and screw propeller principles, the balloon being fish-shaped and divided internally into four compartments. The framework is to be constructed of tubular steel and will have a number of aeroplanes capable of being inclined at will, by means of which the machine will be elevated or depressed. The car is to be made of nickel steel, and there will be a deck of light steel network. The total length of the vessel will be 104 feet, and the width of the deck will be 2½ feet. The driving mechanism consists of six screw propellers, coupled to petrol motors, each propeller being 17 feet in length. It is proposed to preserve the centre of gravity of the vessel by a system of water circulation.

The Reading Club. At Easter the Reading Automobile Club will have a run to Wantage via Pangbourne and Goring—a distance of twenty-nine miles; and at Whitsuntide will hold a meet at Swallowfield Park, by the invitation of Sir Charles and Mr. Arthur Russell. A motor gymkhana is also in contemplation, as well as a Club meet at Mr. Alfred Harmsworth's residence at Guildford; a picnic to Savernake Forest, a three days' tour to the West country, and runs to Oxford, Basingstoke, Taplow, etc. On Friday (the 21st inst.) Mr. A. Phillips was announced to read a paper on the "Lubrication of Motor-vehicles." The Reading Club is certainly one of the most active of the provincial automobile organisations, and the new issue of its *Gazette* evidences considerable enterprise on the part of its Committee.

Drivers' Licences.

At the last meeting of the Hythe Town Council an interesting discussion took place on application for motor-car drivers' licences being made on behalf of two employees of the Folkestone Motors, Limited. Evidently the Council looked upon the applicants much as do country justices on the "conscientious objector," and everything possible was urged which might be used against the application. The town clerk had served certain notices on the secretary of the company, about which the engineer naturally knew nothing, and consequently he was questioned on matters of which he was not conversant, and the time of the Council wasted, simply because a common-sense attitude could not be adopted by those armed with a little brief authority. After all the talk, which fills nearly a column of the local newspaper, the licences were granted, and it was acknowledged by the Mayor that the cars of the Folkestone Motors, Limited, were exceptionally well behaved vehicles—a characteristic which could also be applied to the drivers.

A Pleasant Function.

ON Tuesday evening a few friends dined together at the Carlton Hotel, London, the occasion being the presentation of a handsome silver-fitted bag to Mr. Claud Johnson, as a mark of their regard and admiration of his work in connection with the Automobile Club. Mr. Roger Wallace, K.C., presided, and both he and Mr. Alfred Bird eulogised the services of the Secretary of the Club, the latter appropriately responding. A most enjoyable evening was spent by those participating in the pleasant function.

Motor Ambulances.

In recent issues we have drawn attention to the success which has attended the adoption of automobile ambulances in America, and again we would urge that the London County Council should try mechanical means instead of relying on horses for the new ambulances which it proposes to station at various points of the metropolis. Further proof of the utility of motor ambulances comes this week in the fact that the leading hospital in Boston, U.S.A., has ordered a new electric ambulance, and that the governors of several hospitals in New York State have done the same. Had experience not shown their reliability Americans would not have given so many orders for such vehicles.

Doctors and Income Tax.

IN the course of a chat with a well-known doctor who owns an automobile, our attention has been drawn to an anomaly which ought to be considered by those interested in the welfare of the motor-car industry. A professional man using a brougham in the course of his visitations can claim a rebate from the sum on which he pays income-tax on that account. Should, however, a doctor substitute a motor-car for his horse and brougham no rebate is allowed—a piece of red tape absurdity that should surely be exposed not only by the manufacturers of automobiles but also by the organisations responsible for looking after the affairs of medical men. Of course the system may vary, and what the surveyor of income-tax in one locality will allow, the official in another district may reject. But we know of several doctors whose possession of a motor-vehicle has resulted in their having to pay on a larger income than would have been the case had they been content with an antiquated brougham.

Trips and Tours.

THE fine weather on Sunday brought out many motorists to the places where pleasure seekers congregate. There was a large collection of cars outside the Star and Garter, at Richmond, and within a few minutes we saw a Lanchester, a Rochet-Schneider, a Renault, and a Locomobile, to say nothing of half-a-dozen familiar vehicles. In some of the southern suburbs motor-cyclists were to be found everywhere—heralds of the numerous army of motor-bicyclists likely to be seen on the roads ere long. From the days of short trips to those of longer tours is no great distance, and we hear of many small parties of motorists

being formed for Easter tours. Altogether the motor season for 1902 has opened well, and the forthcoming exhibition will give it a decided fillip.

Clubs in America.

THERE is much agitation in the United States concerning the clubs that have been formed for automobilists. Many of these have been of an exclusive and an expensive character, and a suggestion has been made that an association should be formed to embrace all interested in automobilism who cannot afford the luxury of the club. A national association of the clubs has been formed and also a league of unattached individuals; and each organisation is seeking to claim precedence. The result of the rivalry it is contended will be to boom the movement—whatever the effect on the prosperity of the individual organisations.

Municipal Enterprise.

MR. WILLIAM WEAVER, the Borough Engineer of Kensington, is an enthusiast for the adoption of mechanical methods of locomotion in London streets, and we well remember his advocacy of automobiles at a meeting of the Automobile Club two winters ago when Colonel Crompton read a paper on street locomotion. Mr. Weaver has, indeed, carried his advocacy into a practical form, having adopted a mechanical street-sweeping system with the steam lorry of the Thornycroft type which is owned by his Borough Council. This vehicle has a 700-gallon water-tank, and by attaching a rotary sweeper behind the sprinkler is doing good service in cleansing the streets of Kensington. Should it prove as economical as it is efficient it will doubtless be adopted by other Councils in the west-end of London.

Acetylene Generators.

THE report of the Committee on Acetylene Generators has been issued as a Parliamentary paper with a covering report to the Home Secretary by the Chief Inspector of Explosives, Captain Thomson, who explains that in view of the extended use of acetylene, he considered it advisable to have the advantage of expert advice. On December 22nd, 1900, he requested the following gentlemen to form a committee, and to carry out tests:—Mr. C. Vernon Boys, F.R.S., Mr. Henry E. Jones, M.Inst.C.E., M.I.Mech.E., Professor Vivian B. Lewes, F.I.C., F.C.S., etc., Dr. Boverton Redwood, F.R.S.E., F.I.C., D.Sc., etc., Mr. Alfred Spencer, Public Control Department, L.C.C., and Mr. James Swinburne, M.Inst.C.E., with Captain M. B. Lloyd, Inspector of Explosives, as secretary. Out of the forty-six generators tested not one showed evidence of being otherwise than safe under the conditions of the test. However, Captain Thomson has reason to believe that more than one apparatus was withheld from being tested, and in one or two instances serious defects in design were remedied before a generator was submitted to the test. The Committee consider that in the selection of an acetylene generator, regard should be had to the following *desiderata*:—(1) Simplicity of action and design; (2) strength of construction; (3) high efficiency, as indicated by the yield of gas per pound of carbide; (4) low pressure in generator; and (5) facility of removal of the residue. The conditions which a generator should fulfil before it can be considered safe, are:—(1) The temperature in any part of the generator, when run at the *maximum* rate for which it is designed, for a prolonged period, should not exceed 130 deg. C. (2) The generator should have an efficiency of not less than 90 per cent., which, with carbide yielding five cubic feet per pound, would imply a yield of 4.5 cubic feet for each pound of carbide used. (3) The carbide should be completely decomposed in the apparatus, so that lime sludge discharged from the generator shall not be capable of generating more gas. (4) The pressure in any part of the apparatus, on the generator side of the holder, should not exceed that of twenty inches of water, and on the service side, or where no gas

holder is provided, should not exceed that of five inches of water. (5) The apparatus should give no tarry or other heavy condensation products from the decomposition of the carbide. (6) The air space in a generator before charging should be as small as possible. (7) The use of copper should be avoided in such parts of the apparatus as are liable to come in contact with acetylene.

Motor-Cars in Persia.

It will be remembered that as a result of his last visit to Europe, the Shah of Persia became so interested in automobilism that he ordered a Gardner-Serpellet steam car; a new one of the same type being subsequently purchased. We are this week able to reproduce two interesting photographs of the latter vehicle, which has now been in constant use since August, last year. The car reached Persia by way of Rescht, a port on the Caspian Sea, and was thence driven by road to Teheran; the journey of 210 miles, notwithstanding the hilly route and bad roads, being made in 15 hours and 20 minutes. The accom-



THE SHAH OF PERSIA'S GARDNER-SERPELLET STEAM-CAR AT KASWIN. *[La France Automobile.]*

panying illustration depicts the car in front of the post office at Kaswin, while the photograph given on page 39 shows the vehicle, *en route* to Teheran, in the bleak and hilly district of Karzan. We understand that as a result of his automobile experiences the Shah has given orders for the high road to the Persian capital to be put into suitable order for motor-car traffic.

Prejudice at Plymouth.

AN outbreak of prejudice against motor-cars seems to have occurred at Plymouth, where the successful running of a motor public service has apparently upset the owners of horse-drawn vehicles. A few weeks ago two constables were engaged for some days in timing the motor-vehicles used in the public service, with the result that one of the drivers was summoned for exceeding a speed of eight miles an hour. On the case going into Court it was shown that a speed of twelve miles an hour was allowed, and the summons had to be amended. Now we understand the same driver is being summoned for driving to the common danger of the public. Evidently the police are determined that, whatever happens, he shall not escape. A sad accident, which recently occurred in the town has also contributed

towards the present prejudice existing; but in this case the jury have shown more sense than the public, and have returned a verdict of "Accidental death," adding a rider, that there was not the slightest blame attached to the motor-car driver. Even this, however, we suppose will not satisfy everybody.

Taxing Motor-Cars.

A SHREWSBURY gentleman has been writing to the papers suggesting to the Chancellor of the Exchequer that "owners and users of motor-cars and traction engines should pay £2 or £3 for an annual licence in proportion to the number of persons to be carried." This proposal absolutely ignores the tax that is already required, and leads us to the suggestion that correspondents to newspapers, whose letters are based on ignorance, should either be taxed or warned by the police. People are always prone to make suggestions for the Chancellor of the Exchequer as Budget day draws near, and probably motor-cars will be kept well before his notice this year. But it should not be forgotten that these vehicles are already taxed, and that they are less destructive of the roads of the country than are horse-drawn vehicles.

Motor-Bicycle Construction.

AN American contemporary makes some strong remarks on the subject of motor-bicycles which are well worthy of reproduction. "Bicycles, as now designed and constructed, were," it states, "never intended to bear the weight and incessant vibration of a motor; so clear and logical is this that it is incomprehensible that the fact is not more generally recognised. It is not enough to merely use heavier tubing, either. The joints and connections are even more vital, and it is there that weight, lengths, and diameters, as well as methods of brazing and fastening, must be given attention. It is the sheerest folly to simply devise a means of conveniently locating a motor on the present-day bicycle, and then expect the bicycle to stand up for any length of time. It will not do it, and anyone who markets or purchases a motor-bicycle in such belief is doomed to trouble, expense, and disappointment, for which he himself is to blame."

Hints on Troubles Wanted.

OUR Correspondence columns contain a suggestive letter which we hope will be read by all our readers. We are always ready to welcome letters on the lines suggested by our medical friend, and there is no doubt that those who can supply useful hints as to how to obviate difficulties are rendering good service to the industry.

The Choice of Cars.

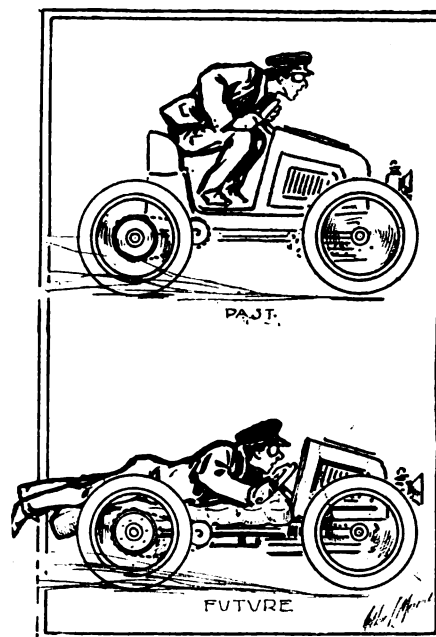
It is an undoubted fact, lamentable no doubt, but none the less true, that the majority of cars purchased in this country are of foreign manufacture, a state of affairs now and then drawn attention to by weak-kneed wails and accusations of lack of patriotism from those interested in home productions, but none the less deserving of careful consideration by all who have the welfare of British automobilism at heart. What then, it may be asked, determines the purchaser's choice of a car? In the case of the "old hand," it may generally be summarised as "reputation," a quality that may be acquired by a particular make by many years of good performance—which few British cars have yet had the opportunity to compass—or by some particularly successful public achievement, for which the chances in this country are painfully limited; while the numerous contests held on the Continent have enabled many manufacturers previously little known to leap into temporary and profitable popularity, without detriment to the older and well-established firms. In the case of the novice (and if automobilism grows at the rate we may expect and hope for he will be in a large majority), it is seldom that he does not get advice from more experienced friends, who have probably, from the nature of the case, graduated on

foreign cars. There is no doubt that the best English cars are at least equals in workmanship and durability to the foreign production; it is the fault of our manufacturers if they are not produced as cheaply; and, racing apart, they are as speedy as the ordinary user can require. But the facilities of determining which is the best are greater on the Continent than here, and the multiplication of trials, costly though it be, is the only way of hastening that survival of the fittest which otherwise time alone can effect, and which the publication of the makers' own opinion of their cars, in which some show such a pathetic faith, can do nothing to bring about.

A Sussex Service.

LAST week we were able to announce that it has been decided to institute a series of motor-car services to Rye, Hastings, and other places in the vicinity, from Northiam as a centre. There is no doubt that such a service, if economically managed and developed on enterprising lines, should be a great success. Not only are the roads eminently suited for motor-car traffic, but the many small pleasure resorts in the district should bring a sufficient number of visitors to secure a good paying passenger service. We hope, too, that the promoters of the venture will not overlook the possibilities that exist for goods traffic in that part of Sussex; and, bearing in mind what Mr. Hanbury has recently told the members of the Yorkshire Chamber of Agriculture, the farmers of Sussex should certainly look favourably on the new service.

POSITION IS EVERYTHING.



THE EVOLUTION OF THE RACER. [The Automobile Magazine.]

Motor-Cycles and Medicos.

MANY of the pioneers of automobilism have belonged to the medical profession, which has, as a body, shown a consistent and sustained interest in motor-car progress. A large number of those who, for various reasons, have not yet been converted are now being attracted within the charmed sphere by the motor-bicycle, and we have been somewhat surprised at the number of doctors making inquiries after this type of machine. It certainly has many claims on their attention. The country practitioner frequently does a proportion of his work by bicycle, and the substitution of a motor-bicycle is an inexpensive and instructive way of entering automobilism. Moreover, a trivial stoppage due to inexperience will not delay him as with a car or even a tricycle, as the removal of the belt will enable him to pedal his machine with no great difficulty, and postpone its diagnosis till a convenient season. The troubles of the novice, which

are peculiarly inconvenient to the medical man, will be reduced to a minimum, while the experience gained will be mostly applicable to the larger vehicle he will probably soon covet. It is true that the motor-bicycle is not a foul-weather machine; but it is, if of good design, as safe as an ordinary one in mud, if not driven faster than the latter would be under the same circumstances, and permits of carrying more wraps with impunity. If to be used on bad roads, it should carry its engine well out of the way of mud and grit, and a doctor, more than most purchasers, has reason to choose a substantial and well-tried design, and eschew "experiments," which are likely to be peculiarly numerous—not that this is other than most desirable—in this department of automobilism.

Land and Sea Trips.

ONE advantage of the motor-car over the horse-drawn carriage is that it can be made to accompany its owner on his holidays. And this advantage is not restricted to trips in our own country, for Lord and Lady Iveagh, who are yachting in the Mediterranean, have taken their motor-car with them on board their yacht, and make long excursions on it when they are in port for a day or two, anywhere. Here is a combination of land and sea pleasures which would be impossible with any other vehicle than an automobile.

The Ignition Question in America.

AN American writer, dealing with the subject of ignition, remarks that tube ignition, which never was common in the United States, has dropped out of sight altogether. There is also a strong tendency to abandon the use of batteries and substitute dynamos and magnets for ignition purposes on petrol motors. Winton uses a dynamo operated by a round belt from the same shaft that drives the water-circulating pump, using a set of batteries only as an auxiliary to start the motor. Haynes-Apperson, Robinson, and Duryea use a magneto—the two first-named employing, like Winton, a battery as a starter; Duryea, however, does not, using instead a naked copper wire to carry the current until it wears out—insulation not troubling him.

Testimonials.

DIVERSE and frequently peculiar are the points of excellence which are brought out prominently by those who write testimonials with regard to motor-vehicles. Not long ago an agent suggested to a gentleman who had purchased a car that he might possibly, if he were satisfied, be willing to send a line expressing his pleasure, so that it could be used to attract other customers. Agreeably to promise the purchaser sent a testimonial as follows:—"Six months ago I bought one of your famous motor-vehicles. I have since had no less than twelve convictions for speeds ranging from forty to ninety miles an hour. I can produce sworn testimony as to the extraordinary speed powers of the carriage if desired." Although so fully convincing as to the capabilities of the particular car, this testimonial has not yet been exhibited in the depot window of the motor agent.

Imitation.

MANY people seem inclined to discuss at length the imitative qualities of other persons and other nations. Undoubtedly there is a good deal of watchfulness in certain trades in order to imitate good ideas and adopt new notions, but it must not be forgotten that simultaneous discovery is not unknown, and it has often happened that inventors in different countries have hit upon the same plans, and brought out identical improvements contemporaneously. With regard to the morality of imitation in connection with motor-car work it must not be forgotten that the great aim of manufacturers is to produce a perfect car, and whether

that desideratum is produced in France, England, or elsewhere is hardly a matter of concern. French cars have been popular here because of the good ideas which have been embodied therein; but now that British manufacturers are advancing so rapidly an export trade is not an impossibility. People want the best they can get. If it is of English manufacture we shall naturally favour it, but still we want the best, and the only regret is that English regulations have not yet afforded much encouragement to our makers. Hence the necessity for urging the withdrawal of the present restrictions.

Club Gossip.

LORD SUFFIELD will entertain the owners of cars entered for the speed trial at Gunton Park, Cromer, on Saturday, the 29th inst., at luncheon. Among those who have already intimated their intention of driving over the mile course are Messrs. A. F. Bird on his 24-h.p. Mors, J. M. Gorham on his De Dion voiturette, J. E. Hutton on his 10-h.p. Panhard, and S. F. Edge on his 50-h.p. Napier. A Committee of the Club is now considering a suggestion with regard to the training of suitable men to become motor-servants. The next dinner of the Club will be held at the Agricultural Hall on Wednesday, April 23rd, at 7 p.m.

THE annual meeting of the Motor Union will be held at the Exhibition at the Agricultural Hall, on Wednesday, April 23rd, at 3 p.m.

TO-DAY (Saturday) Mr. O. E. Bush sails in the *Scot* for Capetown with two Panhard cars, of 10 and 12 h.p. respectively, for Mr. Cecil Rhodes.

ON Wednesday, at Birmingham, S. Wright won a five miles motor-bicycle handicap on an Excelsior machine. His actual riding time was 8 min. 34 secs.

A *Course du Kilometre* is being organised by the Automobile Club of Antwerp. It will be run off on the 24th April, and will be open to motor-cycles and cars.

SHORTLY after Easter, a conference of the hon. secretaries of the various centres of the Automobile Club will be held to arrange for a Whitsuntide tour, probably in the Derbyshire district.

ON Saturday, April 5th, a trial of motor-cycles will be held, under the auspices of the Automobile Club and the Cyclists' Touring Club, at the Crystal Palace. On behalf of the former organisation the new Motor-cycle Committee of the Club is making the necessary arrangements. This Committee consists of the Rev. Arundel Whatton, Professor Vernon Boys, Col. Holden, Messrs. Shipton, Jarrott, S. F. Edge, Pennell, C. A. Smith, Todd, O'Gorman, and Campbell Swinton.

ON Wednesday, W. Brandon was summoned at the Marlborough Street police-court for causing an obstruction to traffic by leaving a motor carriage outside the Trocadero Restaurant on the previous night. Defendant denied all knowledge of the vehicle, and declared that at the time of the alleged offence he was at the Lyceum Theatre. On the other hand, a constable said that the defendant came out of the restaurant, and admitted that although the carriage was not his property, he had been driving it. At his own request, the defendant was remanded on his own recognisances in £10.

THE English opera season of 1902 will commence on May 8th, and there will be sixty-seven performances. The list of subscribers will probably exceed any previous records, and it is very likely that motor-carriages will be well represented in the vehicles which will be found nightly in the vicinity of Covent Garden. In a preliminary list of those to whom boxes and stalls have already been allotted the names of many motorists appear, including the Countess de Grey, Mrs. Arthur Paget, Mr. Paris Singer, Mr. Alfred de Rothschild, Mr. W. S. M. Burns, Mr. A. Harmsworth, and others. Madame Melba, the principal soprano engaged, is the owner of an electrical vehicle. The forthcoming opera season may do much to further the cause of automobilism among society people if a few of those who have been mentioned will use their motor-carriages in going to and from the opera-house.

CONTINENTAL NOTES.

By "AUTOMAN."

THE opening of the automobile racing season is fast approaching, and the attention of those *chauffeurs* who take an interest in the public competitions is being centred on the "Semaine de Nice," which has now assumed the proportions of a classic event. To add to the general interest, the Nice-Abbazia-Nice race starts by crossing the Alps and subsequently traverses perhaps the most historically interesting country in Europe to reach a new winter resort on the Adriatic Sea. The Nice week opens on Sunday, April 6th, with a battle of flowers in the public gardens of Nice, when the best-decorated motor-cars will receive commemorative banners. On the following day the real contest begins with the hill-climbing trial from Nice to La Turbie, over a course about $9\frac{1}{2}$ miles long on the mountain road between Nice and Monte Carlo. After the competition there will be a *concours d'elegance* in front of the Casino at Monte Carlo, and a distribution of prizes in the shape of medals and *objets d'art*.

ON Tuesday, at 5 a.m., the Nice-Abbazia-Nice road race will begin. It is over a total distance of 1,182 miles, out of which 834 miles are at racing speed, and the remainder over neutral areas, neutralised owing to the nationality of the country traversed (French and Austrian soil), and also owing to the *agglomerations* and dangers to be encountered on the road. The first stage of the race is from Nice to Turin (141 miles), through Monaco, Vintimille, and Breil, up the southern slopes of the Alps, over the Col de Tende Pass, and down the northern side through Limone to Coni. Thus far there will be no racing, it being neutralised soil, over which touring speed only will be allowed.

Chauffeurs will have the opportunity of remarking the extraordinary difference between the southern and northern slopes of the Alps, the former dry and in the beauty of springtime verdure, the latter covered with the deep snows of winter. At Coni, on the plains below, the racing commences at 2 p.m. (central European time), and from thence through Saluces, Cavour, Piquerol, and Orbassano, to Turin, over flat, broad, hard roads, where any speed may be indulged in without danger, except about 25 miles from Turin, where the roads become very bad in every way. They are covered either with mud or dust, according as the weather is wet or dry, to the depth of six or eight inches, and traversed continually by deep ditches. The second stage starts from Turin on Wednesday morning at 6 a.m., and passes through Asti, Alexandria, Tortona, Voghera, Plaisance, Cremona, Mantua, and ends at Verona, altogether 203 miles, of which the first sixty are simply awful; after that they improve gradually as the home of Stradivarius is approached, and the improvement continues towards the haunts of the Montagues and the Capulets, made sacred to every Englishman who loves his Shakespeare.

ON the third day the stage is short, only 75 miles, starting from Verona at 6 a.m., and passing through Vicenza and Padua

to Mestre, which is the nearest point to Venice. A few miles by rail will take the *chauffeurs* to the city of the Doges, where they will pass the night, and no doubt disport themselves on the Grand Canal in gondolas, and visit the Place St. Marc and the Bridge of Sighs, or talk petrol with the merchants of Venice on the Rialto. On the fourth day the race will start at 6 a.m., and will continue as far as Udine on the Austrian frontier, 79 miles on good roads; from thence to Abbazia, on Austrian soil, the route is neutralised, 96 miles. Saturday and Sunday, April 12th and 13th, are to be spent in *fetes* at Abbazia and Fiume, which will be organised under the patronage of Count Szapary.

MONDAY, Tuesday, Wednesday, and Thursday will be spent on the return journey over the same course, and in the same stages as on the outward journey. On the Friday and Saturday there will be an exhibition at Nice, held in the garage of the Automobile Club of Nice, 5, Boulevard Gambetta, where all competing vehicles, both in the racing and touring sections, must be exhibited. On Sunday, April 20th, the Nice races will be brought to a close by the mile race on the cemented pavement of the Promenade des Anglais for the Rothschild Cup, and attempts to break existing records. Léon Serpollet at present holds the cup with a record of 35½ secs.



THE SHAH OF PERSIA'S GARDNER-SERPOLLET STEAM CAR EN ROUTE TO TEHERAN.
(See Page 36.)

AMONGST the changes in the racing rules which came into effect on January 1st, by order of the A.C.F., the most important is, of course, the limit of weight to one ton, the wisdom of which will very soon be tested. I was always strongly in favour of this restriction, and I venture to predict that it will mark the beginning of more startling changes and improvements in the automobile that even the most sanguine partisans could have imagined; and I wish I were quite convinced by the criticism my articles have evoked on the question of English

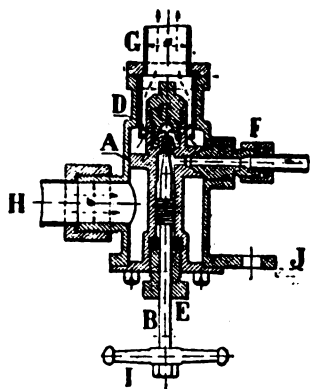
v. French makers that the former have sufficiently studied the question, and applied themselves effectively to the reduction of useless weight. I had occasion the other day to examine the new 15 h.p. light Panhard, which scales just 18½ cwt., ready for the road, and with oil and water tanks full. The engine gives fully 22 h.p. on the brake.

THERE is another new rule for racing which will bring out certain desirable points, and that is the complete suppression of time allowed for repairs. On the old plan, on arrival at the "parc," where the cars were placed for the night, a store of outer-covers was always awaiting the *chauffeurs*, and as a change of covers cost nothing to the *chauffeur*, and did not lose him any time, most of the fast cars had new tyres every day, whether they needed them or not, and it became impossible to register the life of a tyre. Now, however, the change of a tyre will mean at least fifteen minutes' delay, and every *chauffeur* will hesitate before he loses fifteen minutes, and will therefore not change his tyres except when absolutely necessary, as each change of the four wheels would mean nearly an hour lost. It will, therefore, now be possible to have tyres marked and controlled, and to know which tyre stands the best, and by this means the tyre-makers will be stirred to further efforts in this direction,

THE last week in Paris has been ideal motoring weather, and the number of cars to be seen in every direction begins to open the eyes of the unbelievers in the new form of locomotion, and bring before them the day—not far distant, I hope—when the Paris cab-horse becomes a thing of history; for if any animal in the world wants suppressing and replacing by a machine it is the poor Paris cab-horse, whose ribs are more apparent than his breeding, and who has to stagger on often under a load of people and luggage quite beyond his safe load, and beyond certainly his will, unless stimulated by the "Hen Cocotte" and the accompanying brutal lash of the whip. I notice by the side of the Opera the Peugeot cabs are out again, but most remarkable is the increase in the number of high-class electrical broughams. Decidedly, to be *chic* in Paris now, one must have an electric brougham. The other day I ran across Mr. Rucker at the A.C.F., in search of information with regard to the distance between Paris and Brussels, and of a car to hire for a trip there.

LONGUEMARE CARBURETTOR FOR BICYCLE MOTORS.

A SMALL size of carburettor suitable for bicycle motors of from 1 to 2 h.p. has recently been placed upon the market by the Longuemare firm, of Paris. In this the float and constant level mechanism have been done away with and the size and weight have thereby been greatly reduced. The body of the carburettor is approximately cylindrical in form. The air



arrives through a pipe H joined to the carburettor on one side and the petrol through a small tube F on the opposite side. The petrol flows through a hand-operated needle valve, along a winding passage and a series of small apertures into the mixing passage. Here the mixture is formed, which leaves the carburettor through a pipe G connected to it on top.

AN automobile exhibition will be held in January at Madison Square Garden, New York.

LAST week a fatal accident occurred in Reading as the result of a horse running away, and in its flight knocking over a cyclist, the rider sustaining such injuries that he died shortly after his admission to the hospital. An eye-witness of the scene tells us of the escape of half a dozen other cyclists.

THE Albion Battery Company, Limited, has been registered with a capital of £25,000, to acquire from Messrs. C. Tunstill, J. Opperman, George Fowler, and R. G. Margetson certain inventions in regard to accumulators, to develop the same, and to carry on business as electrical and mechanical engineers.

BEFORE the members of the Nottingham Automobile Club, Mr. H. W. Staner has read the paper on steam-cars with which he recently favoured the Automobile Club in Whitehall, S.W. Mr. E. W. Wells presided over the meeting, and a vote of thanks was accorded the lecturer on the motion of Mr. A. R. Atkey, the hon. secretary.

THE CARE AND MAINTENANCE OF ACETYLENE LAMPS.

ACETYLENE lamps are regarded by most automobilists in the light of a necessary evil; yet, being practically indispensable, if driving at night is to be enjoyed with safety, any precautions to minimise the trouble they occasion are worth taking. And it may as well be admitted at once that the first and principal condition on which an acetylene lamp will consent to work is cleanliness, and unless it is suitably attended to after (rather than *before*) every period of use, trouble is likely to ensue. There are, however, lamps and lamps, and the principal sources of disorder in them may be separately considered, most of these being far more evident in small lamps than in large ones.

In the first place, the burner has necessarily a very small aperture, and is therefore very liable to obstruction, the materials for which are plentifully provided by many systems of generation. This may be conveniently cleaned by the fine hard brass wires sold for hypodermic syringes, while the larger bore often terminating the jet should be cleaned out by a drill that fits it. Air apertures in the burner, if present—for some of the best jets act on the principle of a miniature pair of Bunsens—equally require to be kept free from obstruction. This clogging of the burner occurs to a very variable extent with different lamps, several causes contributing to it. First, the reaction between calcium carbide and water generates heat, often sufficient to cause polymerisation of the gas, with consequent production of benzene and similar compounds. Some of these are of a tarry nature, causing an adhesive deposit in the burner. Generators like the Bleriot, in which the water rises and falls round the carbide according to the consumption of the gas, would be liable to this, were it not avoided by the use of the so-called "acetylithe," which is a calcium carbide made partially "waterproof" by treatment with some water-repelling material. Hence it is comparatively unaffected by the moist atmosphere inside the apparatus, unless directly in contact with water. The action is thus rendered more gradual, and the liability to overheat diminished; at the cost, of course, of requiring a specially prepared carbide not so universally obtainable. Soaking ordinary carbide in heavy paraffin oil has a similar effect, but is apt to mess up the generator.

Next, the action is always accompanied by the production of lime, some of which, especially in "drip" generators, is carried over with the gas in the form of a fine powder, which would rapidly choke the burner were it not filtered out. The filter for this purpose, usually a pad of cotton-wool in a tube or chamber, requires occasional renewal. This pad also serves to retain moisture, unless there is a special carbide filter for this purpose. If a lamp of the "drip" type is allowed to burn itself out, the pad will probably get wetted, and cease to work. Few lamps will bear turning down much without smoking and consequent clogging, and hence, if the generator works unevenly and there is no rubber bag to equalise the pressure, the effect is similar, and troubles occur. If a burner has once got thoroughly dirty it seems to have a great tendency to do so again after cleaning, possibly owing to the material of the jet absorbing some of the tarry products, and it is best in such cases to substitute a new one. There are not many lamps that will burn well after being turned out for some time, without recharging; as the used portion of the charge—in addition to retaining moisture often sufficient to decompose the unused part during disuse—also shields the latter from the water when turned on. It is often an advantage with such lamps to intersperse a few strips of porous material—such as blotting-paper—with the charge, but, except with the lamps using "acetylithe," it is always advisable to clean them out after every time of use. With "drip" generators the used charge is apt to become hard and difficult to remove, unless this is done while a partially used charge of ordinary carbide continues to give off gas which acts by no means beneficially on the brass parts of the apparatus. For this reason, and also on account of gritty lime particles, the taps of lamps are very apt to become leaky, unless well greased. It is always advantageous that the

passage from generator to burner should be as long and tortuous as possible, thus assisting the gas to deposit impurities; and with some of the smaller lamps that have a rubber connection between the two, improvement will follow the substitution of a longer piece of tube.

A point that should not be forgotten is that carbide expands very considerably during decomposition, and generators must therefore not be over-filled. Where there is any likelihood of recharging being necessary during a drive, it should be attended to before the old charge has got thoroughly wet, and the flame begins to fall off. At this stage the used charge can be shaken out in a fairly dry state; but if it is soaked, the insertion of the new one into the damp generator will be a wasteful and aromatic process. It does not appear that the smell of acetylene is particularly deleterious as compared, for instance, with house gas; but it has an undoubted effect with some constitutions in producing headache, and it is advisable to see that all joints of the generator are gas-tight. This can be generally ensured by smearing them with vaseline before screwing up, though rubber packings are not improved by this. It is, however, not easy at times to get a gas-tight joint with dry rubber, the more so as it is generally covered with lime powder from the charge. When frost is feared, brine can be substituted for water in the lamp, but it should be made, if possible, from pure sodium chloride, free from magnesium chloride, the latter acting on metals, and being often present in common salt. Acetylene lamps, as most users of them find, require some trouble to keep in order; but this is reduced to a minimum if taken immediately after every time of using.

R. W. BUTTEMER.

A COMPANY has just been formed in Brussels with a capital of £24,000 to be known as La Compagnie des Vehicules Electriques et des Equipages de Luxe.

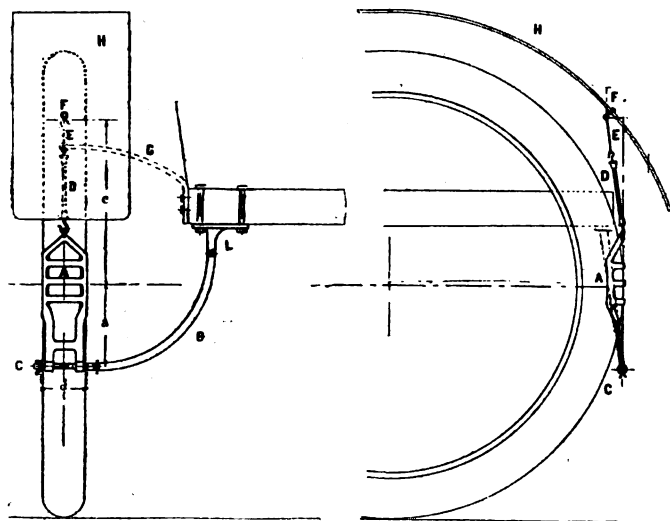
A COMBINATION lifting jack and tire-pump for motor-cars has been introduced by Messrs. Schmidt and Mueller, of Winnebago Street, Milwaukee, U.S.A. The jack or pump is available for use either singly or together. In case of a puncture the vehicle can be lifted, and by the turning of a pin in the centre of the lever the pump may be released from the jack, the latter being held in place by a clutch at the top of the frame.

THE use of motor-cars is spreading very rapidly in Italy, writes the British Consul at Naples. The country is well adapted for their use, as the roads are excellent, and, where mountainous, the gradients are arranged with consummate skill. The use of automobiles for military purposes is attracting attention, and there can be no doubt that in the near future there will be a large trade in them, the only drawback being the high price of petrol in Italy. At present the business appears to be, for the most part, in the hands of French manufacturers.

M. E. FREMY, of 43, Boulevard du Hainaut, Brussels, has sent us a sample of the latest pattern of the "Stéate" sparking plug. As hitherto, a noticeable feature of this plug is the use of the mineral steatite in place of porcelain. Among the advantages claimed for it are that after being baked in a furnace at a high temperature its mechanical and electrical resistance greatly increases, and is much in excess of that of porcelain. A new departure in connection with the plug is somewhat difficult to describe without an illustration. We may say, however, that instead of the sparking taking place between two points, it occurs between a central point and the edges of a small hole in a disc of nickel. The end of the screw-threaded steel portion of the plug is ground flat, and on this is fixed a disc of nickel; a long rod passes through the centre of the plug and terminates flush with the disc, there being a space of from $\frac{1}{32}$ to $\frac{1}{16}$ in. between the conical point of the rod and the disc. It is claimed for the arrangement that small deposits of carbon will not interfere with the working of the plug, for if the current cannot find a passage from the end of the rod to the disc at one point, it jumps across another. The plug is put together without any cement being used, and, so far as we can judge from the short trial we have given it, appears to work very well.

THE MICHELIN NAIL EXTRACTOR FOR PNEUMATIC TYRES.

FOR a long time many cyclists have adopted the plan of stretching a piece of wire just clear of the surface of the tyre across the back stays, in order to whisk out any thorns that have partly entered into the tyre. On a much enlarged scale this notion is embodied in a nail-catcher for the tyres of motor-cars that has lately been introduced by Messrs. Michelin, the well-known tyre makers, and a working example of its action was on view during the recent Paris Show. It consists of a sort of light shoe or spoon, pivoted on its lower end to an arm



and bolted to the body of the car. The spoons are held so as to lightly bear against the tyres of the rear wheels by means of rubber bands *D*, which are hooked to bolts *F*, fixed to the mudguards *H*. The rubber band is provided with an adjusting rod *E*. Any obstruction rising with the tyre catches the edge of the spoon, and if the first edge does not dislodge it the chances are that one of the others will. Tyres being thick in the tread, a nail usually requires the repeated hammerings of several revolutions to be forced right in; hence the value of this nail-catcher as a method of dislodging the injurious object when it has only had its first blow, and has therefore only begun to feel its way into the interior of the tire. It is said that this simple little device serves its purpose admirably, some automobilists in France using it having run over 2,000 miles without a puncture.

THE Continental Caoutchouc and Gutta-percha Company have made arrangements with the Clipper Pneumatic Tyre Company for the sale by the latter concern of Continental motor inner-tubes, and all rubber goods manufactured by them for the motor trade. Motor tyres made by the Continental Company at their Hanover works will be known here as "Clipper-Continental motor tyres."

VOGT MOTORS, LIMITED, is the title of a company registered with a capital of £40,000, to adopt an agreement with A. Vogt, M. von Recklinghausen, P. Rottenberg, H. Allan, J. A. Allan, R. M. Paterson, L. Rottenberg, W. A. Donaldson, A. S. McGlelland, R. Cassels, Dr. L. Mond, W. Field, Dr. H. Gerlich, J. Bachman, and to carry on the general business of builders of motors, motor-cars and cycles of every description.

WE have received a price list in connection with the "Falconnet" Compound tyre. In this type the edge of the rim is of such section that in the event of sudden strain the possibility of cutting the tyre is obviated. In fact it is claimed that the tyre has additional support in such a case. When fitted into its place on the rim the tyre is also secured by a system of safety lock-bolts, and the operation further completed by the tyre being cemented, thus preventing creeping. The "Falconnet" Compound tyres are made at Choisy-le-Roi, near Paris, and supplied from the Paris depot at 6, Avenue Percier.

D

The De Dion Light Car.



THE new De Dion light car, with the engine in front, is a vehicle which is just now attracting considerable attention. Some time ago we published a brief description of its main features, and an illustration showing its general appearance; but the new car is such a radical departure from the De Dion voiturette that a more complete explanation of the arrangement may be useful. To this end we spent some time the other day in inspecting a chassis at the depot at Brook Street, W., of De Dion-Bouton, Limited, and are now able to publish some further illustrations (Figs. 1 to 6) which will greatly elucidate the text. To begin with the frame, this, as will be seen from Fig. 1, below, is of weldless steel tubing, strongly stayed

carburettor, which furnishes the explosive mixture, is on practically the same lines as that used in the $4\frac{1}{2}$ -h.p. De Dion voiturette. The water circulation is maintained by a centrifugal pump of new design. Fig. 4 is a view of the pump with the plate swung back to show the interior arrangement. The water enters at *n*, and is discharged at *m*. In the first vehicles, as shown in Fig. 1, the pump was located near the motor and driven by a friction wheel, but in the latest cars it is placed near, and driven by worm gearing off the variable speed gear. To assist the cooling of the heated water, a large radiating coil is suspended from the

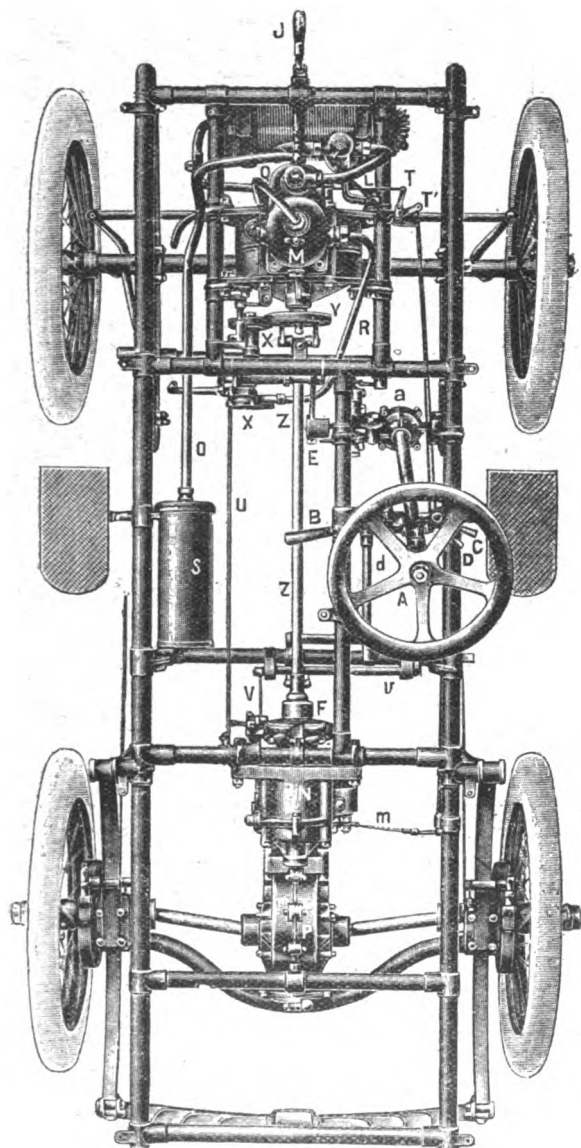


FIG. 1.—PLAN OF DE DION 8 H.P. LIGHT CAR.

and supported on the axles by springs. The motive power is supplied by an 8-h.p. single-cylinder vertical motor placed forward under a bonnet. A smart dashboard is fitted in front of the driver, to the inside of which a large petrol tank, having a capacity of four gallons, is attached. Upon the other side, that is, underneath the bonnet, a water tank is fitted, with the induction coil alongside. The bonnet lifts up, being hinged upon the dashboard, a metal stay being provided to keep it up-lifted whilst examining the motor or its parts. The float-feed

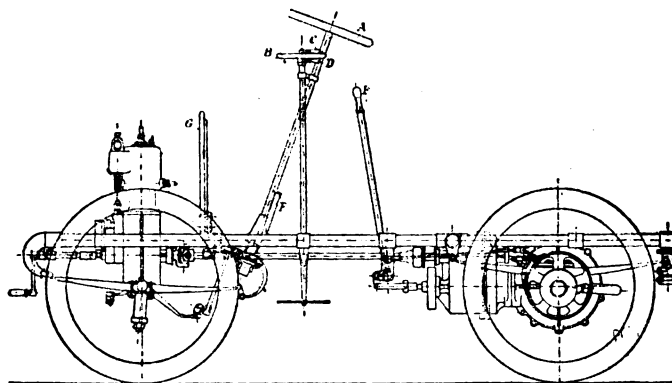


FIG. 2.—SIDE ELEVATION OF DE DION LIGHT CAR.

front end of the frame. Another small point of interest is the suppression of the ordinary compression cock, its place being taken by a plunger fitted to the inlet-valve, by means of which the latter can be held open to ease the compression at starting.

Two speeds forward and reverse motion are provided, the

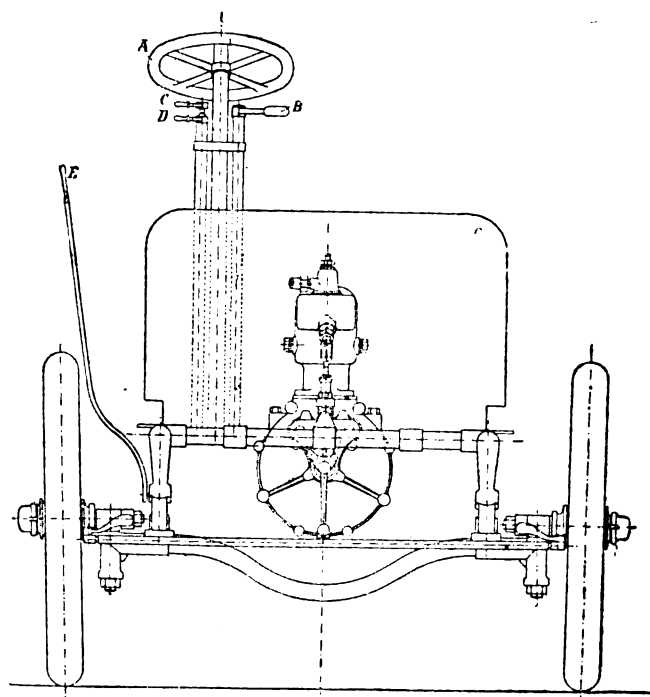


FIG. 3.—FRONT ELEVATION OF DE DION LIGHT CAR.

power of the motor being transmitted through a longitudinal shaft, with universal joints, to the gear-box at the rear, and from the gear-box by bevel pinions to the differential gear on the rear axle. One of the principal features of the car is the change-speed gear (Figs. 5 and 6). The principle is the same as on the $4\frac{1}{2}$ -h.p.

voiturette, but it has undergone considerable modification, having been enlarged and strengthened. The reversing gear is placed in the same gear-box as the speed-changing device, and a peculiar mechanical action has resulted. When the reverse motion is put in gear, from a small handle under the driver's seat, the speed-changing handle can be brought into requisition to drive backwards. Almost before coming to an absolute stop the change-speed handle can be pushed forward, as for top speed, and the car will immediately drive forward. The advantage

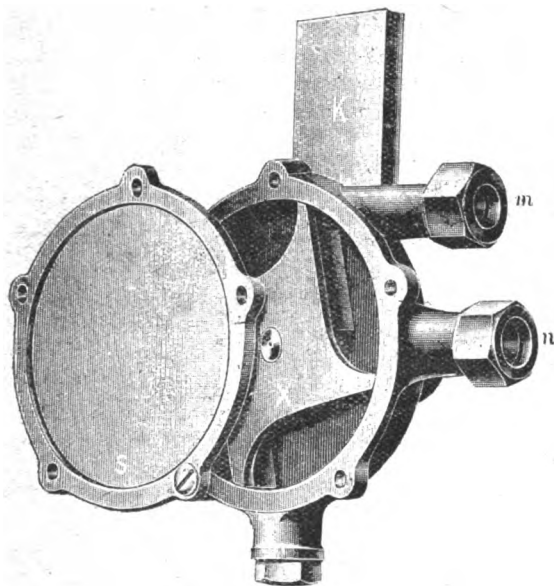


FIG. 4.—VIEW OF DE DION WATER-CIRCULATING PUMP.

claimed for the arrangement is that when it is required to reverse, the car can instantly be driven forward again without it being necessary to replace the reversing gear into its usual position.

The speed-changing gear is on the friction principle, with no toothed wheels to move in and out of gear. As the change-speed handle under the steering wheel, upon the left-hand side of the upright tubes, is pulled towards the driver for the slow speed, a rack working a small pinion in the centre of the speed-changing gear causes the diameter of the fibre segments to increase, and thus lock the low-gear segments against the inner surface of the friction case, causing the gear to drive. At the same time, the pinion decreases the diameter of the opposite segments, and thus releases the high gear, and *vice versa*. When the handle is placed in a central position both the gears are thrown out and the motor continues running, but is disconnected from the transmission mechanism. The speed-changing and

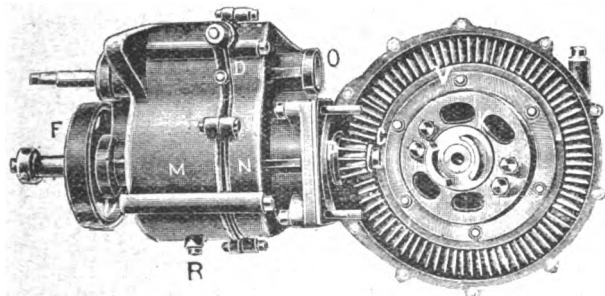


FIG. 5.—VIEW OF DE DION CHANGE-SPEED GEAR BOX AND BEVEL GEAR CONNECTION TO REAR AXLE.

differential gears are contained in two well-finished aluminium cases bolted together. With the variable sparking device the speed of the motor, and consequently that of the car, can be increased or decreased as desired. Thus it will be seen that with the variable sparking and the exhaust valve-lifter, combined with the two-speed gear, any speed can be obtained from zero up to thirty miles per hour. The rear axle is of the well-known De Dion *cardan*, or universally-jointed type, which

enables it to rise and fall with great freedom in sympathy with the springs, so reducing to a minimum the vibration transmitted to the driver and passengers.

Irreversible inclined wheel steering is adopted, two vertical tubes serving to keep the steering column firmly in its position. Upon the left-hand vertical tube B (Fig. 3) the speed-changing handle is fitted, and upon the right-hand tube, on the top, C is the advance-sparking lever, and immediately underneath is the lever D, to regulate the carburation. A useful feature is the exhaust-valve closer or throttle, which can be actuated by hand from the right side of the dashboard like an accelerator, and also in connection with the brake-pedal. The first effect on depressing the latter is to act on the exhaust valve, keeping it closed, and so slow down the motor and reduce the noise, an advantage when riding through crowded thoroughfares. A further depression of the pedal brings into operation a powerful double-claw brake, placed at the forward end of the speed-gear case upon the second shaft running through to the differential gear. A hand lever, fitted to the right side of the driver's seat, actuates band brakes over drums attached to the hubs of each of the rear road wheels. The brakes are very powerful, and act either forward or backward. Wooden wheels of equal diameter (24½ in.) are fitted, and these are shod with 85 mm. pneumatic tires. The question of lubrication of the working parts has been well attended to, a lubricator with four-way cock being fitted on the dashboard. The

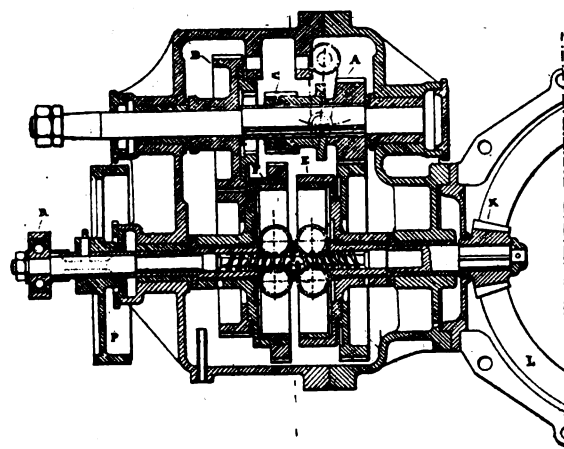


FIG. 6.—SECTION THROUGH DE DION CHANGE-SPEED GEAR BOX.

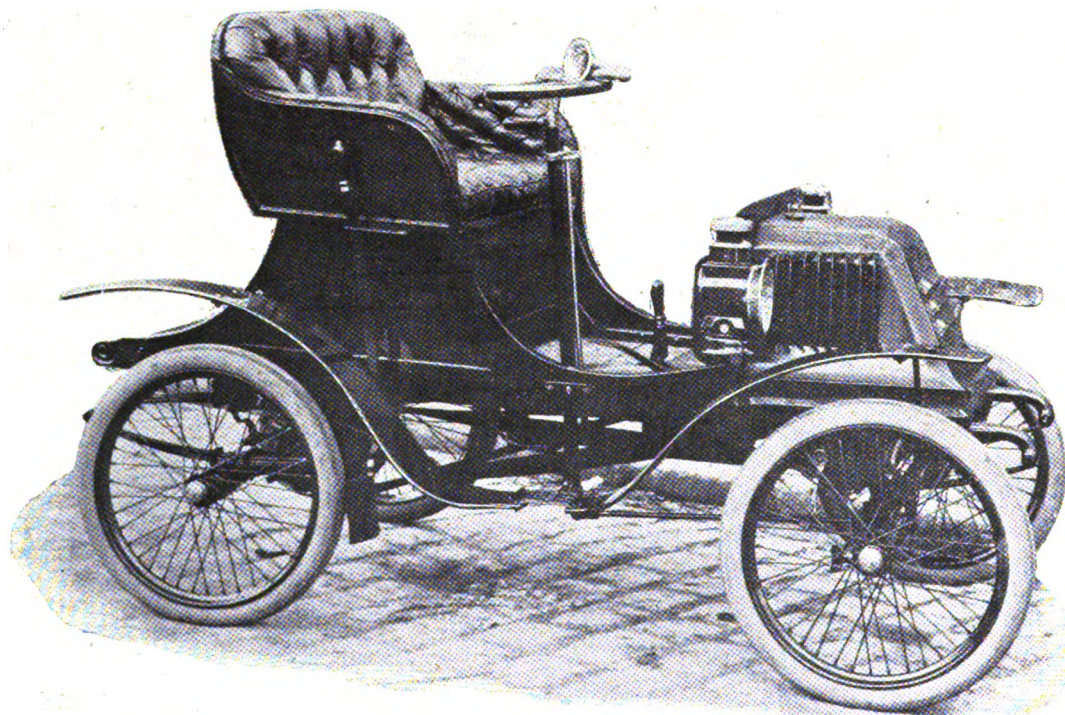
wheel base of the car is 5 ft. 7½ in. by 3 ft. 10¼ in., the vehicle complete weighing a little over 10 cwt. The motor and transmission gear being supported entirely on the frame, any type of carriage body—tonneau, phaeton, limousine, etc.—can be fitted; a department to which Messrs. De Dion-Bouton, Limited, are paying great attention.

A NEW booklet explanatory of the Ormonde motor-bicycles has been issued by the Ormonde Motor Company, of Wells Street, Oxford Street, W., who are the sole agents for the United Kingdom for the "Kelecom" motors for bicycles. Accompanying the booklet is a price list of motor and frame fittings, etc.

THE Manchester Motor Transport Company, Limited, has this week closed the list of applications for share capital. It is being formed with a capital of £20,000 and carrying by means of motor vehicles will be undertaken in the districts to the North, East and South of Manchester. It is hoped that considerable business will result from the carriage of milk from the more remote parts of Mid-Cheshire, and by the collection, storage and sale of eggs. According to the prospectus the directors have six steam lorries on order, and have secured the sole agency for Manchester and a district of twenty miles round for the "Milwaukee" steam car and "Still" electric car.

THE "VULCAN" VOITURETTE.

WE are this week able to give an illustration of the Vulcan voiturette, which made its *début* at the recent cycle and motor show in Liverpool. The frame, as will be seen, is of tubular construction, supported on the axles by long springs. The motive power is supplied by a single cylinder motor, 90 mm. bore by 90 mm. stroke, developing 4 h.p. Electrical ignition with positive contact is employed, the trembler being fitted on the induction coil. The cylinder is water cooled, the circulation being maintained on the thermo-siphon system, no pump being used. Two speeds, eight and eighteen miles an hour, are provided, the power of the engine being transmitted by a single belt working on fast and loose pulleys to a counter-shaft, and thence by gear wheels to the rear axle. Provision is made whereby any slack of the belt may be taken up without it being necessary for the driver to dismount. Steering is controlled by an inclined hand-wheel, on the column of which the gas, air, and speed-changing levers are grouped. Two brakes are fitted, while the cycle-type road wheels are all 26 inches in



THE "VULCAN" VOITURETTE.

diameter, shod with $2\frac{1}{2}$ in. pneumatic tires. The little car measures 7ft. by 4 ft. 4 in. over all, and weighs about $5\frac{1}{2}$ cwt. The makers—the Vulcan Motor and Engineering Company, of Yellow House Lane, Southport—inform us that their object has been to build a light, simple, and yet strong car with an engine of ample power. This latter quality was fully tested on the car's return journey from Liverpool to Southport, a distance of twenty-one miles. The roads were six inches deep in snow and full of frozen cart ruts, yet the car travelled the full journey using only the top speed, the motor being throttled down when required.

ACCORDING to the leading newspapers of India, the motor-car is putting in an appearance in Calcutta, Madras, and other chief cities of the Dependency, while a gentleman well-known in Assam has imported several Locomobiles for use in India. Mr. A. M. Grose, late pupil of Messrs. Frank F. Wellington, Ltd., has sailed for India to take up a position as chief engineer to a large transport company, who intend running steam cars for passengers, mails, and goods.

EXPERIENCE WITH MOTOR-BICYCLES.

MY experience of motor-bicycles, which extends over about a year and a half, is practically confined to two makes, (1) being a machine supplied to me by Messrs. Luthi and Zurcher, of Neuchatel, who were the original inventors of the type of machine that now goes by the name of "Minerva," "Excelsior," etc.; (2) a Werner motor-bicycle, of the form with the engine placed in front of the handle-bar.

The chief defects that I have found with the Luthi and Zurcher machine are as follows:—The power, which is stated to be 1 h.p., is insufficient to climb even ordinary hills without assistance by the pedals. When in good order, however, the bicycle will go about twenty miles an hour on the level, and the amount of assistance necessary to enable it to climb hills is not very great. The exhaust and inlet valves are both too small, particularly the former, which consequently is very apt to get burned, and requires constant grinding in; the inlet valve also is liable to get overheated, which makes it stick. There is a great deal of leakage of oil, which comes out at the engine bearings; this gets on to

the belt, and makes the latter slip, while it also gets on to the trembler, and prevents it from making a proper contact. This leakage is, I think, due to the bearings being made too narrow, in order to get the engine to fit in between the cranks of ordinary "spread." Owing to oil on the belt, the latter has to be made very tight to prevent slipping, with the result that the fastenings tear out. The position of the engine in front of the bottom bracket leads to its getting very dirty, while if a wide mudguard is used on the front wheel, to avoid the dirt being thrown up on to the engine, the latter is apt to get over-heated, owing to the mudguard preventing the wind from blowing on to it. The compression tap is of a form that is very apt to stick, and also to leak. The handles for controlling the apparatus are not very conveniently placed. They are much better arranged on the handle bar, as in the case of the Werner machine. The form of surface carburettor employed is very liable to be affected by jolts. The fine wire gauze on the air-admission tap is apt to get blocked up with the dust, with the result that sufficient air does not pass. I believe that most of these defects have been remedied in later machines.

The engine of the Werner machine, which is supposed to

be of $1\frac{1}{2}$ h.p., will take the bicycle up any ordinary hill without assistance, and one can travel about thirty miles an hour on the level. The position of the engine in front of the handle-bar keeps it clean, and conduces to it being kept cool, as it encounters the full force of the wind. I have had no trouble with the valves or trembler of this machine, all of which are on a considerably larger scale than those of the one above referred to; nor is there any trouble in the Werner with oil leakage. I, however, find that the belts are very apt to stretch when new, and to crack when they have done stretching. Putting a little vegetable oil upon them seems to help to stop the cracking. The handles for controlling the mechanism on the Werner are, on the whole, very conveniently situated, though the one that controls the supply of air is somewhat clumsy, and one cannot leave go of it for an instant, as it moves its position with the vibration. My machine was originally fitted with a surface carburettor, which has the defect of being easily affected by jolts; but I have recently substituted a jet carburettor, which appears to be very fairly free from this defect. I think it is a mistake that the induction coil is exposed to the weather, and not enclosed in the same box as the battery. The front tyre, though originally corrugated, has worn entirely smooth; this appears to be due to the weight of the engine on the front wheel, and to the tyre slipping on the road under the impulses of the engine, and when it meets an uneven surface. The back tyre shows no wear of this description. The fact that the engine is attached to the handle-bar does not appear materially to add to the vibration of the latter, but the machine is somewhat stiff to steer, and great care is required in turning sharp corners.

Both the types of motor-bicycles mentioned above are undoubtedly liable to sideslip, but I have not noticed that there is anything very much to choose between them in this respect, although in the one case the engine is high up and in the other case it is low down. In the Luthi and Zurcher machine it is the back wheel, and in the Werner the front wheel that usually slips first. That is to say, it is always the driving wheel that is apt to slip. As long as the roads are dry they are very easy to manage and to control, but, however careful and experienced may be the rider, I do not think they are really safe to ride in traffic on wood, or especially on asphalt, which is in a greasy condition. Both machines, as originally supplied, were, I think, defective in not having sufficient capacity for petrol, this only amounting to about fifty miles, whereas to my ideas, the capacity should certainly not be less than 100 miles. In the case of the Luthi and Zurcher machine I have added an additional tank, so arranged that, by blowing air into this tank with the bicycle tyre pump, the petrol can be made to flow into the working tank. In this way I have increased the capacity to 120 miles, but I do not see why the original tank should not have been larger, and, of course, two small tanks must weigh more for the same capacity than one large one.

I think the weight of motor-bicycles is a matter of great importance. Each of the machines mentioned above weigh between 70 and 80 lbs., and this is a weight which one can, unassisted, carry upstairs, lift over obstacles, or place in railway trains, etc. With any considerably greater weight, however, one could not do these things, and this is, in my opinion, a considerable bar to the utility of the Singer bicycle, which, I believe, weighs about 120 lbs., or of the Holden bicycle, which, I understand, weighs 160 lbs. Indeed, the chief advantage of the motor-bicycle over the motor-tricycle and small cars is done away with if the weight exceeds what one man can lift. In the case of the Werner the engine is very noisy. I think this could be improved by having a larger silencer. Under certain circumstances explosions in the silencer are also very apt to occur, which is a troublesome feature.

I believe many persons have a difficulty with the ignition, and personally I had considerable trouble in this respect with the Luthi and Zurcher machine, so long as I used dry batteries. As soon, however, as I substituted for these a two-cell storage battery of reasonable size my difficulties disappeared. No doubt, in many cases, loose electrical connections, bad contacts, short circuits,

and allowing the storage battery to run down, may give trouble, particularly to those who are not used to electrical apparatus. The platinum contact pieces on the trembler as usually supplied are very small and thin, and quickly wear out. In my case, I have put on contact pieces nearly one-eighth of an inch thick, and since then have had no trouble with them. It must be borne in mind that with engines as small as those used on motor-bicycles the matter of getting a good compression is of great importance, while at the same time comparatively small air leaks, which would not materially affect a larger engine, have great influence in making the compression bad. It is therefore of special importance to see that all joints are made tight, and that the valves are properly ground in; this specially affects the power of the engine to take the bicycle uphill, as it is at low speeds that air leakages have most effect in reducing the compression.

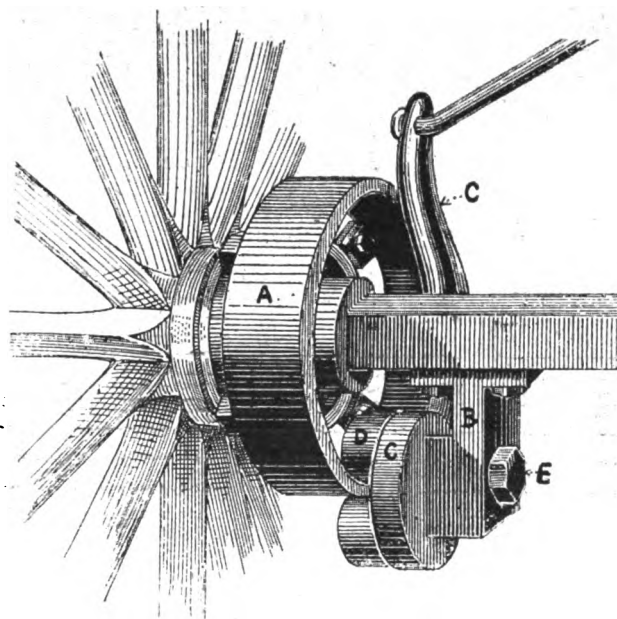
Generally I may say that, in my opinion, the motor-bicycle has come to stay, and that it will be found to afford much amusement and to be of considerable utility to many who cannot afford to pay the price of a motor-car, or to find space for housing anything more bulky than a bicycle.

To others, again, the possession of a motor-bicycle will be the prelude to obtaining a motor-car, and to these the experience of internal combustion engines economically attained with the former will be found of great value when the more costly article comes to be worked. In fact, the motor-bicycle, while remaining the poor man's motor-carriage, will also serve as a means of education to the rich.

A. A. C. SWINTON.

THE RASSINIER BRAKE.

A NEW form of brake for motor-cars was shown at the recent exhibition in Paris by La Société des Freins à Galets Rassinier, of 199, Rue Championnet, Paris, in which rolling friction is adopted instead of plain sliding friction. As will be seen from the accompanying illustration, the device is composed of an annular ring A, fixed either to the hub or to the spokes of the rear wheel, a bracket B



bolted to the axle and a lever C C, which is fulcrumed on the short shaft E to press the rollers D D against the surfaces of the ring, which turns between them. The brake is certainly extremely simple; it is claimed that it cannot "fire," and that neither grease nor mud can affect its efficiency. A brake of this type has proved its efficiency on bicycles, for in the recent tests, organised by the Touring Club de France, it was accorded first prize for brakes acting on the hub. Some practical information as to its efficiency and durability on motor-cars would be interesting.

A RUN TO THE HIGHLANDS IN SNOW-TIME.

A FRIEND having important business in the Loch Voil district beyond Balquidder, and not being able to get convenient means of transport, commandeered the writer with his motor-car. Leaving Glasgow on a Monday at 10.15 a.m., a cold north-east wind had to be faced all the way to Stirling. However, plenty of wraps kept us quite warm and comfortable, and the sharp frost of the night before made the roads in fine condition for good going. Stirling was reached by 12.30, and after a hot lunch, we left at 1 p.m. for Callander, which was reached after a fine run at 2.20 p.m., where the petrol tank was filled up for the morning, and at 2.45 we left for Loch Vennachar, which was reached at 3.10 p.m. After transacting business there we left at 4.20 for Strathyre, crossing the old bridge at Colintogal ford on to the Trossachs road, and thence down to the main road, we turned to the left, and went up along the side of Loch Lubnaig, when at 5 p.m. Strathyre was reached.

Snow began to fall immediately after leaving Loch Vennachar, and by the time the Pass of Lenny was reached a perfect



IN THE SNOW NEAR CALLANDER.

snowstorm was raging, which made the last few miles to Strathyre rather unpleasant. We stayed overnight at Strathyre. The outlook next morning was not very favourable for our day's journey, there being a hard frost and two and a-half inches of snow on the ground. After an early breakfast, and having driven some fishing friends two miles down to Loch Lubnaig to the boats, we left at 9.15 a.m. for Loch Doine. At Kingshouse we turned left for the Braes o' Balquidder. After several sharp rises Balquidder's ruined church appeared on the right. Shortly after passing the quaint village, one of the Balquidder Braes proved too much for the car, owing to the slipping on the frozen snow. When standing there our gradometer showed the incline to be 1 in 6. However, being prepared for such an emergency, we took out some stout copper wire and wound it round the tires (an arrangement that works well with solid tires), and got up to the top all right, running to the head of Loch Voil without any further trouble. From the head of Loch Voil to the head of Loch Doine, a distance of three miles, the road is merely a cart track with some nasty snaps and turnings. The wind having risen, caused the snow to drift badly, threatening to block the road and cut us off in the midst of the mountains. We therefore made our stay as short as possible, and although we only arrived at 10.35, we left at 10.45, and got over the first three miles back as quickly as possible. After completing our business we made fair running through to Strathyre at 11.55, and after lunch left at 12.45 for Callander; arrived at 1.30, saw a friend there, and left at 1.50 p.m. With a non-stop run we passed through Stirling by a nice road round the back of the castle, and reached Glasgow at 5.45 p.m..

when I left my friend, and arrived home at 6.30, after a delightful run on snow all the way. The deepest snow was between Callander and Doine, where it was four inches deep, while all the way it was from two and a-half to three inches deep.

With the exception of filling the petrol and water tanks, the car needed no other attention, and in the two days we completed a trip of 143 miles, the distances being as follows:—First day: Barrhead to Glasgow, 6 miles; to Stirling, 26; Callander, 16; Loch Vennachar, 3; Strathyre, 9. Second day: Strathyre to Loch Doine, 13 miles; return to Strathyre, 13; to Callander, 9; to Glasgow, 42; and home again, 6 miles.

WALTER CREBER.

SKIDDING AND ITS REMEDIES.

THE motor-car is ordinarily a most perfectly controllable vehicle, except where the conditions of road surface, speed, and turns combine to cause it to skid. While means may eventually be found to entirely avoid this troublesome feature, the most promising path to pursue at present is that of reducing it below the danger limit by rational methods of construction.

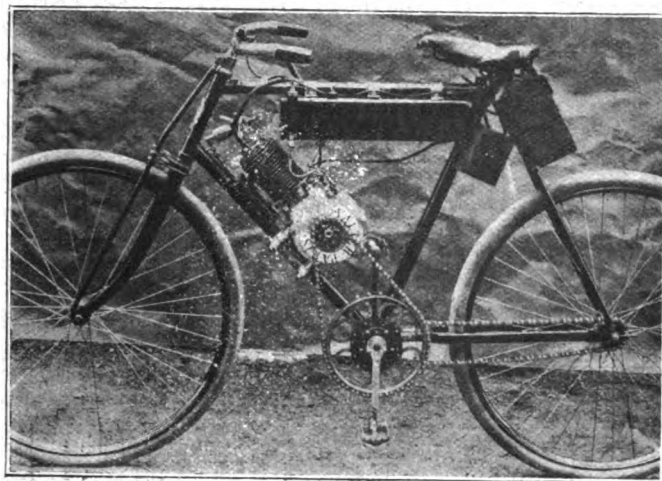
Skidding in its underlying principles is rather a complicated question. It is a well-established fact, however, that it is due to the inertia of the mass of the vehicle, which tends to keep that mass moving in the same direction; and, on the other hand, to insufficient resistance to sideward motion of the wheels on the ground to prevent such motion being produced. In an iron-tired vehicle, for instance, the force tending to cause it to slew would be almost the same at the same speed, but as the narrow iron tyres sink deep into the mud, and as the least sideward motion only causes the tyre to dig deeper into the ground, the trouble is practically absent in such vehicles. The solid-rubber tyre in this respect, as in others, forms an intermediate between the iron and the pneumatic tyre, it being very well known that skidding is much less pronounced with solid than with pneumatic tyres. Some manufacturers of pneumatic tyres have tried to secure this advantage of the solid tyre by strongly reinforcing the tread of their pneumatics and giving the reinforcement a form corresponding to the tread of a solid tyre. This practice certainly does not add to the resiliency of the tyre nor to the life of the side walls of the same, but as a skidding preventive we would, remarks the *Horseless Age*, consider it more promising than the repeatedly suggested idea of providing the tread with a large number of small metal rivets. The Automobile Club of France, it will be remembered, held a contest of non-skidding tyres a year or so ago, and one or two of those—tyres with a tread of metal segments—entered were found to be possessed of this quality to a very satisfactory degree. They had so many other disadvantageous features, however—noisy, short-lived, etc.—that prospects of the skidding difficulty being solved along this line seem slight.

Increasing the length of the wheel base is a certain and one of the easiest ways of reducing skidding. The power which tends to swing the rear part of the vehicle around the front wheels increases with a decrease of the radius of the curve which the vehicle is turning. Giving the front or steering wheels the same limit of swing the shortest possible radius in which the vehicle may turn increases with the wheel base, and consequently the greatest possible skidding force is reduced by lengthening the wheel base. This is highly important, as dangerous skidding usually occurs only when the steering wheels have been brought to the limit of their swing, or nearly so, which is often done inadvertently and not because it is required by the condition of the road.

A CORRESPONDENT, W. B., asks if there is any means of repairing a cracked water jacket of a petrol motor cylinder. He has been recommended a method of rusting together the cracked portions by means of sal ammoniac and iron filings. While this has been found satisfactory to a certain extent, there is still a slight leak.

THE VALTER MOTOR-BICYCLE.

THE latest motor-bicycle of French construction to be brought before the notice of English motor-cyclists is the Valter, of which an illustration is here given. The motor, which is supported over the lower tube of the frame, is of 1½-h.p. capacity, and is fitted with electrical ignition and a spray type of carburettor. A feature of the machine is the transmission. A special form of bottom-bracket, in which is mounted a free-



wheel clutch, is used, this carrying two chain wheels, one being converted by a chain to the motor, and the other to the rear wheel. The petrol tank has a capacity sufficient for a run of about seventy miles, while sufficient lubricating oil can be carried for a journey of double that distance. The machine is made by La Société Française des Cycles, Automobiles Libertas, of Paris, and is being introduced into this country by M. L. de Salengre, of 11, Finsbury Square, London, E.C. Another point of the machine is its weight, this, we are informed, coming out at less than 50 lbs. for the complete motor-bicycle.

BEFORE returning to Europe again Fournier will, it is said, make another attempt at the mile record of 51.45 seconds held by himself.

THE Charron, Girardot, and Voigt Co. of America has been formed at Albany, U.S.A., with a capital of £100,000. Details concerning the new company, its future plans, etc., are rather meagre, but the object is, undoubtedly, to manufacture in the United States the new petrol vehicles which Messrs. Charron, Girardot, and Voigt exhibited at the recent Paris Show.

THE automobile mail-carts, which have now been running in Paris for upwards of a year, have given such satisfaction that M. Mougeot, the Under Secretary of State for Posts and Telegraphs, has decided to extend their use. Not only will they gradually entirely replace the horse-drawn mail-carts in the capital, but they are to be introduced into the more important provincial towns, such as Marseilles, Lyons, Lille, Bordeaux, etc.

ABOUT two years ago a Continental firm constructed a motor tyre 80 mm. size, which was used for voiturettes of 3½ to 4½-h.p. The rate of speed attained by these cars did not exceed 20 miles an hour. Nowadays, however, a voiturette of 5 to 8-h.p. is built by many motor-car manufacturers, and a speed ranging from 25 to 35 miles per hour can easily be attained. After studying the matter, the Continental Caoutchouc and Guttapercha Company came to the conclusion that a tyre of 85 mm. could be used with more success on a car of the higher speed, and very encouraging have been the results of trials made on the Continent with tyres of the larger size. The tread of this new-sized tyre is very narrow, securing greater speed and minimising the chances of the car slipping. The size of rims used for the Clipper-Continental 85 mm. tyre is exactly the same as that used for 90 mm. voiturette tyres.

HERE AND THERE.

A CORRESPONDENT took a trip on Sunday on a Holden bicycle drawing a trailer carrying a load of 13 stone. Going from Kennington to Woking he returned to London, having run sixty-five miles on one charge of petrol. At the end of the trip sufficient petrol remained for another twenty miles.

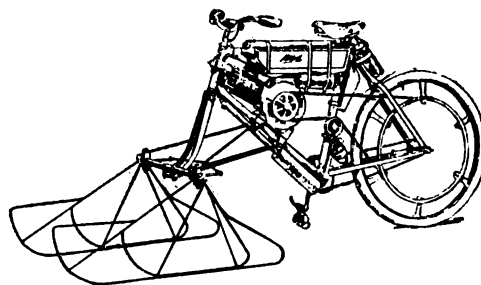
THE new steam bus of the Road Car Company has attracted much attention this week. Its route is between Oxford Circus and Hammersmith by way of the Bayswater Road, Notting Hill Gate, Holland Park, and Shepherd's Bush. As already stated in these columns, the vehicle is of the Thornycroft type.

THE Gillett Motor Company, Limited, has been registered, with a capital of £10,000, to adopt an agreement between the Motor Omnibus Syndicate, Limited, E. H. J. C. Gillett, J. Liver-side and Son, Limited, and W. B. Hurt (for the company), for the acquisition of certain patents for improvements in relation to water tube or sectional steam boilers and atmospheric burners for liquid hydro-carbons, and all assets and effects of the Motor Omnibus Syndicate, Limited, and to carry on the business of carriage, omnibus, and vehicle builders, etc. The registered office is at 27, Chancery Lane, W.C.

MR. ALFRED RIVETT, of the Blizzard Cycle Works, Leytonstone, has devised a very simple and yet effective improvement in the pulley for belt-driven motor-cycles. It consists of an ordinary deep-grooved pulley, in which are a number of transverse saw cuts. The soft hide of the belt beds itself slightly in the saw cuts, which prevent it slipping round the pulley, so that any slipping that has to be done to compensate for jerky engine-driving is done upon the large diameter belt-rim fixed to the road-wheel. The saw-cuts also have, it is claimed, the effect of scraping grease and road mud away from the belt, which is, consequently, kept cleaner than usual.

FROM the Speed-King Motor Works at Guildford, Messrs. Dennis Brothers, Limited, send us a copy of their new price list, in which the 1902 patterns of their Dennis cars are illustrated and described. These are fitted with engines of 8 and 10 h.p. respectively, the latter being a twin-cylinder slow-speed governed motor. The firm's convertible motor-quadracycle and motor-tricycle are also illustrated, both having some useful improvements on the designs already known to the motor world. Light trailing cars and a motor-bicycle with a 1½ h.p. engine, and capable of attaining a speed of thirty miles an hour, are also included in the catalogue.

THE motor-driven cycle sledge has made its appearance in Chicago. Mr. I. H. Whipple, of the Whipple Cycle Company, of that city, is its originator, and, in a letter to the *Bicycling World*,



of New York, he vouches for the fact that it is eminently practical. As the illustration indicates, the sledge is a Mitchell motor-bicycle with the front wheel removed and runners substituted.

THE UNITED MOTOR INDUSTRIES, LIMITED, 42, Great Castle Street, London, W., have sent us a small tin of "D" lubricating oil packed in a new form. The can contains half a litre, equal to about one pint, this size having been introduced in answer to many requests from motor-cyclists and cycle agents. "D" lubricating oil has long been used for the lubrication of small high-speed motors, and is therefore distinctly applicable to motor-bicycles.

AN Automobile Club is in course of formation at Nantes, France.

THE Hon. J. Scott Montagu, M.P., has been giving a lecture to the boys of Eton College on automobilism.

A LIGHT railway is being suggested to connect the towns of Deal and Sandwich. Why not develop a motor-car service?

MESSRS. JOHN HUTTON AND CO., of Dublin, have been appointed agents for Leinster for the Electric Ignition Company.

THE London General Omnibus Company are about to place a Fischer gasoline-electric omnibus upon one of their routes with a view to testing its suitability for London thoroughfares.

WE understand that Messrs. De Dion and Bouton are about to introduce a small petrol motor of 1½ h.p. for motor-bicycles. The same firm are also at work on a two-cylinder motor of 12 h.p.

A LONG list of repairers has been adopted by the Automobile Club, including thirteen firms in various parts of London and others at most of the leading commercial centres and holiday resorts.

THE Motor Cycling Club will open their season on April 12th with a run to Brighton, meeting at the Railway Hotel, Purley Corner, at 4 p.m. This fixture is an open one, all motor-cyclists being invited to join the party.

It is time, says the *Yorkshire Herald*, that all obstacles to the progress of the automobile industry in the British Isles were removed. If they are not, foreign producers will continue to reap the advantage of our tardiness and prejudice.

THE "Lonsdale" type of motor-carriage has been supplied to Lord Manners by the Daimler Company, and is exciting much favourable comment at Oakham. A similar car was despatched from the Daimler works on Saturday to Mr. L. Walker Munro.

MESSRS. SALSURY AND SON, of Green Street, Blackfriars, S.E., have sent us samples of their "Excelene" lubricating oil, for air and water-cooled motors. We have tried the latter in a two-cylinder motor, and find it gives very satisfactory results. One good point about the oil would appear to be that it does not become too thin under the action of a warm temperature.

THE annual general meeting of the Cyclists' Touring Club at Nottingham on Friday last week endorsed a decision of last year's London meeting to refuse membership to automobilists. The debate on the question at Nottingham was confined to members of the Council and raised no fresh points, but the Club solicitor expressed his opinion that the Board of Trade would not sanction the alteration of the memorandum of association unless the word "limited" was added to the title. Mr. Pennell, who had ridden to the meeting from London on a Phoenix motor-bicycle, declared that no alteration in the memorandum would be necessary.

AMONG the vehicles which attracted considerable attention at the recent automobile exhibition in Paris were the latest models of the Boyer cars. The illustration on page 51 gives a general view of the 12 h.p. *tonneau* of this type. The Motor Traction Company, Ltd., who are the agents for the vehicles in this country, inform us that they can be fitted with either a 12 h.p. double cylinder Aster or Buchet motor, as desired. The ignition is, of course, electrical, while the water circulation is maintained by means of a pump and radiator. The motor, which is fitted with a governor, is set under a bonnet in the fore-part of the frame. The latter is constructed of wood and steel combined. As regards the transmission, three speeds forward and reverse motion are provided, although we understand that a fourth forward speed can be added if required. The motor transmits its power through a friction clutch to the oil-containing gear box, which is connected by bevel gear to a differential countershaft, the usual duplicate pair of chain and chain wheels connecting the latter with the rear road wheels. Steering is controlled by an inclined hand wheel, while both hand and foot brakes are fitted. The road wheels are of the artillery type, of equal size, and are shod with large pneumatic tires.

THE Grand Duchess of Hesse, who is at present at Nice, drove in her motor-car the other day to attend the Cannes races as the guest of the Grand Duke Michael and Countess Torby.

THE National Cyclists' Union has decided that it is at present inadvisable to permit motor-pacing in open amateur cycle races, but a provisional arrangement has been made by which centres may allow single motor bicycle pacing in club events.

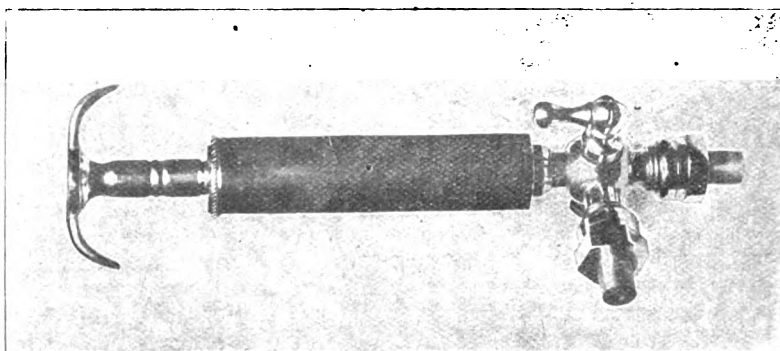
A RUMOUR is current to the effect that Messrs. De Dion and Bouton have decided to revert to the plan of locating the motor in their light cars in the rear part of the frame. We know that the position of the water-circulating pump has been altered, and wonder if confusion has arisen by reason of this change.

WE learn that M. Buchet, of Paris, has designed an engine of 2 h.p., weighing only about 25 lbs., for motor-bicycles. Arrangements have been made by a leading firm of cycle manufacturers in Coventry to use the Buchet motor in a new machine, to be put on the English market as the Victoria motor-bicycle.

POLICE regulations, which come into operation on April 1st, in the province of Brandenburg, Germany, enjoin upon motorists to place on their cars white plaques bearing numbers twelve centimetres (4¾ in.) high, the figures being black, distant from each other two centimetres (¾ in.), and being traced in strokes two centimetres broad. These plaques must be lighted at night.

AT length South Wales has its motor-car show-rooms. There have just been opened by Mr. W. Parker Thomas, at 35, Westgate Street, Cardiff, a good central position in this enterprising town. Under the title of the South Wales Motor Company Mr. Thomas proposes to supply all kinds of cars, and to have an efficient staff of mechanics to do necessary repairs to vehicles that may be in trouble in or near Cardiff. He has been connected with the motor-car industry for five years, the last two of which have been spent in South Wales.

THE accompanying illustration shows a new pump for use in connection with the lubrication of the motors of motor-bicycles. The pump, which is adapted to be attached to the rear forks or



seat tube of the frame, is very small, and so occupies but little space. It is fitted with a two-way cock, the pump barrel holding sufficient oil for one charge of the crank case. It is being put on the market by the London Autocar Company, Limited.

PASSING through Watford the other day on his 6½-h.p. Daimler Sir Henry Thomson, the eminent physician, had an experience which, though not uncommon to motorists, is worthy of note. He was proceeding along the High Street at, of course, the legal limit, when a collie dog rushed at the car, apparently to attack the front of the near side wheel, over which Sir Henry was seated. It seemed as though the head of the animal would certainly be crushed, but happily the road was dry, and the driver was able to arrest the progress of the car in the space of nine or ten feet. With a rather larger car the distance would have been greater, no doubt, but Sir Henry Thomson is of opinion that from eighteen inches to two feet ought to suffice, when immediate stoppage is required. His testimony to this effect, just published in the *Times*, adds another to the services he has already rendered to the cause of automobilism.

CORRESPONDENCE.

COST OF MAINTENANCE.

TO THE EDITOR OF *The Motor-car Journal*.

SIR,—In your last week's issue I observe with consternation that the expense of a motor-car is £246 per annum for daily running of from thirty to forty miles. Surely there must be something rather extraordinary in this statement. Petrol and lubricating oil figure at £87 5s. 8d.; paraffin, grease, and polish, £25; and recovering and repairing tyres, £85!

If motoring cannot be enjoyed for very much less than this, then only the very rich can hope to contemplate the sport. It will obviously be much less expensive to keep a horse and carriage. Ultimately, motor manufacturers will, I imagine, have to look to the well-to-do middle classes for support of the industry; but, if the above statements are correct, manufacturers will have to look in vain.

Many people, like myself, with only moderate incomes, are doubtless anxious to possess a car, but I am satisfied that they are deterred from want of a definite knowledge of the annual expense, and I trust that those who have had experience and kept accounts will be induced to give publicity to the results.—Yours truly,

LEX.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should like to refer to the interesting letter of "A Motorist" in last week's *Journal*, and I trust the writer will pardon me when I say that I think he has made the cost come out much higher than is absolutely necessary for efficient and comfortable running. The first item is petrol at 1s. per gallon for the year, £60. Now, it is not putting a very high efficiency on a car to say that twenty miles should be done on one gallon, so that 24,000 miles should have been travelled, or over 65½ miles a day for every single day of the year. Some error must have crept in and caused this item to be shown as very excessive. Had 40 miles per day been done for 365 days the cost would only be £36 10s.

As to the second item, I cannot say, as I have always run a solid tyred car, my present one being a 7-h.p. Daimler, which had done some work when I bought it a year and five months ago; but I have done many thousands of miles on it over all sorts of roads, and I have only spent £3 13s. on this item. It is only fair to say that some kind of wheel tyres must now be renewed at a cost of about £16. It may be said that mine is a moderate-speeded car, but for ordinary useful work I find it fast enough, as I can average over twenty miles an hour on good roads.

The third item seems to me very excessive, as paraffin, grease, polish, brushes, rubbers, etc., should not come to anything like £25. Five gallons of paraffin at 9d. per gallon should be ample, unless the carriage is washed in it. I think 5s. should suffice for paraffin. I have not used 10 lbs. of grease, at 1s. per lb., in the seventeen months. Ten boxes of polish at 1s. 6d. would be the extent of my consumption. Three spoke brushes at 5s. 6d., five sponges at 2s. 6d., and four washleathers at 3s. have cleaned my car and several carriages for the year, and I purchased 15s. worth of rubbers, which are not yet all used, so that for about £4 I have got all cleaning materials for carriages and car, and grease for the latter.

Surely the fourth item could not come to £27 5s. 8d. Last year I used not quite ten gallons of heavy gas-engine oil at 3s., and about three gallons of special gear box oil at 4s.

I find my Bleriot costs nearly 3d. an hour, and we might assume that 500 hours would be an ample allowance for the year, which brings the cost out at £6 5s. 4d. I purchase the acetylite at 6d. per lb.

I presume "Motorist's" car weighs over a ton, so that the licence costs £4 4s. I insured at first for all sorts of things, but I have given up all but the fire insurance at £2 per year, as I do not think with moderate driving the claims are likely to be numerous or heavy.

The last item seems to me fairly stated, though I have kept my car up for much less, and the original brasses are all still in use. May I here state that I have found the white anti-friction metal a very cheap and easy form of repairing brasses.

I find that the actual cost of repairs last year came to £12 15s., and every bearing is sound and in good order, though I want new third speed gear on the sleeve, which will, of course, go in this year's account. So that the totals came out at:—

	£	s.	d.
Petrol at 1s. per gallon for 40 miles per day	36	10	0
Renewing solid tyres, including new ones just ordered	19	0	0
Paraffin, grease, polish, brushes, rubbers, etc.	4	0	0
Lubricating oil and trimming for lamp	8	7	4
Insurance and licence	4	2	0
Replacements and repairs	12	15	0
	£84	14	4

The new tyres, £16, ought not to be charged, nor ought so much petrol, as I did only 8,500 miles last year, but I give these items on the highest scale.

Given a well-made English car, careful usage, cleanliness, and attention to lubrication there is no reason why maintenance should be excessive.

The statement of "Motorist" as to the wages of his mechanic would most certainly tend to prevent many persons of moderate means from even contemplating buying a motor-car. Such a man would be quite wasted if only one car were kept. People do not employ veterinary surgeons as grooms in their stables because a horse may at some time be ill, and it is much better to send your car to proper repair shops where good machine

tools are kept, than to employ a skilled mechanic, who is half his time sitting on the back seat of the car, when he might be much better employed using his brains and skill at his trade. What is wanted, it seems to me, is a man who is a good cleaner and oiler, who knows the working of his particular car, and realises when a bearing or other part gets worn, that his duty is to tell the owner, who should get the refitting done by competent people and with the aid of proper tools. The little derangements that take place on the road do not call for much actual mechanical skill, but patience, common-sense, and large reasoning powers, and I know several such men who are keeping doctors' cars spick and span for certainly, in some cases, less than £1 per week.

In my case, for instance, no repairs have been done since last October other than grinding valves, adjusting chains, and changing a sparking plug—why, then, should I keep a skilled mechanic for weeks and months for a repair which may not come?

Once mastered, there is nothing either mysterious or supernatural about a motor-car, though to hear the statements and conversation of some mechanics, one would imagine that it was pretty full of both. Every owner should take the trouble to know his car; he is then independent of everyone.—Yours truly,

COUNTRY MOUSE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am greatly interested in "A Motorist's" letter in your last issue. In the interest of so young an industry it is surely of vital importance to place before the public figures showing the minimum cost of maintenance and running of private cars rather than to publish figures disclosing an abnormally heavy expenditure. I venture to suggest that few of us are able to afford the annual expenditure named by your correspondent, i.e., £396 9s. 8d., to which must be added housing for his man and interest on capital outlay, say £500 per annum. It is reasonable to suppose that any competent mechanic who is capable of erecting the machines in the shops should with a little practice become a good driver, and his shop experience would then enable him to effect any repair. I fail to understand why such a man, who in the shops can earn 33s. to 45s. per week of fifty-four hours should expect a greatly increased wage on entering private service as a driver. It should be borne in mind that this work is not only pleasant but exceedingly light, and it is difficult to imagine how a man can fill his time attending to one small car of 8 to 12 h.p. In my experience these posts are generally filled by men who are not capable of or willing to work sufficiently hard in the shops to enable them to earn a decent wage, and they start out as "motor experts," etc., accordingly. It would certainly appear that value is not received by private employers of this class of man, at all in proportion to the high rate of wage paid. Incidentally, some of the figures given by your correspondent appear remarkable. For instance, he states that he runs on an average thirty to forty miles per day. Taking the latter figure he would run about 14,400 miles per year of 365 days, whereas his petrol account would (on the basis of twenty-five miles to a gallon) carry him nearly 30,000 miles. Lubricating oil appears extraordinary also, and supposing that £25 of this item covers the oil portion, it would seem that "A Motorist" has used 100 gallons, if he pays the usual figure for high grade oil of 5s. It is surely impossible to use such a quantity on one small car, particularly when one notes that grease is also used as a lubricant. The remaining items (together £135) covering repairs, tyres, and sundries should certainly enable "Motorist's" mechanic to keep one small car in an excellent state of repair and efficiency. It would be interesting to learn the type of car and the nature of the roads usually traversed, as both should surely be carefully avoided by the general public.—Yours truly,

A MECHANICAL ENGINEER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—"A Motorist" does not seem to have quite grasped the point of my letter. My object was to show how much a car could be kept for, not how much a car might be made to cost in upkeep. Of course I quite realise that the position of "A Motorist" must be a very satisfactory one, being able to pay his man £150 per year, provide him with a house and be proud of the fact that his 8 to 12 h.p. car costs him £246 9s. 8d. per year to keep going, but such statements are not conducive to the popularisation of the motor-car, and from a manufacturer's point of view are disastrous. From "A Motorist's" letter I gather that he is not what is generally accepted as a motorist, but only the owner of a car with a man to drive him about; motorists, as a rule, prefer not to put their cars entirely in the hands of an expert, but to be masters of their own machines, to drive them, and to take a lively interest in the details of their construction. A man at £50 per year is all such a motorist generally requires, to look to the petrol and water, to do the oiling and cleaning, and generally to work under instructions of the owner in the event of any small stoppage by the roadside; there are many such men to be obtained, and good men too, and men who will not "absolutely refuse" to lend a helping hand on other cars if instructed to do so.—Yours truly,

MAWDSLEY BROOKE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—One of the most striking features of your last issue was the letter of "A Motorist." That gentleman keeps a mechanic at £150 per annum and house free to look after a car with "8 to 12 h.p. motor." One does not know what sort of motor that may be, but from "A Motorist's" figures it consumes for a run of 50 miles, 7 gallons of petrol, 1 gallon of paraffin, 1 lb. of grease, ½ gallon of lubricating oil, and altogether costs just on 1s. per mile run, without allowing for depreciation. Save me from such a car and such a manager.—Yours faithfully,

ECONOMY.

THE BUCHET ENGINE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to the query of Messrs. Roots and Venables re the weight of the 40 h.p. Buchet Engine, we have pleasure in stating, that the weight of the 40 h.p. is 175 kilos. (3 cwt. 2 qrs.); the 24 h.p. engine (four cylinder) is 160 kilos.; the 24 h.p. engine (two cylinder) is 130 kilos.; the 16 h.p. engine (four cylinder) is 110 kilos.; the 12 h.p. engine (two cylinder) is 95 kilos.; the 8½ h.p. engine (two cylinder) is 57 kilos.; the 6½ h.p. engine (one cylinder) is 53 kilos.—Yours faithfully,

BRANDES AND PERKINS.

CONVERSION OF ELECTRIC TO TUBE IGNITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I find so much endless trouble and annoyance from the uncertainty of electric ignitions, that I wish to know if it would not be possible to replace the ordinary De Dion plug by a special fitting to receive the platinum tube. The lamp, etc., could then be fitted much as usual.—Yours truly,

SEVEN HORSE.

GREASE FOR MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to a letter, signed Harry Harris, re Grease for Motor-cars, in your issue of the 8th inst., I do not agree with the advice he gives. To put grease into the gear box is satisfactory as regards the gear wheel teeth, but it is not good for the bearings, as the grease does not work its way in, and all gear boxes should be made a sufficiently good fit to be oil retaining. I have personally experimented with grease and oil, and unhesitatingly recommend the latter. It is only a question of making the gear box well enough.—Yours truly,

S. F. EDGE.

L'ALLUMEUR ELECTRO-CATALYTIQUE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should be much obliged if any of your readers could inform me on the following subject. In the issue of the *Journal* of February 22nd last there is a description given of M. Wydts' "metallic" ignition. I quote one sentence:—"A few seconds after starting the motor, even this weak current, for which any small battery is sufficient, may be cut out and the alloy will take care of all subsequent explosions by its mere presence in the combustion chamber."

What does this last clause mean? The part I cannot understand is how regular sparking is to be obtained. If the alloy is kept constantly incandescent, how will the explosions occur and with what precision?—Yours faithfully,

A. H. FORSYTH.

[As was explained in our issue of December 28th last, a catalytic body is one which has the property of becoming heated and even incandescent when surrounded by hydrogen gas, by means of the condensation on its surface of an infinitesimal quantity of this gas. M. Wydts has discovered an alloy of osmium, iridium, and ruthenium, which constitutes a metal at once extremely porous, absolutely inoxidisable, and able to withstand 1,700 deg. Centigrade of heat, and which has, at the same time, the property of becoming incandescent in carburetted hydrogen, made more or less with azote, oxygen, or carbonic acid. M. Wydts' ignition block consists, therefore, of a plug very similar in appearance to the ordinary sparking plug. Inside the plug is a little spiral wire coil of this wonderful metal, one end of which is connected to each of two insulated terminals on the outside of the plug. To these terminals are also attached the two wires of a tiny primary battery. The following is the *modus operandi*. The switch of the battery circuit being turned on, the coil of this new metal inside the cylinder of the motor becomes incandescent and the motor can be started. The switch is then turned off, and the continual condensation of the gases on the new alloy, which takes place as the explosive mixture is brought in contact with it on the compression stroke, keeps the spiral coil incandescent and at a temperature sufficient to fire the charge.—Ed. M.C.J.]

MOTOR-BICYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In your issue of February 22nd last, I notice that Mr. T. F. Hunt says he uses one quart of petrol to drive his 1900 Werner 35 miles. Perhaps a few figures, representing the petrol consumption of my 1901 Werner, may possibly interest him and other users of motor-bicycles. I may state beforehand that the motor-pulley is 70 mm. in diameter, compared with the usual 60 mm., and that the bicycle wheels are 28 in., and not the ordinary 26 in. This at once gives a speed-ratio of 39 to 49 in comparison with the usual machine, i.e., my engine makes approximately four revolutions to five of the normal type. Since, however, the diameter of the 1900 cylinder to that of 1901 is as 62 to 64, the final consumption ratio of the two would be approximately as 47 to 40. I have frequently found that my motor used two litres (3½ pints) of petrol in driving me 80 miles. Now I happened to go from London to Reading one day last week, returning the next day. This, with an extra 10 miles in addition, made a total of 90 miles, and I used exactly four pints (half a gallon). This, by the way, with petrol at 1s. per gallon, means 15 miles for a penny! Mr. Hunt's nine half-pints would therefore have driven me 101 miles, as against his 78½. I may tell him, however, that I very rarely use the full power of the engine, unless when climbing steep hills. The throttle valve is generally about three-quarter to two-thirds open. As I did the 41 miles, from Picca-

dilly Circus to Caversham Heights, in 2 hours 15 minutes, and the return journey in 2 hours and 10 minutes, he will see that the engine gives quite enough power at this rate of consumption, seeing that I always traverse towns and villages at 7 to 10 miles an hour.

I read a letter from "J. A." in your latter issue. I am sorry that he seems so mysteriously unfortunate in his experiences. I may tell him that my three Werners have carried me about 10,200 miles, and I have taken the train but once owing to breakdown, and that was due to meddling strangers (they are infinitely more to be feared than a breakdown!) getting access to my machine and letting it fall, smashing the trembler and gas-pipe from carburettor. My present machine has now carried me 2,200 miles without a breakdown, and I feel very certain that "J. A." could have much the same experience if he so willed.—Yours truly,

A. L. BENETT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to "J. A.," I would say he must see to adjustments. As to spoiling clothes, I used one suit for riding all last year, and it does not look much the worse for wear. Oil spots can easily be removed with a little petrol, but, with careful lubrication, not many should appear unless the hands are wiped on the clothes in preference to a piece of waste.

The machines that I have found satisfactory are the Werner and Phoenix, and I may state that I have bought a 1902 rear-driven Werner and am anxiously waiting for its arrival.

In answer to Mr. Pennell, I shall be pleased to accompany him on one of his own machines (if of the make named) for a 200-mile spin, 100 out, and home, just to show that the motor-bicycle is not quite so unreliable as stated and to show that the average machine, with careful driving, will go, as I feel certain that half the so-called mishaps are the fault of the rider. Still, I will not say that the motor-bicycle is perfect, which is proved by the constant improvements being made. As to climbing hills, both makes are capable of mounting all gradients on the main road between London and Portsmouth.—Yours sincerely,

HENRY KENNETT, JUN.

THE SPEED OF CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having noticed one or two ideas which have been brought forward lately as regards the present ambiguity in the way of recognising, or proving the fact that drivers of motor-cars have exceeded the speed limit, I venture to propose one which occurred to me the other day. Could not some kind of meter be attached to each car, something after the style of the ordinary cyclometer, which might be geared to the road-wheels, and could register the pace that each mile was traversed at? Then when required by the police or other officers appointed for that purpose, the meter could be examined; and, to be always in sight of the driver, thus giving him fair warning not to overstep the mark, the meter might be placed in some conspicuous place. Hoping this may be of some use to somebody with more brains than myself.—Yours truly,

O. K.

BELT-DRIVEN CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to your correspondent, H. Elliott, my experience is that the best drive down an ordinary hill is got by throwing in top gear and throttling to desired speed. If the hill is very stiff the same end may be attained by throwing in low gear. A free engine down hill is very apt to lead to a still engine at bottom; besides, the legitimate use of brakes is to stop the car, not regulate its running, friction being opposed to economy. A belt that will hold under all circumstances and in any sort of weather may be produced by running a canvas belt on the top of the ordinary leather one.—Yours truly,

R. LAMONT.

STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having had considerable difficulty with my steam car I should be glad to have the experience of other users as to the cast-iron fire box, which, I hear, is now being used on some vehicles; also, is there a satisfactory paraffin burner on the market? That with which my car has been fitted has been a source of much worry.—Yours truly,

M. D.

EXPERIENCES WANTED.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As a regular reader of your journal I am somewhat disappointed that other subscribers do not more frequently contribute a warning note as to the cause of their breakdowns. It is a truism that we learn more from our mistakes than from our successes, although doubtless the cynically-minded might say that we learn still more from the misfortunes of our friends. I do not yet own a car, but hope to do so before the month is out. Are these all "yarns" that I hear of the frequency of breakdowns? A friend tells me that he was visited at his place in the country last Sunday by two parties on cars. One took half an hour to restart his motor; the other could not start it at all, and had to leave it there till a mechanic from London came down next day. Another acquaintance is in the surgeon's hands with a dislocated shoulder, from being thrown out of a car. So far as I can follow the account, he was coming home with a loose chain when it jumped the sprocket and the car overturned. It is needless to add to the list of breakdowns. I only give

the latest which have reached my ears, and from reliable sources. It seems to me a great pity that those who have such accidents do not contribute to your pages an account of what happened, why it happened, and how it was put right. Must we all buy our experience in the bitter market of affliction? Doubtless to many motorists these breakdowns bring their own lessons, so that they never occur a second time, but they would be promoting the sport, removing prejudice, and encouraging beginners like myself by publishing a kindly note of warning and advice. They can do it under a *nom de plume* if they feel that their exploits have been too ridiculous. As I have every intention of making known my own failures when I start on them, will no one tell us how he has been "hung up"?—Yours faithfully, Doc.

FRANCE COPYING ENGLAND.

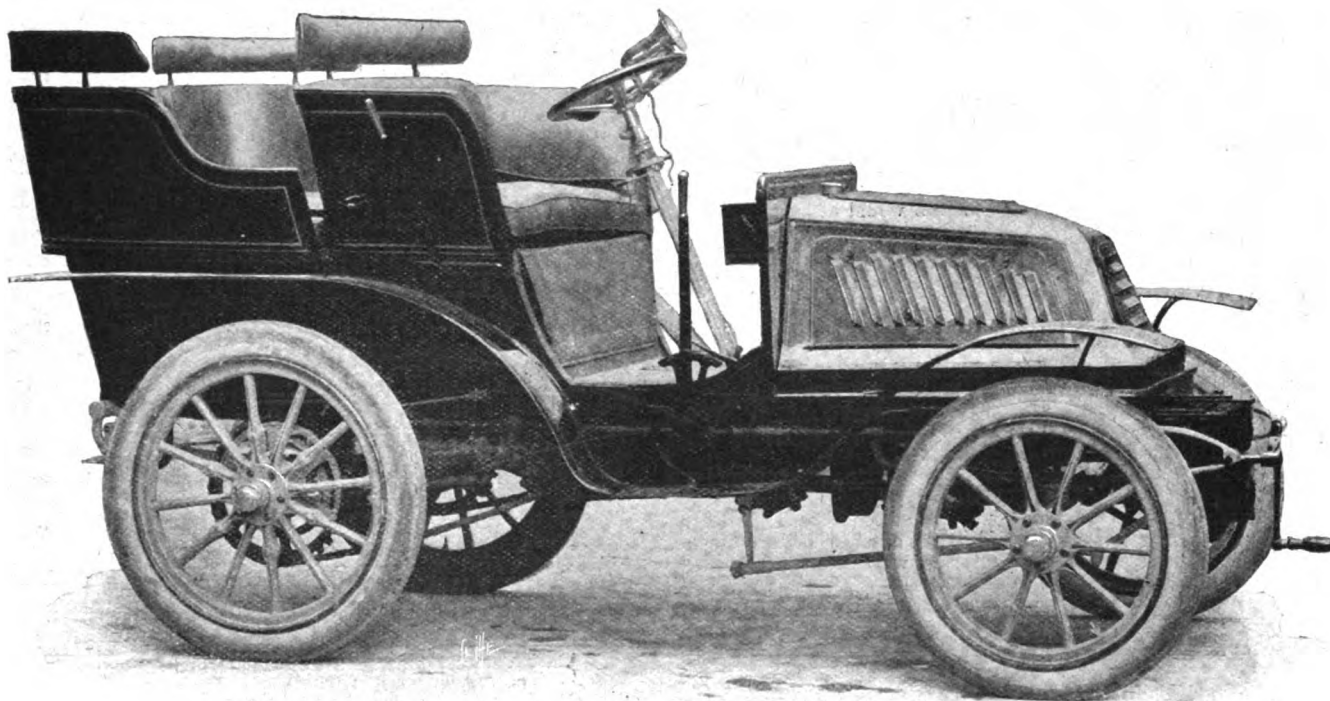
TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am heading this note as above in order that you may be able to refer to previous correspondence on the same subject, although I almost think a more appropriate title would be "Spare us from our friends." We have not entered into the discussion before, as we did not think it in any way useful to try and prove which maker used the various parts under dispute, first; but as your correspondent, "Geo. Henderson," in last week's

as reasonable to expect Panhard and Levassor to use a horizontal engine with their system of transmission gear as it would be to expect us to use a vertical one with ours.

We use a horizontal engine because:—(1) We are enabled to employ a more efficient system of transmission; (2) we have less lubrication troubles; (3) we can keep the engine cool with much less water, and without any fear of the breech end and the cylinder jacket running dry; (4) we can get at and dismantle the parts of the engine more readily; (5) we get lower centre of gravity and yet more clearance between the motor and the ground; (6) straight front axle; (7) the heavy portion of the motor can be placed nearer to the rear wheel without in any way interfering with or raising the footboard (this is a big consideration with some types of carriages); and, lastly, we get no twisting action on the frame. I might very well hide our practice behind the fact that Messrs. Crossley Brothers, Limited, of Manchester, make more horizontal internal combustion engines in one week than any motor-car maker in a month. This, however, would hardly be right, as everything made by human hands is only a compromise; therefore it is just as necessary to adapt each and every part of a motor-car to one another as it is to use a vertical engine in a screw steamer, and in order to set at rest any fears of our making a change we may say that we shall probably use vertical engines when we use a wind propeller at the back to "wait" our cars along.—Yours truly, H. AUSTIN.

Wolsley Tool and Motor-Car Company, Limited.



THE BOYER 12 H.P. TWO-CYLINDER CAR. (See page 48.)

issue, has turned away from the original subject, and gratuitously tries to throw discredit on our productions, we think it would perhaps be as well to point out how unfair and unreasonable such letters are.

Unfortunately, we have not the honour of knowing either "Mr. Hector" or "Mr. Henderson," and consequently can only surmise why the former has such a good opinion and the latter such a bad opinion of our cars. Without giving any reasons *pro* or *con*, Mr. Henderson assumes that the fact of most continental makers using vertical engines is an undeniable proof that any other form must be wrong. Arguments of this kind are so ridiculous that it is almost useless giving them a second thought were it not for the fact they might mislead some of your readers who are not well versed in the subject. Most persons connected with the industry know why there is such a sameness in the design of present-day French cars. For years various firms in France have been experimenting, usually with bad judgment, and often with little mechanical training, with the inevitable result that in many cases they have spent all their money, and now, as a last resource, are copying the one really successful firm without rhyme or reason, other than the hope that it will help them out of their difficulties and enable them to dispense with any more costly experiments. In no single case can it be proved that the cause of their failures was owing to their using horizontal engines, neither can it be proved that the present satisfactory position of the Panhard and Levassor Company is in any way dependent on their using vertical engines. In my humble opinion their success lies in their having stuck to one design, so enabling them, by dint of careful management, and manufacturing in large quantities, to minimise any defect that may exist in their design of road carriage. It would be just

M. WORTH, the French costumier, has established himself in Burlington Street, W., and is giving attention to motor-coats for ladies.

IN reply to "India," the address of the makers of the Sthenos carburettor is M. Moisson, 13, Grande Rue de Monplaisir, Lyons, France.

BEFORE the Lord Chief Justice, Mr. Justice Darling, and Mr. Justice Channell, in the King's Bench Division, last week, the case of *Gorham v. Brice* was heard. It was an appeal against a decision of the Justices of Surrey, who had convicted the appellant, Mr. Gorham, for driving a motor-car at an excessive speed, and fined him £5 and 10s. 6d. costs. In dismissing the appeal the Lord Chief Justice said he was unable to understand what was the motive of bringing these appeals.

SINCE the account of the Brooke Car was published in our issue of the 22nd ult. it has had a severe testing on the roads of the East Coast, some of which are exceptionally heavy running. The car has now been fitted with a Renold Silent chain and a new exhaust-controlling governor. It is a throttle governor working from a small pipe from the exhaust, the number of explosions controlling the admission of the mixture.

A MOTOR-WAGON ON THE TRAM RAILS.

IN the Belfast Summons Court, before Messrs. F. G. Hodder, R.M., and E. Pim, J.P., the Belfast Street Tramway Company summoned Samuel Montgomery and Leslie Porter for obstructing a tramcar on February 12th, by keeping a motor-wagon on the rails. Mr. Kerr, in opening the case, said that he had the defendant, Mr. Porter, summoned about a fortnight ago for this offence, but a question arose as to whether it was he who was driving the vehicle at the time, and the case was adjourned. He (Mr. Kerr) also had the driver, Mr. Montgomery, summoned. Mr. Thompson, conductor, deposed that he remembered the day in question. The tramcar was going up the Shankill Road, and defendants had their motor-wagon, loaded with bags, on the rails. They kept on the rails for nearly half a mile. Witness told Mr. Porter to get off the rails, but he refused. The tram was greatly delayed. Witness spoke to a policeman about it. In his opinion there was nothing to prevent the wagon from leaving the line. There was snow on the road, but he did not measure the depth. There was no snow on the tram lines; it was melted with salt. They overtook the wagon at Diamond Street, which is about half a mile from Lawnbrook Avenue, where defendant left the line. The motor-vehicle was going at the rate of about three miles an hour. Constable De Vere having given evidence, Mr. Donnelly said that before calling his witnesses for the defence he would like to say that on the day in question his clients did all they possibly could to get off the line, but their efforts were without success, as it was impossible to get off at Agnes Street owing to the depth of the snow. They turned into Lawnbrook Avenue, where the snow was cleared. Mr. Porter, for the defence, was examined. He deposed that he was on the wagon on the day in question. Witness and Mr. Montgomery did all in their power to get off the line at Agnes Street, but the snow was too deep. Mr. Hodder, in giving the decision, said that they had given the case every consideration. In his opinion the defendants did all in their power to get off the tram line at Agnes Street, but the snow was too deep. They kept on the line until they got to Lawnbrook Avenue, where the snow, as Sergeant Horan had said, was not so deep. He would dismiss the case on its merits, with 20s. costs.

CLAIM FOR DAMAGES DISMISSED.

AT the Wakefield County Court, Judge Greenhow heard a claim for £10 10s. damages for personal injuries, and £4 17s. 6d. damages to a trap. The plaintiff was Jonathan Ramsden, Dewsbury, and the defendant George Frederick Firth, Wakefield. On Saturday, July 6th, plaintiff was driving into Wakefield from Oulton with two companions, and when near the County Hall defendant, it was alleged, approached them at a high speed on a motor-car. The horse shied, pitched the occupants of the trap out upon the pavement, and snapped the shafts. It was alleged by plaintiff that the motor-car was travelling at a rate of fourteen or fifteen miles an hour. The defence was that there had not been the slightest negligence. Defendant was on his proper side of the road, and it was contended that the motor-car was travelling at about only six miles an hour. The wooden pavement was slippery, which no doubt caused the horse to fall. His honour gave a verdict for defendant. The action was not maintainable, inasmuch as machines of this kind were now legalised on the highway.

A REPAIRING CASE.

IN the Westminster County Court last week Judge Woodfall heard the case of the Motor Power Company v. Biddell, in which the plaintiffs sued a gentleman residing at Choriton, Hampshire, to recover the sum of £13 19s. 8d. in respect of repairs done to a motor-car. His Honour gave judgment for the plaintiffs for ten guineas, and costs.

MAKING TOP OF MOTOR-BUS.

AT Brompton County Court, on Monday, before Judge Stonor, Mr. George Henry Goldby, motor-carriage builder, Star Road, Fulham, S.W., brought an action against Mr. Francis Joseph Bell, motor-omnibus proprietor, Stanley Road, Fulham, and Bournemouth, the claim being for £25, the price of the top portion of a motor-omnibus, said to have been made to order under a contract. Plaintiff's counsel, Mr. G. Browne, explained that the case had been remitted from the High Court, and the main question which his Honour would be called upon to decide appeared to be whether the work of making the top of the motor-bus had been done within a reasonable time. Ultimately, after counsel and witnesses on both sides had been heard, the defendant agreed to take the motor top in question for £25, and the case was struck out without costs.

CLAIM FOR MOTOR-CAR HIRE.

AT the Newbury Petty Sessions, Messrs. Stradling and Plenty, motor-car agents, brought an action against Dr. W. S. Whitcombe, of Aldermaston, claiming £24, being the balance of account for the hire of a motor-car from July 12th, 1901, for three months. After a long hearing, the judge gave judgment for the plaintiffs for the amount claimed.

FURIOUS DRIVING CASES.

MR. FRANK CARR, Stanwix Villa, Carlisle, was before the County Police Court at Carlisle a few days ago on two charges, one of driving his motor cycle too rapidly, and the other of failing to give proper warning. The complainant was Superintendent Graham, who was riding on horse-back on the Crosby Road when Mr. Carr came along. The horse proved restive, and the superintendent said he had to use both hands to prevent it breaking away, and was unable for some time to hold up his arm to require the defendant to stop. Mr. Carr, who was defended by Mr. G. A. Lightfoot, submitted that he slowed up as soon as he saw the horse quicken its pace, and did not consider it necessary to sound the bell or horn. He used every care not to frighten the horse. The Bench fined the defendant £1 and cost.

THE first charge of furious driving in Oldham against a motorist was heard at the local police-court the other day. Charles Saunders was summoned for driving a motor-cycle at from 18 to 20 miles an hour. Police-constable Godbold stated that the defendant and another gentleman came along King Street on a motor-cycle at a furious rate, and failed to stop when signalled. They rode through a narrow passage, and almost ran into a hansom cab. A couple of hours afterwards the constable stopped the defendant in Union Street. The defendant denied that he was driving at more than eight miles an hour. Fined 5s. and costs.

JOHN BOULD appeared before the Stipendiary at Cardiff Police-court charged with furiously driving a motor-tricycle. Police-constable James deposed that at 6.45 p.m. on Sunday, 2nd inst., he saw defendant in Ninian-road careering along at a rate of about fifteen miles an hour. By the stipendiary: The road is of medium breadth, and was full of people. The machine was forced along so rapidly that it kept jumping. The officer admitted that he had no guide as to the speed beyond his own eyes. His Worship did not think it would be safe to convict under the circumstances. One was likely to be misled without some guide. The case was dismissed. There was a second summons for riding without a light, and for that the Stipendiary imposed a fine of 40s. and costs, or fourteen days.

NO LIGHTS.

AT Newton (near Liverpool) Petty Sessions, Louis Forster, Earlestown, was fined 1s. including costs, for riding a motor-car without a light, in Earlestown, at 12.20 a.m., on a recent Tuesday.

LIONEL STEAD, driver of a motor-wagon for Messrs. Stones and Co., brewers, Sheffield, was proceeding through Ecclesfield at about half-past eight on the evening of February 25th, when it was observed that his lamp did not display the red illumination. He was stopped, and the regulation lamp was found broken inside the wagon. Superintendent Bielby said that the police were willing to withdraw the case on payment of the costs. The costs were paid, and the case was accordingly withdrawn.

THE works of the Locomobile Company have now been removed from Page Street, Westminster, to their new premises at 39-43, Sussex Place, South Kensington, S.W.

ON Saturday last an auction sale of motor-cars took place on the premises of the Scottish Motor Company, Limited, Edinburgh. Mr. E. J. Irvine was the auctioneer, and the bidding was exceedingly brisk, very good prices being realised.

AT 34, Queen Street, E.C., a garage has been opened with accommodation for about a hundred cars. Mr. Harrington Moore's new company, Garages, Limited, will celebrate the formal opening of the garage by an auction sale of cars belonging to members of the Automobile Club, on Tuesday, the 22nd prox.

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THE Motor-Car Journal.

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COMMENTS.



MEMBERS of the Yorkshire Automobile Club will meet at Harrogate on Easter Sunday, and doubtless many will stay over the Monday. Last week the Club held a meeting at the Great Northern Hotel, Leeds, when a discussion on motoring reminiscences took place. Mr. H. A. Jones (Bradford) detailed some experiences with a motor-tricycle during last summer, in the course of which he covered a distance of 6,000 miles. Once, when returning from Scarborough to Bradford, via Wensleydale, he had a leaky petrol tank, and had to try twenty-seven shops before he found a man willing to use a soldering iron. In the course of this trip he alighted and led scores of horses, and was only thanked five times. Mr. F. Beevers (Leeds), Mr. E. Watson (Leeds), and Mr. Farnell also joined in the discussion, and Mr. R. Winn (Leeds) recalled a journey on the Great North Road with a machine which he specified as being of "three cat power." He related his experiences in driving a motor-car from Larne, near Belfast, over the mountains to Giant's Causeway. On that occasion it was no unusual thing to see three or four men hanging on to the head of one horse when the car was sighted several hundred yards distant. The principal vehicular traffic was for the conveyance of peat moss litter, and frequently the horse turned the cart upside down. In returning by the coast route, the inhabitants of the country towns turned out *en masse*, and whenever the car was stopped it was simply besieged.

The County Councils and Automobillism.

THE Executive Council of the County Councils Association have considered the report of the deputation appointed to wait upon the President of the Local Government Board in regard to the regulations affecting light locomotives, and have adopted the following resolutions suggested by the deputation:— (1) As to identification the Executive Council do not desire to confine their recommendations to the requirement of a number if a name or any other means of identification, day and night, be thought desirable; but they suggest that the Local Government Board, by means of a departmental committee or otherwise, should obtain full information to enable them to decide what particular form of identification should be adopted. (2) The Executive Council consider that the suggestion made by the President of the Local Government Board to give increased authority to the police in regard to traffic throughout the country is a very valuable one. (3) That the Executive Council consider that the penalty for furious driving should be raised, in the case of a second conviction, to a fine of £50, and that the court should have the option of passing a sentence of imprisonment.

In the House.

WHY Mr. Wason, who represents the Orkney and Shetland Islands in the House of Commons, should feel interested in the traffic on the Bayswater Road, London, we do not know. But evidently he has recognised it as part of his duty as a legislator to take an interest in the matter, with the result

that the other evening he asked the Secretary of State for the Home Department whether he was aware that several motors (presumably vehicles fitted with motors) were racing last Sunday afternoon in the Bayswater Road; and if the Government would inquire into the best method of taking the necessary steps to enable such offenders to be prosecuted. Mr. Ritchie replied to the effect that he had a note from his hon. friend stating that such racing took place, but beyond that he had no information; and in the absence of further details or identification of the alleged offenders he did not think anything could be done. Such an answer should satisfy everybody, and the inhabitants of the Orkneys and Shetlands will feel that their representative takes no mere local view of his duties.

Electrical Vehicles.

IN connection with the trial of electrical vehicles to be held during the present year it has been decided that no official meter reading shall be taken, except on the last day of the trials, on which occasion recuperation trials will be included in the programme. The judges will be instructed that the system of control shall form an integral part of the basis on which judgment is given, and that they should take note of the general accessibility of the parts of the car, with special reference to the batteries and methods of charging.

Glasgow to London.

MOST of the suggestions of the western section of the Scottish Automobile Club for the Glasgow to London trial in connection with the forthcoming Exhibition at the Agricultural Hall have been approved by the Automobile Club, and the hon. secretary, Mr. R. J. Smith, will be pleased to hear from intending entrants. There will be a maximum number of marks for the run, and one mark will be deducted for every minute during which the vehicle is at rest from the time of starting to the conclusion of the run, except for compulsory stops, traffic, and accidental detours.

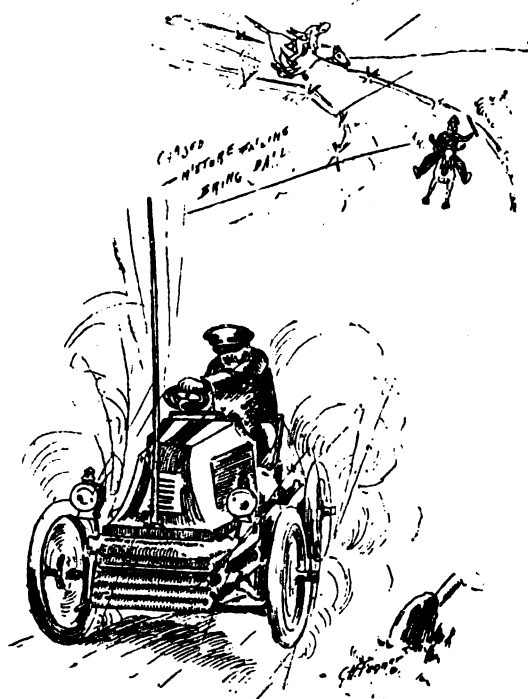
The Automobile Club of America.

THE annual dinner of the Automobile Club of America, which has just been held in New York, proved to be one of the most important functions so far held in connection with the automobile movement in the United States. The banquet was spread in the Astor gallery of the Waldorf-Astoria, and though that famous hostelry has been the scene of many brilliant feasts that arranged in honour of the self-moving carriage was quite as notable in its distinctive character as any of them. The scene was, above all, impressive because of the *personnel* of the diners, and the tone of earnestness pervading was fraught with a significance that led the fancy flickering through a wonderland of possibilities for the future. Of peculiar interest to the speculative mind was the address of Professor Elihu Thomson, who spoke on the scope and influence of the automobile, and developed a glowing verbal picture of the beneficent influence for posterity that is being wrought through the motor carriage. Every owner and driver of an automobile, he said, must become something of a practical engineer and mechanic in the course of his experiences. Lay minds unfamiliar with such things are

everywhere being taught to grasp mechanical and engineering propositions, in the simpler forms at first, of course; but this era of general familiarity with the field of machinery and engines would be as a growing instinct that will be perpetuated in the mentality of future generations. Professor Thomson made a hit in closing by saying that, while he did not expect the horse to disappear from the highways, he thought the day would come when the horse would be fined or taxed for damaging the roads.

Signor Marconi.

AMONG those present at the dinner was Signor Marconi, of wireless telegraphy fame. On being called upon to address the gathering he remarked that he owns two automobiles, a motor-car and a motor-cycle. "I bought them because I thought I might apply wireless telegraphy. On my motor-car I have a wireless telegraphing mechanism, and already have been able to carry on communication with my base at a distance of thirty



[Motor World.]

miles. I think wireless telegraphy would be very useful on an automobile in case of a breakdown, when you might be able to telegraph to your wife that you would be late for dinner. I once had a breakdown, and it was on the occasion of my being chased by English policemen. In that case I was able to communicate with my friends and arrange with them to bail me out when I was captured. But, of course, the wireless telegraph as applied to automobiles is intended for military service, and we hope yet to be able to keep up communication for distances much greater than thirty miles."

Motor Servants.

LAST week we mentioned that a Committee of the Automobile Club had been suggested to consider the training of servants for motor-car owners. This will probably consist of Lord Edward Churchill, the Hon. Leopold Canning, Lieut. W. Windham, Major Houghton Gastrell, Messrs. O. H. Bayldon, R. Elliott, Carew Gibson, F. P. S. Harris, Killingworth Hedges, Basil Joy, E. Kenealy, Dove Keighley, Bertrand Roberts, and J. B. Siddeley. Hitherto there has been difficulty in finding efficient men to act as drivers of privately-owned cars, and it is thought that some system of training should be adopted. The matter has received some attention in the correspondence lately going on in our columns as to the cost of maintenance of a motor-car, and doubtless the experiences of those who have engaged servants of this kind will be useful to the Committee.

The Exhibition.

LESS than three weeks now remain before the opening of the Automobile Club's Exhibition at the Agricultural Hall—the seventh of the series of motor-car displays organised at that convenient locale by the conductor of this *Journal*, the first having taken place in 1896, before the Light Locomotive Act was passed. From what has previously been written, readers are already aware of the thoroughly representative and international character of the Exhibition. Suffice it now to say, that we are confident that the exhibitors will have their stands fully occupied on the opening day—April 19th—and that the attendance will prove a record one.

The 1903 Exhibition.

As in preceding years, we take an early opportunity of announcing the succeeding Exhibition. For, as is well known, these displays have to be arranged a long time beforehand, and in accordance with the resolution of manufacturers and agents, passed at a meeting at the Automobile Club on June 11th, 1901, the Agricultural Hall has long been booked for the 1903 Exhibition, many intending exhibitors having already taken space. Having in view the highly successful Exhibition of 1901, the manufacturers were doubtless wise in their decision: certainly it is one which, having been come to by an unanimous vote, the promoter has endeavoured to fully carry out, recognising that such a coincidence of view was in the interest of the industry. Hence, it will be of general interest to note that the eighth of the series of Annual Exhibitions at the Agricultural Hall will be held in the month of March, 1903.

A Curious Coincidence.

WE understand that various promoters of cycle and other exhibitions have since suggested that the Crystal Palace, Earl's Court, and similar places might well be utilised for the purpose of an exhibition. In fact, such a display has recently been attempted at Sydenham, but the dampness of the grounds, and the chill air of February sent the visitors within the Palace to gaze only upon a small collection of automobiles arranged in a part of the nave. From reports in various journals the exhibition did not appear to have been received with enthusiasm. A meeting has recently been held, at which a committee was appointed to consider the question of holding an exhibition at the end of January, or the beginning of February, 1903—a date curiously coinciding with a printed circular, in which a repetition of the recent Palace Show was suggested from January 30th to February 7th, 1903. Evidently this coincidence must have been overlooked by the majority of those present.

Consistency.

UNDOUBTEDLY, as Mr. Roger Wallace rightly pointed out, some inconsistency has been shown by those who, in adopting a certain resolution on June 11th last year, committed Mr. Cordingley to making a contract for the 1903 Exhibition, and then proposed a few months later a date coinciding with that of another exhibition. At the same time, we would point out that no growing industry can be confined to narrow limits or legislated for by a body whose chief work should be of a social and propaganda character. Already the promoter of the Agricultural Hall Exhibition has handed £400 to the Automobile Club; another £200 will be given at the close of the present show; while about £1,500 has been lost by him owing to an honourable endorsement of the policy suggested by manufacturers. Whether the plan of maternal government can be maintained remains to be seen. Certainly the evolution of the exhibition question will be watched with interest; and a good show at the Agricultural Hall in March, 1903, anticipated.

Roads.

ELSEWHERE we draw attention to a suggestion that the Local Government Board should have some right of supervision with regard to the main highways of the country. This proposal seems well calculated to help automobilism, by giving us suitable road surfaces from one end of England to the other, instead of the present alternating lengths of good and bad roads which are now met with in changing frequency. Our "Correspondence" columns are open to suggestions from interested readers on the point.

Speed Trials.

RECENTLY the Duke of Portland offered to make easy the speed trials of motorists on his Welbeck estate, and now Lord de la Warr's trustees have made a suggestion which will doubtless be appreciated by motorists. It is to the effect that the cycle track at Bexhill should be lengthened, so as to give a straight kilometre, and that the surface should be hardened to correspond with that of the road. This is estimated to cost £500, and the Automobile Club has been given the option of holding speed trials on this track for three years on payment of £400 during the period. Probably entry fees for speed trials would go far to make up the annual expense. Meanwhile an effort will be made to raise a guarantee fund, towards which Mr. Mark Mayhew, L.C.C., has already promised £20 a year for three years.

Automobiles in Society.

LAST week we gave the names of some leading patrons of the Covent Garden opera season who are keen motorists, and expressed the hope that they would use their motor-vehicles when attending the performances. The other day, on the occasion of the King's first Court, several automobiles were espied outside Buckingham Palace; and among those who drove there in electrical vehicles supplied by the City and Suburban Electric Carriage Company, were Lady de Grey and Lady Juliet Lowther, Lady Gosford and her daughter, Lady Wimborne, and Lady Lilian Wemyss. We are always glad to hear of the use of the automobile at Society functions, and to chronicle such news for the benefit of the industry.

Easter Experiences Wanted.

PROVIDED Easter weather proves kindly, there should be many touring parties on the road during the next few days. Doubtless some motorists will go along new routes and unfamiliar ways. We shall be glad to have itineraries of interesting tours suggested by Easter experiences, particularly where the condition of the road surface is also given. Some of the members of the Midland Automobile Club are going to North Wales, and others to Gloucestershire—both of which districts should provide excellent opportunities for amateur photographers as well as expert motorists. The results obtained by the former and the experiences enjoyed by the latter should prove of interest to a wider circle beyond their own immediate friends.

Consideration of Sentences.

It is clear that the absurd fines which have been inflicted on motorists by many magistrates have been regarded with concern by those in high authority. At length the Home Secretary has promised to give careful consideration to any application for a reduction of sentence which may be made to him in particular cases. It was hoped by the Automobile Club that he would see his way to exercise a more general supervision over motor-car cases. This appears to be impossible; hence motorists will be thankful for the small mercy now open to them.

Fruit Growers and Motor-Cars.

A MEETING has been held in London to consider a proposal made to fruit growers and salesmen doing business at Covent Garden market that a service of automobiles should be established for the conveyance of fruit from the country to London. The suggestion made for the formation of a syndicate for the purpose did not apparently find much favour, although all seemed to agree that the motor vehicles could render efficient service to both growers and sellers. In this development lies much of the future promise of the automobile industry, but we hope nothing on a large scale will be attempted until preliminary experiments have demonstrated the possibility of financial as well as mechanical success.

The Lincolnshire Automobile Club.

ON Saturday the annual dinner of the Lincolnshire Automobile Club was held at the Saracen's Head Hotel, Lincoln. Mr. C. H. Seeley, M.P., presided, supported by most of the members, and Messrs. Mark Mayhew, J. E. Hutton, R. B. Bruce, and C. Johnson attended from London. Mr. C. W. Pennell, in proposing "The Houses of Parliament," advocated the standardisation of the highways. It would be a simple matter for the Local Government Board to send instructions to the local authorities as to how to mend roads, for, at present, nine out of every ten of the local authorities were ignorant of the subject. In responding, Mr. Seeley said the law which applied to horses and people generally who used the roads, that a man should not drive or do anything to the danger of the public, would be a better law with regard to motorists than that now applied, and he would leave it to the magistrates and the authorities generally to decide, subject to the general law and the general observance of it, what was not and what was a public danger.

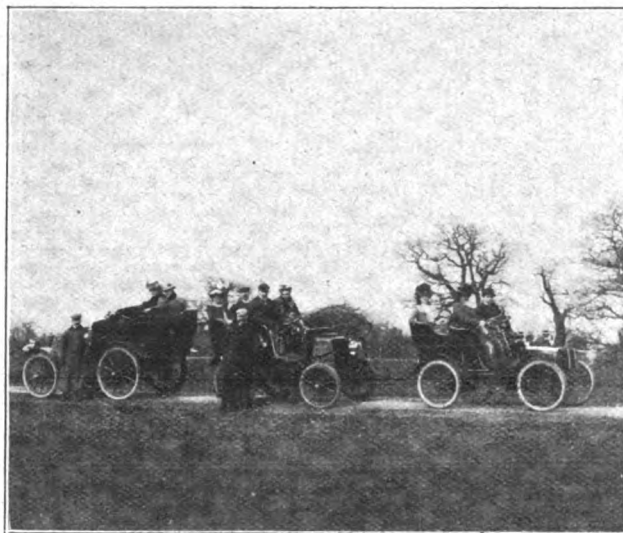


Photo by] OFF FOR THE EASTER TOUR. [Mr. T. B. Percy.

Accidental Death.

CORONERS' juries are exhibiting more common sense than occupants of the magisterial bench. The other day Mr. E. J. Clarke, the manager of the Hart Accumulator Company, was driving his motor-car along the High Street, Stratford, at a speed of not more than three miles an hour. At the top of Marshgate Lane was a watchman's box, and as Mr. Clarke neared the corner the watchman stepped out to do something to the fire in front of the box. Unfortunately the front wheel of the car struck him, with the result that the vehicle swung round and the man sustained a compound fracture of the right leg.

After a few days the leg had to be amputated, but the deceased died on the following day from heart failure brought on by exhaustion. The jury returned a verdict of "accidental death," and the foreman added that they did not think any blame could be attached to the driver of the motor-car, as they had no doubt the man stepped out in front of it.

Cost of Maintenance.

A "MOTORIST" who wrote recording the annual cost of his motor-car and the high wages paid to his man replies to the shoal of letters with which we have been favoured—and which is not yet finished, judging from the number to hand at the moment of going to press. The figures he gave were really too superlative in character to be correct for one car, but their publication has done good in eliciting much useful information, and Mr. Estcourt's contribution to the discussion is on very practical lines. Perhaps other owners of cars will compare their yearly expenditure with the estimate he gives—an estimate, it must be remembered, based on a very long mileage, for Mr. Estcourt is no fair-weather motorist, but may often be seen on the roads of the East Coast enjoying the bleakest weather from behind the shelter of the stylish front with which he has fitted his car. In all these matters, however, the cost of tyres stands out too prominently, and the tyre question is a large factor in considering the cost of motor-car maintenance.

Gradients Wanted.

ALTHOUGH most cars can now get up ordinary hills there are many that are not sufficiently powered to ascend some of the steeper gradients met with in different parts of the country. It would be well if motorists knew the location of some of these difficult hills so that they might avoid such roads if their vehicle is unable to traverse extraordinary gradients. Near Norwich is the Gas House Hill with an average gradient of about one in seven and a-half, sections of the hill being—according to the City Engineer—one in five. Until the other day only a 50 h.p. Napier had ascended the Gas House Hill, but now it shares that distinction with a Locomobile, on which Mr. H. W. Egerton has driven up the hill, taking a passenger on his car.

Will Americans Race in Europe?

MESSRS. W. K. VANDERBILT, JUN., and D. W. Bishop have arrived in Paris, and from American sources we learn that their presence is not wholly unassociated with the forthcoming automobile contests on the Continent. Although it was announced that Mr. Vanderbilt was simply going abroad with his wife to enjoy an automobile tour, it is generally believed that his main purpose is to prepare for some of the big road contests. Mr. Bishop has indeed admitted to an interviewer that he might participate in the racing events abroad. Mr. Vanderbilt has since visited Cannstatt, to secure a powerful new Daimler machine which was ordered some time ago. This car is comparatively light, which, in view of the weight limit that has been placed on carriages entering the foreign road races, lends additional colour to the story as to participating in the races. The carriage weighs about a ton, and, it is said, has a motor developing 55 h.p.

The Collection of Refuse.

LAST week we referred to the utility of motor traction in connection with municipal street cleaning. Reference has since been made to the subject by Mr. H. Percy Boulnois in a lecture before the Sanitary Institute, in the course of which he pointed out that 1,000 tons of Paddington refuse consisted of 566 tons of ashes, 288 tons of cinders, animal and vegetable material 142 tons, broken pottery 29 tons, coal 51½, bones 2½, rags 4½,

old metal 3½, and glass 5½ tons. For England and Wales, exclusive of rural districts, there was about 6½ million tons, or a quarter-ton per head of the population, to be got rid of during the year. In the collection of this material motor traction was being more and more employed, and Singapore was one of the latest towns to use a steam-wagon in place of the too well-known cart with its flapping tarpaulin cover, allowing dust to blow all over the street. Towns on the coast sent their refuse out to sea, but the lighter constituents floated, and it was said that Liverpool dust sometimes defiled the shores of Wales, while dead animals had been heard of floating for weeks. The real solution was to burn it in destructors. And the simplest way to get the refuse to the destructors is undoubtedly the employment of heavy motor-vehicles, a department of the industry in which British makers undoubtedly take the lead.

THE Roadway Autocar Company, Limited, are removing from 44, Berners Street, W., to Burwood Works, Burwood Place, Edgware Road, W., near the Marble Arch.

NIAGARA IN LONDON will be ready for its display of electrical carriages at the end of April, when the City and Suburban Company hope to increase their present rate of sales, which, we understand are now ten carriages a week.

QUITE a number of notable motorists are just now at Monte Carlo, among them being the Duke of Abruzzes, the Grand Duchess of Mecklenburg, the Duke of Manchester, Princess Hohenlohe, the Duke de Braganza, Baron de Born, and Baron de T'Serclaes.

ACCORDING to a paragraph in *Le Vélo*, only three automobiles have so far been received at the Mont-de-Piété, the municipal pawnshop of Paris. The amount advanced on such vehicles is in proportion to their probable value eighteen months from date, when, if they have not been redeemed, they are placed on sale.

THE steamships "Anjou" and "Benie" have arrived in the Thames, from Paris, with M. Santos Dumont's airship and belongings. Mr. Theophilus Williams has challenged M. Dumont to an airship race at Chicago prior to the contests which are to be held at the St. Louis exhibition.

THE folly of introducing dangerous acts into motor-car exhibitions has been demonstrated by a very serious accident which occurred at Indianapolis a few days ago, when an automobile containing two men ran off the steep incline which had been constructed for goat-like feats in grade climbing, and crashed to the floor below with its human burden, breaking bones and otherwise injuring the occupants. The only place for such feats is out of doors on the road or in a suitable enclosure.

SIX cars were entered for the Automobile Club's quarterly 100-mile trial on Tuesday, of which five put in an appearance, viz., a 12-h.p. Gladiator, a Dechamps car, a Rochet, a Baby Peugeot, and the White steam carriage. The results of the trials are not to hand at the time of going to press, which we have to do this week somewhat earlier than usual owing to the Easter holidays.

THE efforts to start a motor cycling club for Dublin have developed far beyond the original idea. At the adjourned meeting held on Friday, last week, it was unanimously agreed to call the new association of motor-cycle riders "The Motor Cycle Union of Ireland." The outcome of the proceedings was that the skeleton framework of the new bye-laws was prepared, one or two of the new regulations for the government of the Union being left to the committee for final approval.

A CONSUMPTION trial was held near Brussels last week, under the auspices of the Belgian Automobile Club, the route covering a distance of 50 kilometres (31¼ miles). In Class 1 (cars weighing over 1,000 kilogs.), Pirmez on a 10 h.p. Delahaye was the winner, his consumption of petrol being 6.340 litres. In Class 2 (cars weighing 650 to 1,000 kilogs.), the best result was obtained by Hubert on a 16 h.p. Pipe, the consumption being 9.640 litres. In light cars weighing between 400 and 650 kilogs. (Class 3) Mathieu was first on a 6 h.p. Delin with only 2.600 litres consumption.

THE ROCHET-SCHNEIDER LIGHT CAR.

THE vehicles of the firm of **Rochet-Schneider**, of Lyons, although they have been on the market for quite a number of years, have been especially conspicuous in the public eye since the "Nice week" of last year, when they shared honours with the Mercedes and Serpollet vehicles. The firm have recently introduced a new light car, of which we are now able to publish a description together with illustrations.

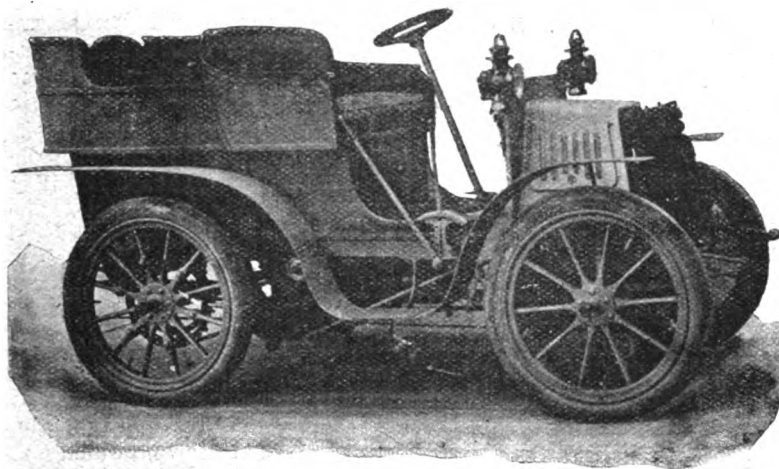


FIG. 1.—THE ROCHET-SCHNEIDER LIGHT CAR.

The frame of the car is rectangular in form and of composite construction, the sides of the rectangle being reinforced at the corners by forged angle braces, with brackets for the springs. Inside the main rectangle is a second frame of sectional steel consisting of two longitudinal pieces at a lower level than the main frame, on which the motor and the variable gear are mounted. The form of the frame is such that any type of body may be attached to it without difficulty.

The motor (Fig. 3) has two vertical cylinders, the pistons acting on a single crank shaft; at a normal speed of 800 revolutions per minute it develops 8 h.p. The admission valves are automatic; they are readily accessible by removing a single clamping bar or yoke without loosening any of the pipe connections. The valve seats are large, and also the lift of the valves

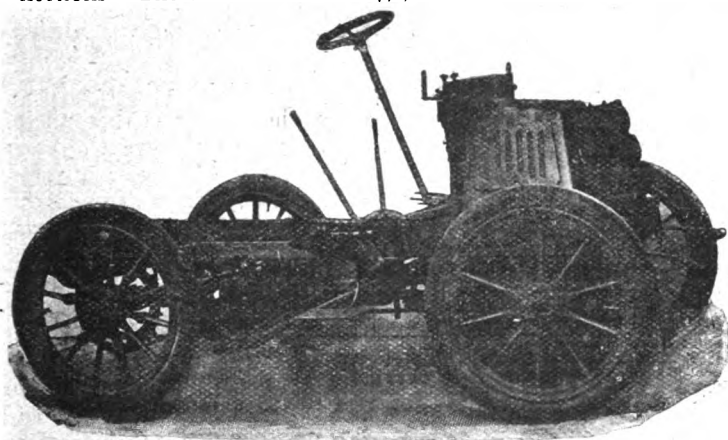


FIG. 2.—FRAME OF ROCHET-SCHNEIDER LIGHT CAR.

is considerable, to prevent an undue speed of the incoming charge in the valve passages. The exhaust valves, operated by cams formed integral with the cam shaft, are also dimensioned very liberally, and are made accessible by removing the threaded caps covering them. The explosive charge is derived from a double spray carburettor. In this apparatus, specially designed by the firm, the jet of petrol is sprayed directly in the admission tube, which makes it exceptionally simple; there is no pre-heating of the mixture in this device; it has two auxiliary air intakes which can be regulated, but they require this only for relatively large variations in temperature. The centrifugal governor is

located in the gear wheels of the cam shaft; it acts on a conical sleeve, which it displaces more or less on the cam shaft. On this sleeve, which turns with the shaft, rests a conical roller at the end of a lever which communicates its oscillating motion to the disengaging shaft running the whole width of the two cylinders. This shaft carries opposite each exhaust valve a lever, which acts through the intermediary of a short link, preventing the lifting of the valve when the governor acts to reduce the motor speed. This motion is very rapid and may take place at any position of the valve. If the knife edges are not in the position of disengagement the motion is taken up by a spring which gives it out again at the following revolution. This arrangement permits the regulation of the cylinders at will. Both may be thrown out of action at once or each singly. A foot "accelerator" is fitted in connection with the governor, so that the speed of the engine can be varied at will. The ignition is electrical, while the water circulation is maintained by a pump and radiator, the latter being somewhat on the lines of that used in the Mercedes car.

Coming now to the transmission, four speeds forward and a reverse motion are provided. The power of the engine is trans-

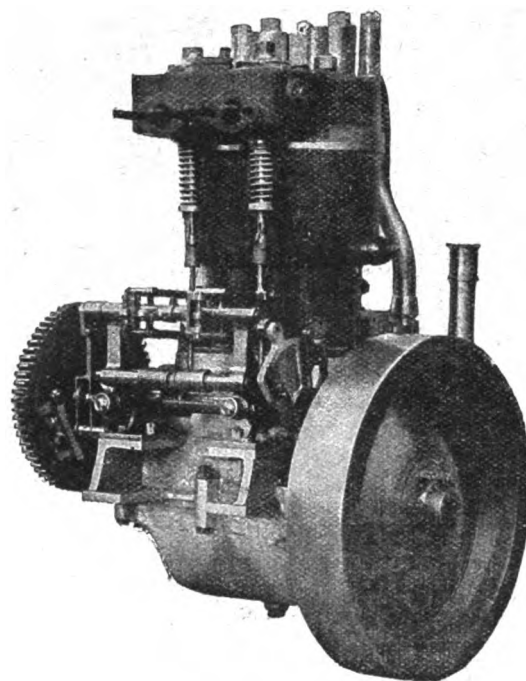


FIG. 3.—THE ROCHET-SCHNEIDER 8 H.P. MOTOR.

mitted to the speed changing gear by means of a conical friction clutch, the clutch surfaces of which are lined with leather. The cone, which has been very liberally dimensioned, in order to avoid all slipping and abnormal wear, enters into a conical opening of the flywheel under the pressure of a coiled spring on the square shaft to which the cone is fixed and on which the pinions of the change gear slide. The spring is so arranged that it can easily be replaced by another one when necessary, without dismounting any part of the change speed gear. All the speed changes are obtained by means of a single lever, which works on a notched sector and operates on the set of spur pinions, which it displaces on their square shaft in such a manner as to bring one of the pinions opposite the fixed gear, to which it corresponds. A special arrangement permits, when the movable pinions are returned to the neutral position, to obtain the reversal of the transmission of motion and consequently a backward speed by means of the low-speed gear and pinion. The speed reductions are so calculated that all ordinary grades can be mounted on the gear which is most advantageous on the level. The extreme ratio is $4\frac{1}{2}$; that is, the gear reduction of the fourth speed is $4\frac{1}{2}$ times greater than on the first. The reverse speed is still lower—only three-fourths of the slowest forward. All the gears run in an aluminium casing filled with oil. The differential

MOTOR-CYCLE TROUBLES.

shaft runs in bronze bushings. The bevel wheels of the differential communicate their motion to the sprocket pinions by means of a through shaft on the one hand and a sleeve on the other. Any deformations of the frame are compensated for by spherical bearing seats. The supports for these bearings are forged in one piece with the spring brackets, the lugs to which the chain adjusters are fastened and the brackets for supporting the rear wheel brake shafts. The sprocket pinions are fitted on a square portion of their shafts, the makers claiming that they are much easier to remove than when fitted on to tapered shafts.

The steering is controlled by an inclined hand wheel; it is irreversible and consists of a strong screw with several threads acting on a nut pivoted at the end of a lever, which communicates its motion to the swivelled axles of the steering gear. The vehicle is fitted with three brakes. One acts on the differential gear and is operated by a pedal, while a hand lever controls band-brakes on each of the rear road wheels, and it may be mentioned that on the application of either brake the first action is to with-

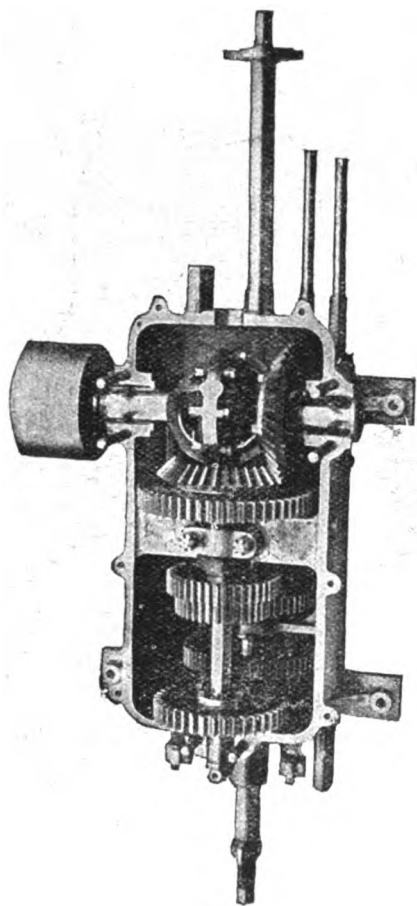


FIG. 4.—THE ROCHET-SCHNEIDER CHANGE-SPEED GEAR

draw the clutch and so throw the motor out of gear. The brake on the differential is of large dimensions, completely metallic, and holding with great force whether the car is running forwards or backwards. The rear wheel brakes consist of wide steel bands lined with "camel's hair," and are also double acting. In order to avoid any inequality in the action on the two wheels, which is often the cause of accidents, an equalising device is introduced in the brake-operating mechanism, which makes the torsion of both the brake shafts exactly alike. The road wheels are of the artillery type, all being $31\frac{1}{2}$ in. in diameter and shod with 90 mm. Michelin pneumatic tires. The car complete, with tonneau body, weighs about 12 cwt.; it can, it is claimed, ascend any ordinary hill, and can attain a speed on the level of 25 to 30 miles per hour.

The Rochet-Schneider Company are also building a four-cylinder car of 12 h.p. Arrangements for introducing both types on to the English market are, we understand, at present in hand.

FOR every time a motor-cycle goes wrong—even in the most insignificant detail—there may be a score of occasions when it is beyond criticism. Nevertheless, the one troublesome occasion will vastly outweigh the twenty enjoyable ones in the mind of the rider. The latter are rarely thought of, scarcely ever dwelt upon. The owner of a machine may ride fifty or one hundred miles without a hitch, and think nothing of it; but let one thing go wrong and he will frequently remember only it, and wonder why he ever had anything to do with such an unreliable "contraption." This state of chronic fault-finding is inseparable from all new things. When the safety bicycle became popular, when the pneumatic tyre put in an appearance, and so on down the scale, the same disposition to find fault on all occasions was observable. But as every improvement connected with the bicycle had to run the same gauntlet of criticism, so each and all of them finally outlived it. It will be so with the motor-cycle. The disposition to throw up one's hands in mingled horror and resignation every time the mixture is wrong, the sparking is not regular, or the belt slips, will ultimately disappear. The more a rider uses a motor-cycle the better he will understand it, and know how to use it and take care of it, that is, provided he has some glimmering of mechanical knowledge. If he is without this, however, it were far better that he never crossed the saddle of a mechanically-propelled bicycle. For it is a fact, and it might as well be understood at the outset, that the rider who would not know how to screw up a nut if he attacked it wrench in hand—and there are not a few of this type of person still about—has no business with a motor-cycle. It may be said for the motor-cycle, however, that even at this early stage of the movement there is a very marked lessening in the number of troubles encountered. If only ordinary care is taken it is not necessary to start out on a motor-cycle run with the fear constantly in one's mind that the return journey will be made by train or on foot. It is quite possible even now to come through a run without a mishap of any kind, and the chances of immunity from trouble will become greater as the months go by.

THE Warwick Tyre Company have for some time been experimenting with tyres for motor-bicycles, and are now in a position to supply a tyre which they claim is particularly suitable for use on such machines. The driving wheel tyre is built up with two layers of fabric vulcanised together.

THOSE who visited the motor-car exhibition in the Grand Palais, Paris, would hardly recognise the interior of the building this week, for the horse show, which is the social event of Paris, is at present being held in it. The ground floor has been converted into a large arena, around which are seats, with accommodation for 6,000 people, while the cellars, where the alcohol motors were located, have been converted into stables.

AMERICAN motor-car papers chronicle as a matter of exceptional novelty the fact that a race between a horse and an automobile will take place at Albany in the summer. There is nothing so remarkable in the idea. Two years ago there was much talk about a similar contest, in which Mr. Mark Mayhew's car was to figure as a competitor. A race between a trotting-horse and an automobile actually took place in the Deer Park, Richmond, in 1899, with Mr. C. Jarrott mounted on the latter. On this occasion, at least, the old country was in advance of the newer nation.

MESSRS. GUEST AND SON, of Neptune Works, Sheffield, have just brought out an excellent tyre-repairing outfit for motor-cars and cycles. The box, which measures 6 in. by 3 in. by $1\frac{1}{2}$ in., contains a square of rubber, covered with canvas, a square of ordinary canvas, a strip of canvas-covered rubber for outer covers, half a dozen canvas-covered patches of various sizes, four spare valve-tubes, piece of glass-paper, large tube of excellent solution and a tin of chalk, to say nothing of ample directions. It is a most useful outfit, and one which should be in the possession of all users of cars fitted with pneumatic tyres.

Mechanical Flight Up-to-Date.*

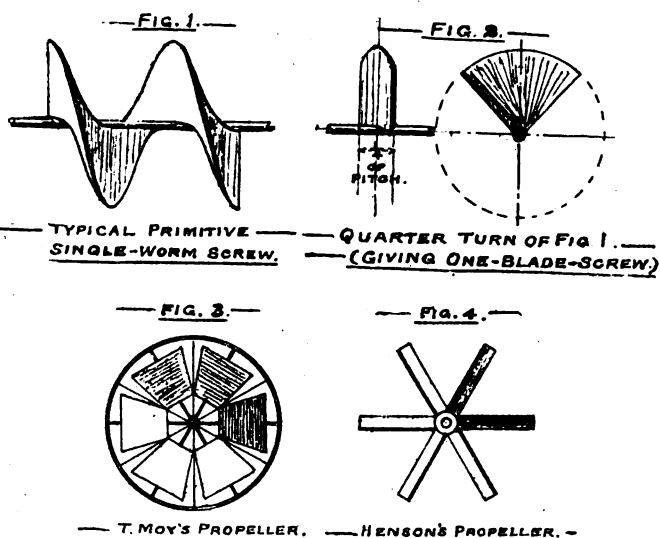
By SIDNEY H. HOLLANDS.



CHAPTER VI.—AERIAL PROPELLERS.

THAT the screw or helical propeller should have been associated with aerial navigation no less than four centuries ago is a remarkable fact enough (see Chap. I., L. Da Vinci), but that such use should have anticipated its application to aquatic propulsion by over three centuries is still more so. Ships—of a kind—the ancients had with them always, but flying machines, or any approach to them, they had not—not even that “unfortunate invention” the balloon.

The more honour, then, to the memory of a man some centuries ahead of his time—the great painter-mechanician whose



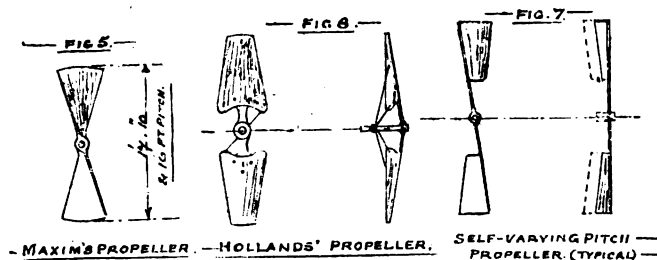
original conception it was. Archimedes of Syracuse cannot be credited with this application, as he used the screw only as a conveyor, or water-lifting device, not as a propeller, aerial or otherwise. The screw or helix, however, is but one of at least three—perhaps eventually four—practicable forms of aerial propeller. As there is a sort of general notion with some readers that a “propeller” is necessarily a screw, I have thought it expedient to draw attention to this fact at the outset.

The three means of aerial propulsion I now purpose dealing with herein, are (1) the screw or helix; (2) the flapping wing, approximating more or less nearly in its variants to natural bird-flight; and (3) the “wave-action” membrane, which, though involving a flapping motion, is distinct from ordinary wing-action. Passive propellers, *e.g.*, the aspiring aerocurve, I am not now dealing with, having previously dealt with “aspiration” and passive flight to some extent. All forms of feathering paddle-wheels are also excluded as being considered quite impracticable for several reasons. This latter form of propeller, by the way, is now practically extinct in ocean-going steamers, being displaced by the handier, simpler, and less cumbrous screw-propeller, in spite of the fact that it pioneered in steam navigation, and had the field to itself for many years—another instance of the survival of the fittest.

To deal first with aerial screw-propellers from the beginning. That of Leonardo Da Vinci was a screw of a single thread or “worm,” of which the modern equivalent would be a one-bladed screw; but as “blades” were a much later development, this screw comprised an entire convolution, or nearly so, the skeleton of the helix being formed of stout iron wire coiled around and stayed from a central axial-rod, or shaft, by radial stays at intervals, and covered with varnished linen (Fig. 1). Now one can quite understand how the original screw-propeller came to

be of single “worm” type, and the fact of one complete turn of the coil (continuous “blades”) being deemed essential, also the absence of a central body or “hub.” These were matters of subsequent development, the departures being indicated by experiment. It was first discovered by actual comparative trials that half a convolution of the “worm” was fully as efficient as a whole turn; then, that a quarter-turn was more efficient than half, but that with this curtailment of the helix, a formidable difficulty arose, particularly when rotating at any speed; it had now developed into a one-bladed screw, was unsymmetrical, and consequently unbalanced. Centrifugal force and unbalanced thrust now jointly interposed and said “no go” (Fig. 2).

Some hard thinking had now to be done. By and bye it dawned on the minds of the pioneers that the expedient to produce a symmetrical, efficient, and compact screw-propeller, while employing only a fraction of a convolution, was to have two or more threads. Thus it gradually came about that the modern true screw-propeller in its simplest and most efficient type is but a very short length cut off a two-thread screw, in which the “thread” is relatively very deep, *i.e.*, occupying the major part of the diameter, and the “pitch” equal to about two-thirds of the diameter. A marked later tendency was to err on the side of plurality of blades. Thus the “Ericsson” propeller (marine) was formed of a short section of a twelve-bladed screw, and was, naturally, found to be very inefficient. The aerial fan-propeller (not a true screw) of Moy had six blades or vanes (Fig. 3), and I believe, left much to be desired. The same applies to Henson’s propeller (Fig. 4), also to those of Du Temple and others. Even the first propeller-fans used by Prof. Langley on his original model machine were six-bladed. In his subsequent, and highly-successful, machine, the “aerodrome,” the twin-propellers were two-bladed true screws, as were also those of the Maxim machine (Fig. 5). It is a significant fact that in those experiments with flying apparatus using motors and rotating propellers the conspicuous successes have all been attained with two-bladed



screws or fans; indeed, it may now be safely stated, for the guidance of future experimenters, that it is not worth while again trying any form of multi-bladed propeller. All recent systematic and comparative experiment points to the fact that a two-bladed propeller is the most efficient, and at the same time, fortunately, the simplest and lightest. I may be allowed to add that the results of my own experiments enable me to endorse that fact. That is definite and satisfactory so far.

It cannot, however, be as definitely, or as confidently stated that a true screw is the most efficient form for a rotating aerial propeller. My experience, for one, is at variance with such a conclusion. That which is best in the water is by no means necessarily best in the air, and *vice versa*. We may safely predict that an aquatic propeller made with concave blades would be a conspicuous failure; yet in an aerial propeller with blades so formed I registered the highest efficiency compared with several other types, including true screws. Moreover, I found that

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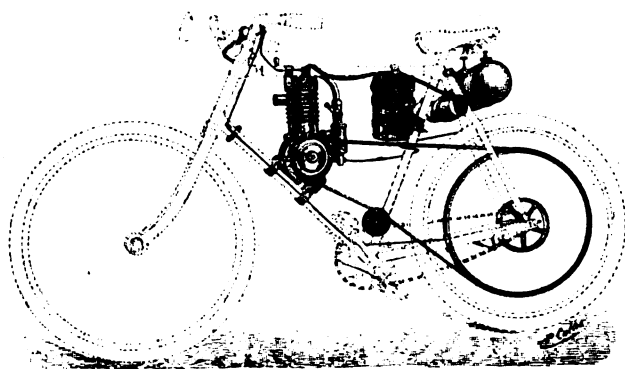
further considerable advantage accrued from making the blades narrow at the tips, which also further tends to lightness and stiffness (Fig. 6). As I used very thin sheet steel for these blades, the slight concavity of the driving side added greatly, and very serviceably, to their stiffness; in fact, if these very thin metal blades had not been so stiffened by their concavity—i.e., had been flat—I could not have used them at all, as they would have flapped over like strips of paper.

Although I am now relating my experience—"a labour of love," as it is called—freely giving its results, I do this in the interests of the cause, for the promotion of aeronautics, but claim entire originality both for the type of propeller just described and illustrated and for the motors described and illustrated in the previous chapter. All these I designed over ten years ago. Referring to another type of propeller-fan—namely, the flexible-bladed fan—which is one so constructed as to give a self-feathering action to the blades, i.e., a self-varying pitch, the resistance to rotation causing the blades to twist, and so to become of less and less pitch with increasing speed (Fig. 7). This type has found some advocates, but is by no means efficient; experiments have indicated great loss of power. For my part, such a result seems obvious, and needs no trial. Mr. Thaddeus Hyatt, an experimenter of New York, tested such a fan, three-bladed, and of 19 in. diameter. At 480 revolutions per minute the thrust was only 3 ozs.! The last-named is another type of propeller that it is not worth while experimenting with further. "The normal status of propelling (as well as of "sustaining") surfaces should be the position of maximum efficiency." This is a sound rule in aerial machine design, and its observance disqualifies the class of fan last described.

(To be continued.)

THE "BRUTUS" MOTOR-BICYCLE.

THE "Brutus" is the name given to a new bicycle motor lately introduced by M. L. Leclercq, of 23, Rue Jermain Pilot, Paris. The motor is made in two sizes—1½ h.p. and 1¼ h.p.—weighing respectively 17 lbs. and 24 lbs. It is adapted to be fitted in a vertical position in the frame (as shown



in the illustration), a twisted strap and jockey pulley being used to convey the power to a light metal pulley attached to the rear wheel. A spray type of carburettor is used, the petrol being contained in a tank carried behind the saddle.

THE Portsmouth and Gosport Motors, Limited, are opening a garage at Portsmouth.

THE Sirdar Rubber Company, Limited, are at present altering large numbers of wheels from the "pinched-on" style to the "Buffer" principle.

THE Automobile Club of America announces that it will hold another endurance run next autumn. The rules governing it will be more strict than those of the New York-Buffalo run last year.

FLOTSAM AND JETSAM.

BY "FLANEUR."

A FEW weeks ago I ventured to remark that the ways of Government departments were not always easy to understand. This was in connection with the issue of a licence for my car, the document, it may be remembered, being described as applicable to a four-wheeled vehicle drawn by two or more horses or mules, or drawn or propelled by mechanical power, while a curiously contradictory footnote declared that the licence was "not applicable to a carriage which is a light locomotive as defined by the Locomotives on Highways Act, 1896."

I HAD put myself in communication with the Board of Inland Revenue just before I referred to the matter in print, and in the course of a few days received a letter which in its turn propounded a question—as to the weight of my car, to wit. I informed the Board that the latter was under one ton. Two or three weeks later I received another letter, formally stating that the matter was being enquired into. Apparently it takes a good deal of enquiry, for from that time to this I have heard nothing more about it, and the mystery is as great as ever. Meanwhile a kind correspondent, whose letter was published in the *Journal*, has stated that the licence for cars weighing less than one ton is not demanded under the Light Locomotives Act but another Act altogether. The explanation, which I should have acknowledged earlier but for the fact that I was awaiting the departmental reply, is interesting so far as it goes. But the puzzle remains—if the licence which I hold does not apply to any carriage defined as a light locomotive in the Locomotives on Highways Act, what on earth is the nature of the vehicle propelled by mechanical power to which it does apply?

THERE is still, I understand, a considerable difficulty in obtaining good workmen in the motor trade. It is to this fact, I suppose, that one occasionally becomes the victim of a bit of scamped work, or some error of omission that seems wholly inexcusable, and only to be attributed to the consummate carelessness of an individual workman, and his complete lack of interest in the work he has to do. I believe that the British workman at his best is still without a rival, though somewhat stolid and unenthusiastic. Compare, for example, the leisurely manner in which even an expert English mechanic will set about diagnosing a source of trouble in a car, as compared with the interested activity of a Frenchman. By thoroughness, however, the Englishman will often redeem himself, but when this saving grace is lacking, and he is stupid and careless alike, then one can only pity his master and his master's patrons.

Two cases of the inexcusable carelessness to which I have referred have lately come within my own experience. The first concerned a car which had not long previously been overhauled, and on which I was being driven by a friend, its owner. We had got some twenty miles or so out of town, along a well-known road, when we heard a rumbling which was strongly suggestive of dry bevels. We got down accordingly and opened the gear-box, and were confronted by a most astonishing sight. There was not a drop of oil to be seen, nor any trace of any having ever been used. The case was "bone dry," and as clean as that of a new chassis at a show; clearly it had been washed out with petrol when the car was under examination.

BUT can any reader who has ever seen the inside of a gear-box, and its cover imagine how even the most careless of mechanics could replace the lid and screw it down without previously putting in the oil? This is not one of those little things that can easily be left undone; it is a matter affecting the very vitals of the car, and one which the owner has a reasonable right to suppose has been attended to. Every now and then, of course, one examines a gear-box, both to see whether the oil requires renewing and how the

gear is wearing ; but if one must needs remove the cover on receipt of a car after overhauling, one might just as well be expected to dismantle the whole machine. There are some things one must take for granted.

It can hardly be said that the other example is much more creditable to the workman concerned. The car in this case had just been fitted with a new carburettor, and ran well for a short time ; then it suddenly stopped short, in the way that usually implies a broken wire or a choked petrol supply. The sparking plugs were found all right upon the usual testing, and on the petrol pipe being detached from the carburettor the flow from the tank was found to be uninterrupted. Eventually it was found necessary to take the carburettor to pieces. Some carburettors are easily get-at-able ; others are the reverse, and this was one of them. When finally dismantled, however, the cause of the stoppage was at once apparent. The float-chamber was lined with a considerable amount of grit, which had to be scraped off with a knife, while numerous particles were in suspension and others had worked their way along the channel to the spray and effectually choked it. The only apparent explanation of the trouble—for the petrol had been carefully filtered—was that the workman who fitted the new carburettor had been too slovenly to wipe it free of dust, and the amount of this that the float-chamber contained was appalling. Probably, like many another man, he had missed his vocation ; at coal-heaving he might have been A1.

LATER.

At the moment of going to press I have received the following letter from the Board of Inland Revenue, from which it will be seen that I was right in my contention, and that the licence certificate in its present form is wrong :—

SIR,—With reference to your letter of the 3rd ultimo, I am directed by the Board of Inland Revenue to acquaint you that the licence obtained by you is the correct one for a motor-carriage of the kind referred to.

The note at the foot of the licence is misleading, and it will be amended.—I am, Sir, your obedient servant,

AUG. H. BROWNE, Assist. Secretary.

It has taken the Somerset House officials the best part of a couple of months to discover the contradiction between the footnote and the main clauses of the certificate. There is this satisfaction left to me, however, that I have convinced them of the error, and that future issues of the certificate will not contain the stultifying footnote.

THE big trial of motor-vehicles for 1902 will probably take place in September.

AUTOMOBILE CLUB runs are contemplated as follows :—May 10th to Brighton, May 24th to Worthing ; June 21st to Folkestone, and June 28th to Eastbourne.

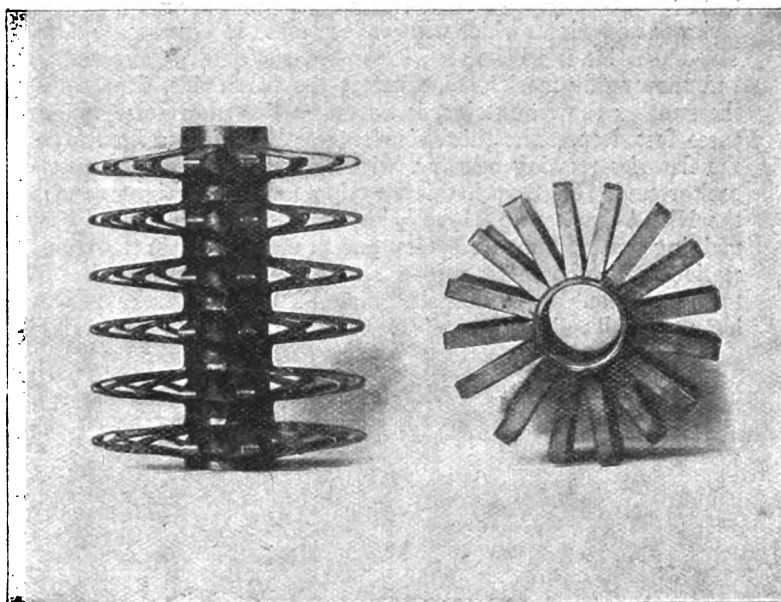
MOTOR-CYCLES intended to compete in the motor-cycle meeting at the Crystal Palace on Saturday, the 5th prox., should be registered before noon on that day at the Automobile Club. Motor-cycles will also be included in the Club's hill-climbing competition on May 3rd.

THE ground floor area of the new Daimler garage in Brownlow Mews, Guildford Street, W.C., is 4,200 square feet, and customers' cars can there be stored for long or short periods—a department of the automobile industry that is attaining great dimensions in France and the United States.

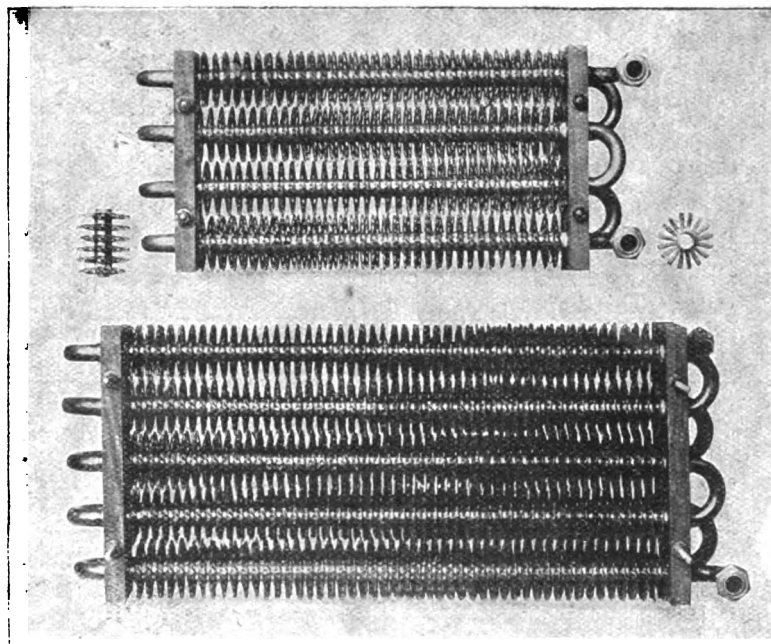
WE regret to learn that Captain Charles G. T. Bromfield, 87th Company Imperial Yeomanry, died of wounds received at Boshof. The deceased, who was formerly connected with Messrs. New and Mayne, and later with the defunct London Electrical Cab Company, volunteered as a trooper in the 79th Company Imperial Yeomanry Roughriders in April, 1900, but was invalided home in the following November. He returned to South Africa in March last year as a lieutenant of the 84th Company Imperial Yeomanry Roughriders, and was given his captaincy in the 87th Company in July.

THE ACCLES-DE VEULLE RADIATOR.

THE accompanying illustrations show a new form of radiating coil which has lately been introduced by Messrs. Accles and De Veulle, of Perry Bar, Birmingham. The new coil, which presents a very large surface to the air for radiation, is of novel construction. A strip of thin sheet metal



of a length sufficient for the tube to which it is to be fitted, and in width equal to its external diameter, is pierced with parallel lines of slits across its width diameter. These strips are $1\frac{1}{2}$ in. in length and $\frac{1}{8}$ in. apart, which latter distance also separates the rows of slits from each other. It will be seen that the whole surface of the metal is thus broken up into narrow strips $\frac{1}{8}$ in. wide and $1\frac{1}{2}$ in. in length. The sheets are next bent upwards from the

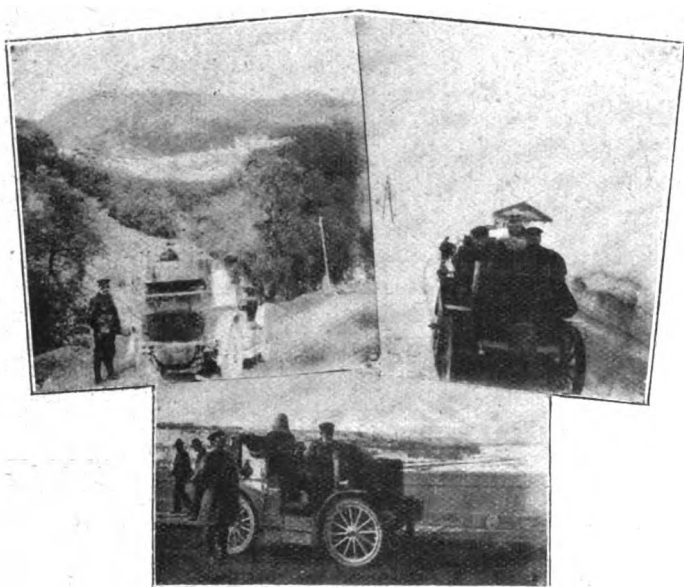


edges of the unpierced cross lines, and downwards across the middle of the lines of narrow strips. It is then bent round the tube and soldered to it, the bent strips opening out in the form of stars, giving free air circulation both outside and inside their surfaces. The coil is very light and strong, and at the same time distinctive in appearance. One of the illustrations depicts a radiator for a 4 h.p. engine, weighing, with unions, 7½ lbs., and comprising about 9 ft. of cooling tube. The London Autocar Company are the agents for the new radiator in the Metropolitan district.

CONTINENTAL NOTES.

BY "AUTOMAN."

M. LEON SERPOLLET has been kind enough to give me a few prints of photographs he has just taken on the road between Nice and Abbazia. Two of these photos are particularly interesting as showing the sudden change from advanced spring to mid-winter which will be experienced in crossing the Alps. The south side, it will be seen, is covered with verdure, dry, sunny, and thoroughly meridional, whereas the north side, deprived of the sun by the mountains, is covered with snow some two or three feet deep. The third view shows the plains of Lombardy, the flat rice-growing country, with the snow-covered Alps as a background. M. Serpollet is running altogether eight cars in the Nice-Abbazia race, three being of 12 h.p. each, and the remaining five of 6-h.p. All, save one, are to be run in the racing section; the remaining one—a 12 h.p.—will be driven in the tourist section by M. Serpollet himself, who for family reasons has practically given up racing. The 12-h.p. racing car weighs



CLIMBING THE SOUTHERN SLOPES OF THE ALPS. COMING DOWN THE NORTHERN SLOPES. ON THE PLAINS OF NORMANDY.

only 11½ cwt. in racing trim, without water and oil, and can accomplish nearly 180 miles without having to replenish its supply of water. This improvement is due to the new apparatus which I described in December last, and which stores the water in a sort of accumulator instead of blowing it out every time the safety valve is required to act.

LAST week I referred to the great improvements in motor-cars which may be expected this year as a direct result of the new racing rules, and I am glad to be now able to give some advance news in this direction. Messrs. Panhard and Levassor are preparing for the Nice-Abbazia-Nice race a four-cylinder car, with equal wheels, and an engine which develops 55-h.p. The motor is of the Centaur type, as is also the carburettor. This latter is a distinct type, and acts also as a regulator, in that it governs the admission of the gases. There is also a regulator on the exhaust. A great reduction in weight has been obtained by an alteration in the front springs and axle. The axle has been brought right forward under the end of the bonnet, and there is only one spring instead of two. The front axle is attached to the frame by means of this spring. Four of these cars will be run in the Nice-Abbazia-Nice race, driven respectively by Rene de Knyff, Pinson, Chauchard, and Maurice Farman. The chassis weighs only about 15 cwt., so that the car, ready for the road, will be well under the ton limit.

FOR the Paris-Vienna race Messrs. Panhard are preparing something much more powerful, but it would be indiscreet on my part to give any details on this head for the moment. To be forewarned is to be forearmed, and English makers will do well to seriously examine what is going on in France, if they do not want to find themselves again hopelessly out-distanced this summer by their French rivals. I feel quite sure that I hear already the reply which was given to me last year when I made similar remarks and gave similar warning. The wise acres said, "We do not want in England high powers, or light weights, or road racing, or any of your Continental ideas," and then they went to work to bring out a 12-h.p. car weighing 22 cwt. instead of 30 cwt. So it will be this time, and every time, until the British maker realises what I have been hammering at for a year—that he should come into the international racing field, and get up to, or beat, the foreign maker and reap the reward of international trade.

A CURIOUS point has arisen regarding the weighing of the cars for racing purposes. The new rules allow the accumulators used for ignition purposes to be taken out of the car before it is weighed, but do not provide for the case where ignition is by magneto only, so that an evident unfair advantage is given to cars which have electric ignition by accumulators over those in which the ignition is by magneto. No doubt a speedy rectification will be made in the rules, for the very spirit of the new regulations is to promote efficiency and do away with useless weight, and if the Mors firm can prove that with nothing but magneto ignition they can produce efficient results, undoubtedly the future of this ignition will be assured, and accumulators will follow burners into the shade of obscurity. In order, however, to make a fair comparison, the same advantages must be accorded to the one as to the other, and either accumulators must be taken into the calculation of weight as well as magnetos, or they must both be left out. Common justice demands it, and I believe that steps are being taken to bring the point to an issue.

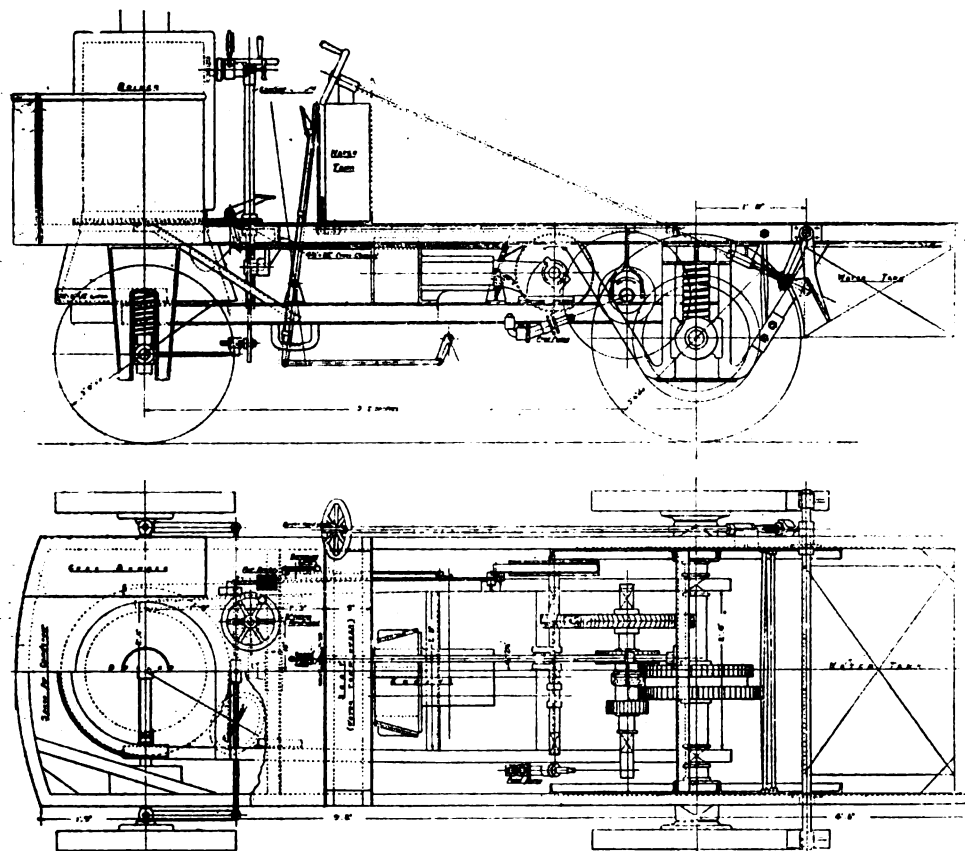
FROM Metz to Paris in one day is a good run for a motor-car, as everyone will admit. Yet it has been just accomplished by Mr. Vanderbilt, who the other day brought home to Paris his new 35-h.p. Mercedes. It is not only, however, German makes that meet with Mr. Vanderbilt's favour, for I learn that he has just ordered a 15-h.p. Mors. Quite a transformation has now taken place in the works of the Mors Company; all the old models have been abandoned to make way for 8, 12, 15, 22, and 30 h.p. cars of the latest type.

ON Saturday last a banquet was given to the Marquis de Dion at the A.C.F. by a group of friends and admirers, and he was at the same time presented with a souvenir in the shape of a piece of statuary in Swedish marble by Royet. In the centre of the block is a medallion representing the bust of the Marquis, and around the medallion are grouped figures representing the motor industry, and principally a workman in his shirt sleeves holding the well-known De Dion motor in his hands. The Baron von Zuylen presided over the banquet, and made the presentation in a suitable speech, to which the Marquis replied.

ENTRIES are still coming in for the Nice-Abbazia-Nice race, and the numbers now reach the eighties. By the way, the stages have been somewhat altered from the programme which I gave last week. It has been found quite impossible to leave the cars in safety for the night at Maestre—there is no suitable place to store them, even if a high rent were to be paid, so that the second stage, on Wednesday, April 9th, will be from Turin to Padua, instead of from Turin to Verona, altogether 242 miles. On Thursday, April 10th, the day will be spent at Venice, which is only a little over twenty miles from Padua. This will be a great advantage to those who have never seen Venice, which will no doubt be *en fete* for the occasion. On the return journey, Wednesday, April 16th, will be spent in a similar manner at Turin.

THE TRANSPORT STEAM MOTOR-WAGON.

A SOUTH OF ENGLAND firm which has for some time been devoting considerable attention to the subject of heavy steam vehicles is Messrs. Jesse Ellis and Company, of the Invicta Works, Maidstone. Mr. Ellis, the managing director, has had an extensive experience with traction engines and road rollers, and this has been of much advantage in defining



FIGS. 1 AND 2.—ELEVATION AND PLAN OF TRANSPORT STEAM WAGON.

the lines on which the "Transport" steam-wagon should be constructed. The boiler, which is located in the fore part of the frame, is of the vertical water-tube type, working at a maximum steam pressure of 200 lbs. per square inch. The heating surface is 70 square feet, and the grate area 4.9 square feet. The crown of the fire-box is furnished with a fusible plug that can be easily renewed without in any way disconnecting the boiler. By means of a special feed pump any excess of water above the quantity needed for feeding the boiler can be pumped back to the tank by opening a valve; moreover, the boiler is also fitted with a reliable injector. A steam blast is available for accelerating the raising of steam, and a by-pass valve is furnished for admitting full boiler pressure to the low-pressure cylinder. The engine is of the horizontal type, having high and low pressure cylinders, four and eight inches diameter respectively, by six inches stroke, and develops 25 i.h.p. The engine drives the rear axle by means of helical gear, two speeds, three and five miles per hour,

being provided. The engine, boiler, and gear are carried on a special expansion frame, which is suspended from the upper frame by a cross elliptical frame at the forward end and by heavy coil springs at the rear, the main frame being carried in horn plates upon strong helical springs on the axles connected to the front and hind axles, all the parts being readily accessible. The leading wheels (of wood, iron tyred) are three feet in diameter, with four-inch tread; and the driving wheels are three feet six inches diameter, with a tyre width of four and a half inches. Steering is controlled by a horizontal hand-wheel; two brakes are fitted; one a band brake acting upon the engine shaft and worked by the foot, and one upon the tyres of the rear wheels of the wagon, worked by a screw. Coke or coal is used as fuel, generally the former, and sufficient can be carried for ten hours' run; the capacity of the water tanks is 120 gallons. Any type of body can be fitted to the frame, the illustration showing one suitable for millers and corn merchants. It is intended for a load of four tons, and on good roads to also draw a two-ton trailer. Messrs. Ellis have already constructed a number of these vehicles, one of which has been in use by a large firm of brewers at Maidstone for the past eighteen months with every satisfaction. At a recent trial the vehicle left Maidstone at 11.30 a.m. for Sittingbourne, about twelve miles away, over Detling Hill, up varying gradients of one in 6, 7½, and 10, for fully seven-eighths of a mile. The vehicle was loaded with fifteen barrels of beer, and other goods making up a load of, in all, over three tons. The vehicle reached its destination in three hours. On the return journey, at 3.30 p.m., unloading stoppages and calls for empties had to be made, and by 7.55 p.m., on reaching the brewery again, it was found that 1 cwt. of coal and 9½ bushels of coke had been consumed.



FIG. 3.—GENERAL VIEW OF THE TRANSPORT STEAM WAGON.

THE "B.E.C." ELECTRICAL CAR.

AS recently recorded, the British and Foreign Electric Vehicle Company, Limited, has changed its title to the British Electromobile Company, Limited. At the same time some radical changes in their electrical motor-cars have been made as a result of the experience gained with the "Powerful" car, whose exploits in the way of long runs last year have been referred to in these columns, and we are this week enabled to publish some particulars and illustrations of one of the latest vehicles. The frame is of channel steel construction. Two electrical motors are employed to drive the car, these being spring-suspended on the fixed rear axle, one at each end, pinions on the motor spindles meshing with large spur wheels connected to each of the rear road wheels, the power of the motors being thus conveyed to the wheels by a single reduction. To the top of the motors, E (Fig. 1), spiral springs, A, are fixed, these springs bearing on the brackets, B, and so taking up any thrust of the motors. The spur gearing is entirely inclosed in dust-proof oil-containing cases, T.

Passing now to the accumulators, the British Electromobile Company after many experiments has adopted the Leitner, the battery consisting of forty-two cells placed in compartments in the body of the vehicle. These receptacles are provided with hinged tops, so that the cells can be rapidly inspected or removed. The battery is adapted to be charged from mains giving a pressure of 110 volts and upwards, and has a capacity, in the 8 h.p. car, sufficient for a run of sixty miles at an average speed of twelve miles per hour on one charge. The British Electromobile Company

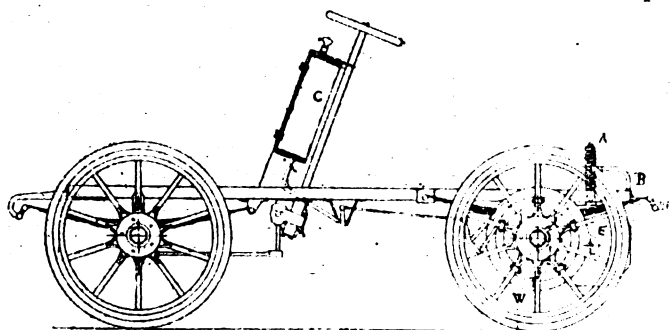


FIG. 1.

has gone very thoroughly into the question of recharging the batteries of electrical cars. Not only has it prepared a list of places throughout the United Kingdom where they may be recharged, but for clients in the London district it has arranged to enter into contracts to recharge as often as desired, as well as to maintain accumulators and cars at an inclusive rate per year. An interesting detail of the vehicle is the controller, C, which is now quite separate from the steering pillar, and set at a slight angle, so as to be within convenient reach of the driver. It consists of a revolving cylinder enclosed in a water-tight aluminium case, the cylinder carrying a number of contact blocks, on which press a row of stationary contact fingers. As the handle of the controller is turned, various electrical combinations are produced, with the following eight effects:—R, reverse speed; B, electric brake; S, stop; 1, first speed forward; 2, second speed forward; 3, third speed forward; 4, fourth speed forward; and 5, fifth speed forward. Each position of the handle is at an angle of 45 deg. with the next, and a simple mechanism renders it impossible to make an imperfect contact by leaving the handle in an intermediate position. The controller is adapted to be operated by the left hand of the driver, thus leaving the right hand free to control the inclined steering wheel. The connections for the recuperation of the battery are entirely outside the main controller, and are obtained by means of two pedals.

The vehicles are each equipped with three brakes—the emergency electrical brake applied through the controller, the

medium electrical brake due to recuperation, and pedal-operated band brakes on drums on the hubs of the rear road wheels. These latter brakes act equally well, be the car travelling in a forward or backward direction, and when put in action the electrical circuit is automatically broken. The road wheels are of the artillery type, and are usually shod with solid rubber tyres, the company finding these more reliable than pneumatics, which, however, they will fit if desired. Altogether the new vehicle marks a step forward in electrical carriage design, the body of light construction, reminding us very much of those found on modern petrol motor-cars.

ADJUSTING DE DION-BOUTON GEARS.

IN view of the great number of De Dion 4½-h.p. voiturettes in use, and the growing popularity of the 8-h.p. car of the same make, the following instructions for adjusting the gears, furnished us by Messrs. De Dion-Bouton, Limited, will, no doubt, be found useful by many of our readers.

To begin with the 4½-h.p. voiturette. On the right side of the gear-box, looking at the same from the back of the car, two sliding rods or racks will be seen, the upper one of which is actuated by a small pinion fixed to the chain-wheel on top of the gear-box. It is connected to the lower one by a bracket and ball bearing. The lower one slides in and out of the box, and turns four small pinions which expand or contract the clutches when the gears are changed. The rack on this rod is cut in the form of two coarse screw threads (one left and the other right) which meet in the middle. To prevent the rod turning round it has two longitudinal grooves cut in it towards the outer end, one on each side. The hollow axle in which this rod slides projects from the gear-case, and has a collar or boss at the end. A small plug or bolt passes through a hole in this collar and the hollow axle, and enters one of the grooves in the slide. (In some cars this plug is screwed into the boss and fixed by a lock-nut, and in others it is held in position by a band of steel which forms a spring clip round the collar). To remove the plug take hold of the projecting end of same with a pair of pliers and draw it out, when the spring will come with it. If the spring is forced off separately it may break. To adjust the gear place the change-speed lever on the steering columns, so that the clutches are free, remove plug in collars referred to, and turn the rod. If this cannot be turned by the fingers, a spanner applied to the nut at end of rod outside the ball bearing will easily turn it. In the majority of cars turning the top of the sleeve attached to rod towards you tightens the clutches, and away from you the reverse. A half turn is generally sufficient. Do not move the change speed handle to test adjustment until you have replaced the plug with the flattened end resting in the groove of rod. If, when the gear is properly adjusted, the change-speed handle is not central when the gear is free, this can easily be rectified. The chain which connects the wheel under the steering column with the wheel on the change-speed box has two unions, one on each side. These have right and left-hand threads, and by means of the same the length of either half of the chain can be lengthened or shortened, and the relative position of the change-speed handle altered.

In the 8-h.p. cars, of which an illustrated description was given in our last issue, the gears and method of adjustment are the same as on the voiturettes. The adjusting rack projects from the front end of the gear case, through the brake drum. The plug is held in position by a spring clip, or has a joint in it so arranged that when the top is straightened it disengages the plug from the groove in the inside rod. To tighten the clutches the rod should be turned to the right, as though screwing it into the gear-case, and to the left to slacken them. In the cars in which a jointed plug is used, give the rod about a quarter of a turn after straightening the plug, then turn the plug back, and turn the rod until the plug is heard to fall into the groove.

THE CARE OF ROADS.

WITHIN recent years the importance of roadways has gradually dawned upon the public mind, and people generally are recognising the chaotic state into which the whole question has been allowed to drift owing to the lack of responsibility which appears to prevail. In the time of the old mail-coaches it was daily brought home to central and local bodies that the state of the main arteries of traffic was a national matter; but since railways have supplanted roadways the ordinary "man in the street" has not concerned himself with the thoroughfares of the country beyond his own immediate locality. Cycling has done something to broaden the public view, and many of the county authorities have awakened to their duty and have recognised the necessity for maintaining the surface of the roads. But there are many roadways that clearly mark the division between one county and another and cause many to wonder why the main traffic ways are not under the control or supervision of one authority. This separate control of the roads leads to much confusion—not only so far as the varying road surface is concerned; but in the case of owners of traction engines, etc., who

There is now no authority which can compel a local body to maintain a perfect road surface, and in some of the Eastern counties the roads are in a disgraceful state from the motorist's point of view. Probably with a view to economy thousands of miles of roads in this country are practically useless, and avoided by those to whom the hotel keepers and village engineers are looking for custom and profit. Hence the shortsightedness of the policy which allows such apathy to exist. But it is almost impossible to bring the importance of such facts to bear upon local bodies full of prejudice and incapable of appreciating the new movements that are developing with a celerity that is really wonderful. It is not often that we find a public authority so enterprising as that of the Kesteven Division of Lincolnshire, which has engaged Mr. E. Pennell Hooley, the county surveyor of Notts, to advise them as to improving the road surface in that area. Nor do we always find county surveyors so up-to-date as Mr. Hooley, who has hired a voiturette for the purpose of making an inspection.

Hence we welcome the plea that some power of supervision should be given to the Local Government Board with regard to the roads. The idea that the Board should also have

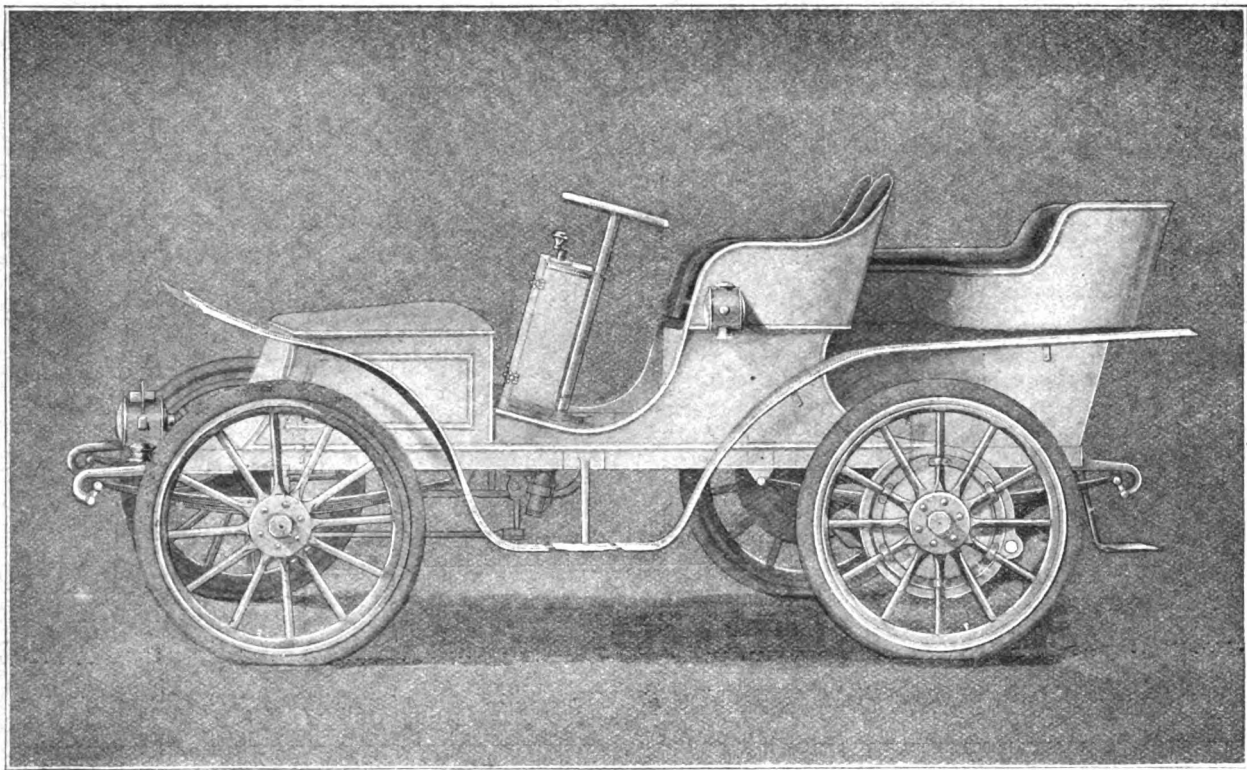


FIG. 2.—THE "B.E.C." ELECTRICAL TONNEAU. (See page 64.)

have to secure separate licenses to travel in each county. Surely, one license might be obtained entitling such owners to travel throughout the country and not have to waste their time and money in becoming acquainted with the vexatious and varying regulations of each local authority.

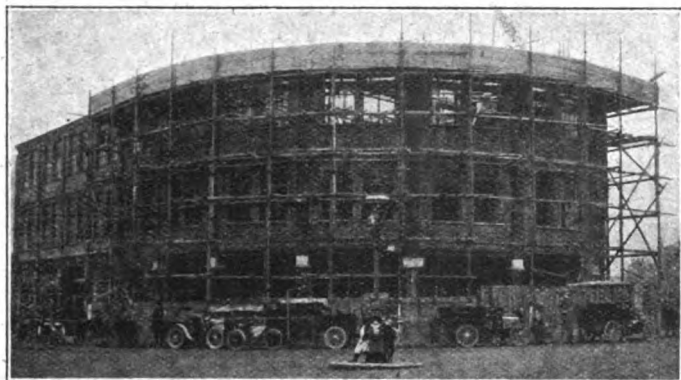
The matter is not merely of interest to motorists and cyclists; but it is of vast importance to all engaged in agriculture and in the many industries that are likely to benefit from the adoption of motor vehicles for heavy traffic. In place of the present unsatisfactory arrangement or, rather, want of arrangement, the Hon. J. Scott Montagu is pressing for the creation of a new department of the Local Government Board, which "shall be a supreme road authority, acting as an intelligence department in all matters relating to the construction and maintenance of roads, and which shall have power to take action in cases where the local authorities have failed to do so." This revival of a suggestion made fairly frequently during the last decade is likely to attract considerable attention, especially when its effect on the prosperity of those living on or near the great public highways is recognised.

an Intelligence Department is worthy of consideration, especially when we remember the long stretches of newly laid stones that have been encountered on some of the runs of the Automobile Club and also the dreary patches of unrolled flints that have had to be traversed by motorists who had no prior information as to the road repairs in progress. There are many ideas that could easily be worked out by such a department for the benefit of automobilists; meanwhile, we record our assent to the general principle that a central authority should have supervision of the roads and be empowered to take action where local authorities are negligent of their duties. Motorists throughout the country should welcome the suggestion and bring it to the notice of their Parliamentary friends—for much individual persuasion will have to be universally indulged in before the proposal is accepted by the Government.

MR. H. C. FRICK, of the Carnegie Company, Pittsburg, U.S.A., has recently purchased a Serpollet steam car.

HERE AND THERE.

It is not many months since we gave an illustration of the premises of Messrs. Dennis Brothers, Limited, at Guildford. In the interval the automobile department of the firm's business has increased so rapidly that a further extension has been rendered necessary. The illustration shows the new extension to the



factory at present in course of construction. They anticipate that this will be completed within a month, and that it will give them sufficient working room for between two and three hundred workmen, so that they will be able to bring up the output of Dennis cars to six or eight each week.

WE hear that a movement is on foot to start a motor-cycling club in Belfast.

ON Saturday, the 12th prox., the Midland Automobile Club will have a circular run, concluding with a dinner at the Grand Hotel, Birmingham.

AN oil painting, once the property of George III., can be obtained—we read from an advertisement—in exchange for a 8 h.p. car, Panhard preferred.

M. SANTOS DUMONT, who has returned to London, intends to take his airship round St. Paul's dome on Coronation Day, and will continue making experiments during the summer.

A 10-H.P. DAIMLER char-a-banc has just been imported to Melbourne, Victoria. It is intended for a passenger service between Melbourne and St. Kilda or South Melbourne.

MR. H. CURTIS, of Birchills Street, Walsall, has sent us a rough sketch of a small carburettor he designed two years ago and fitted to the induction valve of the motor of a 1½-h.p. motor-tricycle.

TRAMWAYS and light railways are encouraged to an inordinate degree on our public roads, and of applications relating to 385 miles of railway lately scheduled, 319 were for lines laid on existing roads.

NEW premises have just been taken by the Motor Power Company, Limited, at 14, New Burlington Street, Regent Street, S.W., in connection with which is a garage, allowing ample room for at least 150 cars.

THE London and Suburban Motor Omnibus Company, Limited, has been registered with a capital of £5,000, to carry on the business of omnibus, tramway, motor-carriage, and van proprietors. The registered office is at 90, Sidney Street, Mile End, E.

THE Eastern section of the Scottish Automobile Club had a run on Saturday last. The motorists assembled in Charlotte Square, Edinburgh, at noon, and drove to Aberlady, lunching at the Golf Hotel, after which the journey was continued to North Berwick, and then home. Among the party were Mr. John Macdonald, who drove his Daimler car; Dr. Dawson Turner a Delahaye, Mr. J. M. Inglis a Benz, Mr. W. Hunter an Argyll, Mr. Sanderson a Benz, and Mr. James Hunter a Daimler. The Scottish Motor Company sent three cars for the use of members not having vehicles of their own.

AT the Theatre Royal, Cardiff, this week, where Mrs. Lewis Waller is producing "Zaza," a motor-car, supplied by the South Wales Motor Company, is to be seen on the stage. This is the first time a motor-car has been employed on the stage in South Wales.

THE Clipper Pneumatic Tyre Company, Limited, are now conducting the motor-tyre repairing business hitherto directed by the Continental Caoutchouc and Guttapercha Company, Limited, and motor tyres or tubes requiring repair should be sent to the former company.

WITH regard to the paragraph in our last issue stating Messrs. De Dion are placing a motor-bicycle on the market with engine of 1½-h.p., Messrs. De Dion-Bouton, Limited, write to point out that the information is rather premature. At present the motor is only in its experimental stages.

THE Princess Victoria, who has lately included a motor-car depot on her list of London calls, will be at Cromer for Easter, and may probably be a spectator of the speed trials. Attended by Lady Musgrave, who is an enthusiastic motorist, she will stay at Lord Hillingdon's house at Overstrand.

IN connection with the Easter tour of the Automobile Club to Cromer, Messrs. Mann and Egerton will have a supply of petrol, spare parts, etc., at Norwich, for the convenience of motorists who may be lacking in the essentials to automobile success. Similar services will be rendered at Hunstanton and King's Lynn by Messrs. W. H. Johnson and Sons.

AN engineering conversazione was held at Battersea Polytechnic on Saturday evening last, and in connection with the same an exhibition of machinery was organised. A cycle and motor-class is held at the institution, and much interest was shown in the parts of a small petrol motor which had been machined by the students. Among the other exhibits that we noticed were: a Kitto motor-bicycle, a section of a Daimler motor and Daimler transmission gear, specimens of the Renold silent chain, and a novel two-cylinder petrol motor, with mechanically-actuated inlet valves, designed and constructed by Mr. H. Taylor, the teacher of the class.

FRENCH automobilists are taking a keen interest in the approaching elections, and they are sounding the candidates on the subject of their attitude towards motoring. They are able



THE ALCOHOL COMPETITION—NOT THAT PROMOTED BY THE FRENCH GOVERNMENT.

Das Schnauferl, Munich.

to put their advocacy on a patriotic basis, since if automobilism is fostered, and the cars use alcohol instead of petrol, the country will benefit. Apropos of this point, the *Auto-L'elo* tells a story which will bear translating. "A candidate, who is a motorist, has already started his canvassing, and called on a wine and spirit merchant. As soon as he began to expound his views the latter remarked slyly, 'Yes, that's all right. I know by experience that there's nothing better than alcohol as the motor-power of an election.'"

THE municipal authorities of New York are about to carry out some trials of a motor dust van.

CAPTAIN THORNYCROFT VERNON rode from London to Liverpool the other day on his 7-h.p. car, accompanied by Mr. E. Shrapnell Smith, secretary of the Liverpool Self-Propelled Traffic Association. The route was by Banbury, Coventry, Lichfield, and Knutsford, the journey being completed before the weather broke.

MESSRS. H. FENTUM PHILLIPS AND COMPANY, of Guildford Electrical Works, North Street, Guildford, inform us that they now have facilities for charging main electromobile cells or ignition batteries at any time. Any voltage can be obtained, and the charging is carried out under the supervision of experienced electricians.

A LONDON journalist intends to have a trip from London to Land's End, thence to John o' Groat's and back again to London—concluding his journey at the Agricultural Hall, Islington, during the progress of the Exhibition. A 12-h.p. car of British manufacture will be employed, and the object will be to test the Martin pneumatic tyre.

A CHICAGO firm has introduced a motor-car fitted with what it terms a traction wheel, which is said to enable the vehicle to be driven through snow, mud, or sand. The wheel is arranged to receive the exhaust from a steam engine or the cooling water from a petrol motor, which, it is stated, keeps the traction wheel warm and enables it to grip the snow.

THE annual dinner of the Manchester Automobile Club was held on Thursday, the 20th inst., at the Albion Hotel, Manchester, and was attended by about forty of the members. Mr. S. Okell presided. A selection of instrumental music was given during the dinner, and Mr. Ernest Hastings gave a number of humorous sketches, terminating a most enjoyable evening.

NOT often are motorists exempt from the restrictions of local authorities, but in connection with a bye-law just adopted by the Middlesex County Council, in regard to the blowing of horns by persons in vehicles on Sundays, a clause has been inserted as follows : " Nothing in this bye-law shall prevent the use of a horn in a reasonable manner by one person on a coach or similar vehicle."

WITH regard to the rumour that Messrs. De Dion had decided to revert to the plan of locating the motor in their light cars in the rear part of the frame, Messrs. De Dion-Bouton, Limited, write that, as we surmised, the report has apparently arisen owing to the fact that the pump is on the latest frames, driven by a small bevel pinion just behind the gear box at the back of the car. At the same time they add that they are prepared to supply the $4\frac{1}{2}$ h.p. type of voiturette, fitted with either $4\frac{1}{2}$ or 6 h.p. engines, the latter being suitable for use in mountainous districts.

We learn that Stirling's Motor Carriages, Limited, of Glasgow, have just acquired the extensive works and plant at Granton, Edinburgh, of the Kingsburgh Motor Construction Company, Ltd. The site of these works covers an area of about seven acres, about half of which is already covered with substantial buildings, and the plant is of the most modern type. The works are electrically driven and are surrounded by a macadamised testing track of four laps to the mile. The Stirling Company, in addition to their light cars, will manufacture vehicles specially for public services and for express delivery service. A sample of the former has already been tested for over 10,000 miles, and the running costs have been carefully preserved. We understand that the economy in cost of upkeep of this car has surpassed the expectations of the designers. The car will, we learn, be exhibited at the Automobile Club Show next month, and gearings and bearings will be detached for the inspection of all interested. We hope shortly to be able to illustrate and describe the vehicle, which will be known as the "Stirling Public Service Car." We may add that the manufacturing depôt of the Granton works is under the charge of Mr. A. J. Drake, late manager of the Daimler Motor Company, Ltd.

IMPORTS OF MOTOR-CARS, CYCLES, AND PARTS.

BELOW we publish our monthly official list of the imports of motor-cars, motor-cycles, and the parts thereof into the United Kingdom during the month of February, 1902. Compared with the preceding month, the total imports officially recorded were as follows :—

February, 1902	...	...	...	£52,928.
January, 1902	...	...	...	£37,988.

Thus the imports for the first two months of the present year have been £90,916 as compared with £80,015 in the last two months of 1901 and show an increase of £10,901.

BELGIUM.

Shipped from	To	Description.	No.	Value.
Antwerp	Goole	Motor car parts	—	£ 3
"	Harwich	" cars	2	240
"	"	" cycles	22	1,090
"	"	" cycle parts	—	1,706
"	London	" cars	2	228
Brussels	"	"	8	790
"	"	" parts	—	406
Ghent	"	"	—	139
Ostend	"	"	5	1,000
"	"	" cycles	4	170
"	"	" car parts	—	30

Total Value of Imports from Belg'um, February, 1902.....	£5,802
" " " January, 1902... ..	£3,024

FRANCE.

Boulogne	Folkestone	Motor cars	48	14,708
"	"	" parts	—	246
"	"	" cycles	2	104
"	Goole	" car	1	150
"	London	" cars	14	3,950
"	"	" cycles	1	25
"	"	" car parts	—	22
Calais	Dover	" cars	2	500
"	Leith	" "	12	1,300
"	London	" "	5	410
Dieppe	Newhaven	" "	38	14,424
"	"	" cycles	2	160
"	"	" car parts	—	1,560
"	"	" cycle parts	—	10
Dunkirk	Hull	" car	1	260
Havre	Liverpool	" cars	2	400
"	Southampton	" "	5	940
"	"	" car parts	—	88
Paris	London	" cars	6	1,500
Rouen	Hull	" car	1	50
"	Glasgow	" "	—	70
"	Manchester	" "	1	100

Total Value of Imports from France, February, 1902.....	£41,037
" " January, 1902	£25,722

Germany.

Bremen	London	Motor-cars	3	918
"	"	" wagons	2	600
Hamburg	Hull	" car	1	180

Total Value of Imports from Germany, February, 1902	£1,698
" " " January, 1902.....	£4,039

Holland.

Rotterdam	Harwich	Motor-cycle parts	—	70
„	London	„ cars	12	2,300

Total Value of Imports from Holland, February, 1902	£2,370
“ “ “ January, 1902	£1,583

United States

New York	Glasgow	Motor-car	1	150
"	London	Locomotives	2	235
"	"	Motor-cars	5	691
"	"	" parts	—	6
"	Southampton	" cars	4	510
"	"	" parts	—	9
"	Manchester	" truck material	—	420

Total Value of Imports from U.S.A., February, 1902	£2,021
" " " January, 1902	£3,620

CORRESPONDENCE.

STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—“M. D.” does not state the make of his car. I have never read or heard of a cast-iron fire box for these light steam cars, and do not know to what “M. D.” refers.

A long experience with stationary oil engines has convinced me that paraffin burners are a very doubtful success on account of their proneness to smoke and corrode the burner. If “M. D.’s” car is a Locomobile, I should advise him to revert to the petrol burner, which gives practically no trouble, and petrol is much cheaper now than it used to be. Depend upon it, if paraffin could be successfully used, the Locomobile people would soon fix a suitable burner to their cars.—Yours truly,

WORSTEAD.

THE OLDSMOBILE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have been reading the description and looking at the illustration of the new American petrol car “Oldsmobile,” and I should think (there being no distance rods, as far as I can see, joining the two axles) that if a heavy driver sat on one side he would depress the spring on that side and put the chain wheel out of truth and wear the chain badly, also I should think the steering would be uncertain. Has this been foreseen and made provision for by the makers?—Yours truly

A. C. E. WHITTARD.

MOTOR-BICYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Mr. Pennell rightly contends that what we want is a powerful engine fitted to a strong bicycle, and, let me add, a bicycle of approved British make. Like himself, I have been a sore grumbler, and am, perhaps, somewhat hard to please. I had a pleasant season with the Werner (also many troubles) last year, and have since tried a great number of 1902 machines without lighting upon anything really satisfactory both as regards engine and excellence of bicycle construction. At last, however, my pains were rewarded, and I have found for myself (and an equally discontented friend) a machine at once very powerful, strongly made, and comfortable. The machine in question is the new 2½ h.p. “Excelsior.” The bicycle itself—a point nowadays too much ignored—is admirable. The motor gives, if required, a very high speed (a thirty miles per hour burst does not “extend” it at all), and enables hills of one in six, at any rate, to be ridden without pedalling. I am told that one in five has been done, but the former gradient I can vouch for. The long wheel-base of this machine renders it comfortable—a revelation, in fact, to ex-riders of the front-driver; it can be run on a mere “smell of petrol” (at need), as one of its admirers observed to me, and stands up surprisingly on grease. The belt seems to work very well. I, and a similarly-mounted friend, hope to report later the results of thorough tests; a preliminary run has left me provisionally quite satisfied. The engine is a M.M.C. De Dion.

As regards belts, the Palace trials went certainly in favour of belts, as opposed to existing chain-drives, and the climbing feats of the belt-driven “Excelsior” spoke, of course, for themselves. Of late I have been examining a new composite belt—the “Rex”—which gives a most effective “bite,” and may be run with good results even when apparently slack. This kind of belt, used in conjunction with a pulley having a grating-bottomed groove, or a sinuous groove, will probably solve the transmission question very decisively. Belts have many advantages which ought to be preserved, if possible.

It has been disputed whether so powerful a machine is desirable or not. Expert driving is, of course, requisite; one would not put it into a beginner’s hands. Probably 1½ h.p. or 1½ h.p. is more suitable to the needs of the great majority of riders. But, as Mr. Pennell has so seldom a good word to say for British-made machines and designs, I think it only fair to draw attention to the fact that a machine such as he sighs for is both in existence and a proven success in the hands of those who can use it.—Yours truly,

E. DOUGLAS FAWCETT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to your correspondent “J. A.’s” letters of March 1st and 15th inquiring for a satisfactory motor-bicycle, may I call his attention to the Hewetson as recently described in your columns? I have now ridden my machine for close on 500 miles, in all conditions of weather and over all roads, without mishap, the only adjustment being the tightening of the belt. The ignition being on the magneto principle, the worries attendant upon the ordinary accumulator or battery ignition are entirely eliminated. The control of the machine is extremely simple, there being no necessity to remove the hands from the handle-bars for manipulation in traffic. As a hill climber I consider it unrivalled for its engine power. With regard to weight I am afraid that it will not meet “J. A.’s” requirements, as it scales nearer 100 lbs. than 60 lbs. The machine is most amply proportioned, safety being considered before extreme lightness. A sight-feed lubricator being fitted, the bicycle will cover about eighty miles without dismounting, at a speed very considerably in excess of twelve miles an hour, if so required.—Yours truly,

H. HANAY.

MECHANICAL FLIGHT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In the *Journal* for March 1st the article on “Mechanical Flight” refers to exceedingly light motors for use in aviation. I have been interested in the study of mechanical flight for some years past, but have in all cases been debarred from any tangible success mainly through lack of ability to procure a sufficiently light motor. The said article deals with a motor by Professor Langley, weighing 7½ lbs., and generating 1½ horse. This seems the very motor I require. I am designing a new balloon, for which I hope to use a motor of this or some other description, and should be glad if any reader would send particulars as to where I may procure such a motor. It should not, for my purpose, weigh more than 10 lbs. at most, and generate as much power as possible. Can any of your readers put me in communication with people versed sufficiently to say whether a petrol or steam-motor is best for a balloon of model size from twenty-five to thirty feet long by 1½ yards thick at middle? I have read with interest the articles, and feel so far pleased to know that I have not been working on the wrong lines in my experiments.—Yours truly,

FRED CROCKETT.

QUERIES RE PETROL CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Would any of the readers of the *Journal* kindly answer the following queries, which I think you will agree are of general interest? First: What are the general causes and remedy for the occasional bang or loud report in the exhaust box often heard on even new motors properly timed and valves correctly ground? The general idea is, of course, a misfire in the cylinder or a series exploded in the hot exhaust-pot. Is there a danger of exploding and firing petrol tank when adjoining? As a most reliable means of ignition, what are the merits of the latest systems of ignition, viz., the latest Basse and Michel induction coils and trembler and a 4-volt accumulator, the Simms-Bosch oscillating or rotary armature or sleeve magneto, the Dawson magneto or any other latest form of ignition? Are there any cars fitted with both magneto and electrical ignition? is the combination workable? or is it a fact, as I have heard from those who have tried, that they short circuit each other through the engine or frame.—Yours truly,

“PETRO.”

COST OF MAINTENANCE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—A letter which appears in your issue of the 15th inst., signed “A Motorist,” is calculated to thoroughly frighten any intending purchaser of a moderately-powered or small motor-vehicle. “A Motorist’s” expenses seem to work out at £246 9s. 8d., apart from wages and stable rent, for an 8 h.p. to 12 h.p. car, whatever that may mean. After the speed and brake trials in Welbeck Park, a short time ago, Mr. Mark Mayhew, if I remember rightly, had a small consumption trial, and succeeded in driving his 20 h.p. car over forty miles on two gallons of petrol, so I imagine that one and a-half gallons would be a fair average for the car mentioned for about thirty-five miles, if carefully driven. This for 300 days at 1s. a gallon gives £22 10s. as the cost of petrol, instead of £60, as mentioned by “A Motorist.” If his other expenses are reduced in the same proportion, I think we shall arrive at a much truer estimate of the cost of running and upkeep. As regards the conduct of “A Motorist” and his engineer in leaving a fellow-motorist stranded, I sincerely hope this is quite an unparalleled episode.—Yours faithfully,

L. L. POWELL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In your issue of the 15th inst. “A Motorist” gives an account of his yearly expenditure in connection with his car. May I ask if these items represent an average yearly expenditure on a car, as they strike me as being somewhat excessive. The total works out, with wages, about £400 a year. I trust some of your other readers may give their experiences in this matter.—Yours truly,

“A WOULD-BE MOTORIST.”

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have pleasure in sending statement of cost of maintenance of my 3½ h.p. De Dion Progress car for twelve months’ running, during which time it has covered about 2,400 miles:—Petrol, at 1s. 3d. per gallon, £5; tyres (new treads), £5; lubricants, £1; repairs and warehousing, £3 10s.; licence, £2 2s.; new plugs (2), 6s. total; £16 18s. I think the letter of “A Motorist” in your last issue on this subject is very misleading to motorists, and fear he must have had a tremendous craze for throwing money away on his car to spend £246 9s. 8d. on its upkeep. I use my car for business purposes mostly, and it is almost in every-day use. I require no mechanic, and have only been stopped once on the road, when my pump chain came off, but, fortunately, that time was not when I was on business bent. As regards cleaning of car, one of my assistants attends to this, which does not take up more than three hours of his time in the week. Hoping the above information may prove interesting to the readers of the *Journal*, and that others may follow in giving their similar experiences and expenses for one year’s working.—Yours truly,

CHAS. HANNAN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I was much surprised to read "Motorist's" letter, and if I found the cost of motoring anything near his estimate I should not note. The figures given are, in my opinion, absurd. As I spend quite three times as much on new tyres as on repairs, I cannot understand his item of £85 at all. I find I have spent about £50 in twelve months; my mileage in the time has been about 12,000; £5 for paraffin, grease, polish, and brushes; for lubricating £5 would be nearer the mark. Insurance and licence can be anything you like to pay; I pay on two cars £11 4s.

With regard to the mechanic, I am sorry for "Motorist"; I scarcely know who is master and who is man. Certainly I would not keep a man who flatly refused to assist another on the road. I know about ten owners of cars who pay under 25s. per week, and in each case there is little danger of any of them requiring assistance when on the road. I will now give as nearly as I can the stoppages that I have had in twelve months, leaving out tyres. A few times I have been stopped with lamps, once broken induction valve, once the end of counter-shaft broke; this of course was a full stop, but, as it occurred near home, I sent a man for my other car and towed it to the engineer's.

My advice to anyone commencing is to purchase a moderate-powered car with as few complications as possible; 8 to 10 h.p., if weight well under a ton, is ample. Such a car should cost not over £400; another £50 for extras should be all the outlay for a good car. If driven forty miles per day, 300 days in the year, the cost should work out at about the following, and a strong, handy man at from 18s. to 25s. per week should be all that is required:—Petrol, £40; tyres £60; sundries, oil, grease, etc., £20; insurance third party risk up to £500, £9; licence, £2 2s.; man, £50; replacements, £20—total, £201 2s. The owner in this case must learn something about his car, which, if he is at all of a mechanical turn, he should do in about a week. But nothing will teach him quicker than having a stop on the road. His great trouble will be tyres, but there the strong, handy man is quite as good as the mechanic. His next great trouble will be the ignition. This he must master himself. I quite think lamp ignition is done for; I should advise electrical only. If you have both it is taking on complications, and when the least thing occurs you fall back on lamps, and so never master the electrical. With such a car and a good handy man, in my opinion, there is much more enjoyment, and the owner may then develop into a real motorist instead of a touch the button man.—Yours, etc.

ERNEST ESTCOURT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to the criticisms in your last issue on my letter, I must justify myself by explaining that I have a 8-h.p. car, and also a 12-h.p. car. One machine weighs 30 cwt., and is used for carrying luggage to and from the station, errands, etc., and has to traverse a rough and hilly road. Consequently it consumes more petrol than would be the case if it travelled only smooth and level ground. My 12-h.p. Panhard weighs 24 cwt., and is used for pleasure purposes only.

Both cars are kept going daily—Sundays as well as week-days—and each covers, on an average, forty miles or more a day. My mechanic and a boy of seventeen years of age have as much as they can do in keeping the cars clean and fit for work; and there is little idleness for them, especially as one car is out until eight o'clock at night, and leaves home again at 7.30 a.m., having been properly washed, oiled, and thoroughly examined.

I hope to be clearly understood by the foregoing that my cost of maintenance was meant for two cars. In my figures I included the wear and tear of tools, etc., having a small repair shop of my own with forge, drilling machine, etc., which I find most useful. I am more than twenty miles from any large town, and so have to depend on my men for repairs, etc.

Yours truly,

A MOTORIST.

MAGNETO-ELECTRIC IGNITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have an Orient Express which has given me every satisfaction up to the present. Recently, however, I have not been able to get the engine to start. I may say that the motor is in good order; it is the magneto-electric ignition which is wrong. I am very much afraid it is the magnets which have become de-magnetised. Will any readers kindly inform me how long the magnets remain magnetised, also how to tell when they are properly and fully magnetised? I may say my Orient Express is a splendid little car, and has given me every satisfaction. A few remarks on magneto-electric ignition from any of your readers who have had experience with this system would be interesting to others as well as to myself.—Yours faithfully,

MAGNETO.

RACES ON THE CONTINENT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to "Automan's" notes in the *Journal* and his oft repeated advice that English manufacturers ought to run a number of cars in the French races, and thus prove they are superior for racing, this is very useful and interesting, but from a manufacturer's point of view is not as good as it would appear on the surface. I think no one could better qualified to speak on the subject than myself, as I have gone to the expense of running cars in French races, and shall continue to do so; but I would like to point out some of the disadvantages that English competitors labour under, that should be well considered before everybody rushes to take advantage of "Automan's" suggestion.

In the first place, it is not reasonable to hope that for some two or three years more we shall see five or six English competitors in the big French races. If we see three or four we shall be doing very well. Against them there will be competing at least thirty or forty French cars, probably equally good for racing purposes. Most of the French manufacturers are now running from six to a dozen cars in each big race, and if only one car out of the lot goes through then all is well, whereas any one English manufacturer cannot hope to have more than one or two big racing cars in any one contest for some years to come, even if he could find people to buy them and drive them, which is not one of the easiest things, as the opportunities for learning to drive these cars are somewhat limited in England. There is another point in the purely racing question that has to be considered, and that is that each year is removing the racing car further away from the vehicle that is going to be bought for ordinary use, so that the winning of a race, although tending to show that the winning manufacturer can build a good racing carriage, does not necessarily prove that he makes a good touring or wearing vehicle, as the two types are becoming so dissimilar.

I think many of the competitions held in this country have helped the English manufacturer. Take, for instance, the 1,000 miles trial, in which the chief prizes were won by English manufacturers in strict competition with foreign rivals. The various hill-climbing tests held in this country have generally been won by English competitors against foreign cars of similar types, and I think one of the best things we can do in this country is to promote plenty of competitions open to the world, and let it be clearly seen what English and French cars of similar types can do when put to run under the conditions as they are to be used in England. I quite agree as to the advertisement that accrues, especially abroad, through participating in these big races, but at the same time one does not want the English trade carried away and fixing a fictitious value on the racing advertisement. Merit and good work does tell.—Yours truly,

S. F. EDGE.

FRANCE COPYING ENGLAND.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read with interest Mr. Austin's letter, and there is no doubt there are many good features in the Wolseley cars, but the letter is apt to lead one to believe that these advantages and good features are obtainable only with a horizontal engine. In justice to my firm, I would like to point out that we obtain these advantages, and others, too, on the Brooke car—but with a vertical engine. We obtain a more efficient transmission than is obtained with the motor placed longitudinally—and with no twisting action on the frame, and at the same time a straight front axle. I doubt very much if the Wolseley cars carry less water than the Brooke—1½ gallons in the 10-h.p. cars supplying all our wants. The question of getting at and dismantling the engine does not appear to me as one of position, but more one of design. Mr. Austin also claims less lubrication troubles. This may be so, but every horizontal high-speed motor which has passed through my hands has shown signs of faulty lubrication on the bottom ends of the connecting rods, and in four cases I can call to mind the cranks have been badly cut and practically rendered useless. Horizontal explosive engines may be satisfactory if run at low speeds with open crank cases, such as Messrs. Crossley Bros. fit.—Yours truly,

MAWDSLEY BROOKE.

THE Devon County Council has passed a resolution declining to depart from their previous decision in favour of the registration of motor-cars.

A RECORDING chronograph, with an electrical attachment, has been submitted for the consideration of a Sub-Committee of the Automobile Club by Messrs. Smith and Son.

FREQUENT reference has been made in these columns to the distinctive features of the latest models of the Weston steam cars. A new type is now being introduced in a touring car of heavier build than those previously associated with the firm. It is of 7 h.p., and is provided with a water tank having a capacity for thirty-five miles, while the dash-board is fitted with a compartment about 14 ins. deep, a foot wide, and extending along the whole front of the car. This can be utilised for reserve supplies of petrol or for luggage. The vehicle has a long wheelbase, and the seats for driver and passenger are wide and roomy. A capital feature of this touring car is the arrangement for holding the tools in a convenient and unobserved position. The rear panel of the car, when lowered like the tail-board of a dogcart, reveals an enclosed panel fitted with clips, each holding a tool. Thus a complete tool-chest is provided, and every facility given for adjusting on the road, without encumbering the car in any way whatever—an ingenious device, which adds to the serviceability of the vehicle for touring purposes. The car is fitted with the water-lifter illustrated in our issue of February 8th, and we hope shortly to publish a photograph of it on the road.

FURIOUS DRIVING CASES.

At Winchester, Benjamin Trevedd, motor-car driver to Lord Wimborne, was summoned for driving a motor-car furiously. He did not appear, but sent a long letter, which was read by the chairman. P.C. Deacon, on March 5th, when at Kingsworthy, saw defendant driving the car. There was a passenger up. Tested by a measured 400 yards, the speed was thirty-two miles an hour. Defendant pulled up quick and said he was very sorry the brakes were worn, and he offered Deacon a tip to keep quiet. Fined 40s., inclusive of costs.

At Brentwood, Thomas Groves, of Maida-vale, W., was summoned for driving a motor-car at a speed of over twelve miles an hour between Brentwood and Romford on March 2nd. Police-constable Swann said the defendant covered six miles in sixteen minutes. The defendant stated to the Bench that he was driving a surgeon to an appointment in Essex. The day was a most deplorable one, and the roads were thick with mud. He drove slowly where there was danger to the public, but he did not know he was restricted to twelve miles an hour on any particular stretch of road. He always drove most carefully, the whole of twenty-seven miles occupied 2½ hours, and the law allowed him to go thirty-three miles in that time. Defendant was fined £2, and 8s. costs. The bench pointed out that the law did

NON-DELIVERY OF A CAR.

In the London Sheriff's Court Mr. Under-Sheriff Burchell and a jury have heard the case of Goodwin v. the British Automobile Commercial Syndicate (Limited), which was an action to recover damages for the non-delivery and detention of a motor-car. Counsel for the plaintiff said his client had been employed by the defendant company to sell motor-cars, and it was arranged that he might, if he chose, purchase from them a car and sell it on his own account. Shortly after Christmas the Hon. Morris Egerton sent to the company a car that had won one of the first races from Paris to Nice, with an intimation that he wished to sell it. The price he put upon it was something like £400, but he ultimately decided to accept £250. The Duke of Manchester fancied the car, and agreed to give £250 and also another car as part payment. This latter car was offered to the plaintiff for £50, and he agreed to purchase it for this sum, and paid a deposit of £25. Almost immediately he found a customer for it at £130, but the defendant company failed to deliver the car, and plaintiff was informed that they had sold it to another person. The plaintiff, in evidence, said the car which the Duke of Manchester handed over as part payment was the one presented to him by his wife on the occasion of their marriage in America. The car was practically new, and if witness had purchased it in the open market he would have had to pay £250 or £300 for it. Mr. Turvey, who purchased the car from the plaintiff, agreed to resell it for £154. On the other hand, the defendants sold the car for £115. Counsel for the defence suggested that the car had been adopted from another pattern. The jury awarded the plaintiff £128 13s., including the £25 paid by plaintiff to the defendants, and costs.

A.D. 2002.

"The charge against you," said the magistrate, "is that of walking at a furious rate. And it is further charged that you, at night, Have the streets promenaded without a light. Four miles an hour on the public way Is dangerous speed. What have you to say?" "Your Worship," the prisoner said, "I went Out for a walk and my oil was spent; But this motor officer would tell That I did not neglect to ring my bell." "Sir," said the magistrate, in accents gruff, "To ring your bell is not enough. We are resolved, let me repeat, To protect motor-cars on the public street. Only last week was a driver hurt By an unlighted child who did a spurt. The driver was injured; his ride destroyed, And the Automobile Club was much annoyed. Five pounds I fine you; your defence is vain. You must never walk without a light again."

Automobile Magazine.



THE POSTER OF THE 1902 AUTOMOBILE CLUB EXHIBITION.

not allow defendant to keep up an average of twelve miles an hour. The law was that he could not go more than twelve miles in any one hour. Defendant said he had misunderstood the law.

Mr. M. HARRISON, referring to the case of Chas. Edward Smith, against whom there was a charge at the West Hartlepool police-court of furiously driving a motor-car on March 7th, stated that after the alleged offence his client went on to Sunderland and met with an accident, dislocating his shoulder. The Bench granted an adjournment of the case.

ABEL BUCKLEY, of Galtee Castle, Michelstown, Co. Cork, was summoned at Brighton for furiously driving a motor-car in West-street, on March 5th. Defendant did not appear, but was defended by Mr. J. K. Nye. It was stated by police-constable Frederick Bignell that defendant drove his car round the corner of West Street from King's Road, at a very fast pace. It was at five minutes past twelve midday. He estimated that the car was travelling at about fourteen or sixteen miles an hour. At about 12.15 the car returned down West Street, when it was stopped by police-constable Roberts and himself. Captain Robert Wylie, who is staying at 6, Regency-square, said the car was going so fast that "not much of it was to be seen." He could walk about four miles an hour, and he judged that the car was going five times as fast. Charles Edmunds said he saw six people get out of the way of the car. He estimated its pace at about fourteen or sixteen miles an hour. Defendant was fined £10 or two months' imprisonment,

THE Electric Ignition Company, Highgate Street, Birmingham, have effected an important improvement in their sparking plug. Hitherto, the cross wire forming one of the sparking points was composed of sterling silver, and the method of adjusting the width of the sparking space was rather crude, necessitating very delicate handling. The latest sparking plug has a screwed cross wire, flat at one end for adjusting purposes by a pair of pliers, and at the other end of the pin a piece of platinum wire is fixed, making the adjusting of the sparking points extremely accurate and reliable. Another improvement is the extension of the platinum point beyond the face as a safeguard against "sooting."

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COMMENTS.



HIS MAJESTY'S enthusiasm for yachting and motoring is being fully enjoyed by a combination land and water holiday. Like many of his subjects he indulged in an outing in the forest on Easter Monday, visiting Lord Montagu of Beaulieu at Brockenhurst, in the New Forest. The King was received at Buckler's Hard, on the Beaulieu river, by the Hon. J. Scott Montagu, M.P., and Lady Cecil Scott Montagu. At the top of the hill motor-cars were in readiness, and thither the party drove. With Mr. Scott Montagu as driver, the King had a front seat on a 24-h.p. Daimler car, Captain Fortescue being at the rear. Lord Wimborne had placed his car at the service of Lord Montagu; and Lord Suffield, Lord Esher and M. de Soveral were its passengers as it followed the Hon. J. Scott Montagu's car to Beaulieu, and thence to Lyndhurst—a drive of seven miles through the most charming portion of the New Forest. From Lyndhurst the route lay *via* Wilverley, Brockenhurst, and Lymington, to Mr. Scott-Montagu's bungalow on the shore of the Solent, where tea was taken. The return journey to Buckler's Hard was also made by motor-car, and the King thoroughly enjoyed his trip.

In the Isle of Wight.

ON Tuesday the King visited the Isle of Wight, being met by his motor-car at the Trinity Wharf, East Cowes. The party journeyed to Osborne, where some time was spent in golfing—a game in which His Majesty is showing increased interest. Later in the day he paid a surprise visit to the Royal National Hospital at Ventnor, proceeding thither on his motor-car, and being accompanied by Sir Francis Laking, his physician. The King subsequently called on Princess Henry of Battenberg at Osborne Cottage, and on the Duke and Duchess of Argyll at Kent House, and left East Cowes at 7 o'clock, having made a series of calls which would have been impossible but for the motor-car.

Another Royal Motorist.

KING EDWARD VII. is not the only royal motorist, a fact well known, although the presence of Prince Albert of Belgium in this country has not been generally recognised. Prince Albert is not only fond of motoring, but is also fond of driving, and many are the trips he has taken on his motor-car in the Ardennes and other parts of his father's kingdom. Our illustration on page 81 depicts him on his motor-car at Brussels.

Motoring on the Continent.

MR. BALLIN HINDE is making some interesting motor-car trips on the Continent. He journeyed from Frankfort through Switzerland to Vif, a distance of 470 miles, in 26½ hours. The snow was so heavy that he was seven hours travelling the last fourteen miles of the trip. From Vif Mr. Hinde went

to Nice. The second stage of his adventurous journey is from Nice to Vienna and back, a distance of 1,700 miles. When that is successfully accomplished Mr. Hinde hopes to get to Paris, about 700 miles from Nice, in three days.

Traps for Motorists.

THE Surrey police are in plain clothes again, and with stop-watches in their hands and prejudice in their minds they are watching unwary motorists passing along the highways of the county. Inspector Marks described the process in the case at the Chertsey Petty Sessions, reported on another page. Standing at the end of a measured one-eighth mile at Weybridge, he saw the motor-cars approach. He signalled to a constable at the other end of the trap, and started his stop-watch. As the first car passed him he stopped his watch, and found the speed was 18 miles an hour, one-eighth of a mile being covered in 25 seconds. Then he signalled to another constable at the top of the hill, who stopped them till the inspector came up. The signalling was no waving of the hand or raising of a flag, but consisted in walking from the fence to the edge of the path. Whenever motorists see policemen walking from fences to roadways, they must beware.

The Aero Club.

THE rules of the Aero Club, of which Mr. H. B. Skinner is the secretary *pro tem.*, have just been issued. The management of the Club is in the hands of a committee of twelve, and provision is made for the nomination of candidates for the committee by ordinary members before the annual meeting. The annual subscription is to be two guineas, and the object of the Club is the popularisation of "aero-automobilism" and ballooning as a sport. Aerial excursions will be organised, and encouragement given to the training of carrier-pigeons as a useful auxiliary to the aeronaut.

Punch's Cartoon.

LAST week's *Punch* contained a cartoon by Mr. Linley Sambourne, in which the Marquis of Salisbury and Mr. George Wyndham were depicted on a motor-phæton, leaving two small children by the roadside. Mr. Arthur Balfour was appropriately on the seat of the driver, attired as we recently saw him when inspecting a Napier car. The children were labelled "Irish Land Bill" and "Education Bill," and Mr. Balfour was saying, "Au Revoir! You two stay where you are. We'll pick you up again when we come back." Evidently the Ministerial party was off for the Easter holidays.

Rules of the Road.

MUCH is said and written with regard to the rule of the road so far as it affects drivers of motor and horse-drawn vehicles. But we hear little of such regulations for the guidance of pedestrians who wander from the pavement to the roadway, and then grumble if a passing vehicle causes them to accelerate their pace. Mr. H. Revell Reynolds calls attention to a frequent occurrence. "Suppose," he writes, "three or four persons walking abreast in the road are overtaken by the driver of any vehicle. At present those on the right are quite likely to jump

to the left, and those on the left to jump to the right, which, of course, is likely to lead to annoyance and to collisions. Even if it be impossible or undesirable to have any binding law passed, it should not be too difficult to establish by degrees a custom, in obeying which a motorist would be able to plead that he had done his duty, and that if a collision occurred he had not been guilty of any negligence. The simplest plan, and the safest, would be to declare that when walking in the road all persons are expected to keep to the established rule of the road; to keep to the left on meeting, and to overtake on the right." Certainly the subject is worthy of discussion and consideration.

An Irish Motor-Car.

THE motor-car is gradually increasing in favour in Ireland, and a noticeable feature is the great attention which is now being devoted to the movement by cycle traders in that country, with the result that the facilities for automobile touring in the Green Isle are now much greater than ever. Our illustration shows a motor-car which has been built at the works of Mr. Wm. Corrigan, a cycle maker at Edenderry. All the castings for the engine, transmission gear, hubs, etc., were obtained in the rough, and, according to the *Irish Wheelman*, when Mr. Corrigan began his task the only guide he had was a rough design of a belt-driven vehicle. The car was made altogether by himself, with the exception of the chain, the forgings for the back axle,



the tyres, and the ignition apparatus. It is fitted with a horizontal engine of 4½ h.p., and the transmission is by belts to the counter-shaft, and thence by chains to the road wheels.

British v. Foreign Cars.

A MIDLAND correspondent calls our attention to a paragraph in our issue of the 22nd ult., in which appeared a comparison and criticism of British and foreign automobiles. On the strength of that paragraph, our correspondent writes to suggest that we "favour the Continental trade in preference to the English"—a suggestion that is quite unwarranted, as is evident from a careful perusal of our columns. In the paragraph complained of we said that the fact that the majority of cars in this country were of foreign origin was "lamentable," and "deserving the careful consideration of all who have the welfare of British (not exclusively English) automobilism at heart." "There is no doubt," we continued, "that the best English cars are at least equal in workmanship and durability to the foreign production," and then went on to point out that the facilities of determining which is the best are greater on the Continent than here, and we came to the conclusion

that "the multiplication of trials is the only way of hastening the survival of the fittest"—a conclusion with which all the leading British makers are in agreement. In last week's *Journal* Mr. S. F. Edge wrote: "I think one of the best things we can do in this country is to promote plenty of competitions open to the world, and let it be clearly seen what English and French cars of similar types can do when put to run under the conditions under which they are to be used in England." Why such suggestions as this should be regarded as unpatriotic we fail to see.

At the Seaside.

ON Easter Monday the motor-car services around the coast were well patronised. That between Hastings, St. Leonards and Bexhill, and the district round about was augmented for the holidays, and every car available for public service at Bournemouth was crowded throughout the day. The public interest is evidently as great as ever, and those contemplating starting such services may do so with every assurance of public favour.

In India.

THE fact that efforts are now being made to influence the Government of India with a view to lessening the restrictions now imposed on the use of petroleum spirit lends increased interest to the announcement published in the *Englishman*, of Calcutta, as to the many roads in the Dependency now awaiting self-propelled vehicles in order to develop the resources of the country. The formation of a company to run a service of motor-cars between Giridih and Hozaribagh has attracted much attention in India, and the progress of that experiment will be watched with considerable interest in India—and at home.

The Late Mr. Rhodes.

THE death of Mr. Cecil Rhodes removes a great figure from the Empire, and one who would probably have done much for automobilism. A week before he died two cars left this country for his use in South Africa, and we know, from the gentleman who accompanied them, that Mr. Rhodes had hopes of travelling from the Cape to Cairo on an automobile—a journey that would have placed the position of the motor-car beyond dispute in Africa. In the last days of his life an artificial supply of pure oxygen was introduced into his lungs. On a recent Sunday he took a turn for the worse, and the doctors again had recourse to oxygen. Unfortunately the supply to hand was not sufficient, but his Wolseley car was despatched to Cape Town—sixteen miles away—in the small hours of the morning, making the trip there and back with a fresh supply of oxygen in record time. Time after time the automobile has proved its value in cases of such emergency.

Motor-'Buses.

THE steam motor-'bus plying between Hammersmith and Oxford Circus seems to be acting well and running with a regularity that is causing the drivers of horse-drawn omnibuses to despair of long continuing in their elevated positions. The other day a smaller motor-'bus to hold fourteen persons was seen on the road to Hampton Court. Among the passengers were Messrs. W. J. Bull and T. Dewar, M.P.'s, Mr. J. L. Thornycroft, Mr. J. E. Thornycroft, and Mr. T. Thornycroft—ample proof of the fact that it was a Thornycroft steam 'bus. The 'bus in question was on a trial trip, and is intended for the Belfast and Northern Counties Railway, which has already a similar 'bus. The vehicle is a capital railway 'bus, with accommodation for half-a-ton of baggage on the roof. When fully loaded and carrying its full complement of passengers the 'bus will maintain an average speed of about nine miles an hour. The omnibus

carries a small steam engine, boiler, tanks, and coal bunkers on the forward platform, and it can ascend heavy hills with ease.

Motor Cycling.

THE fine weather on Monday brought out the motor-bicyclists, and they were to be seen on all the suburban roads, the envy of the ordinary cyclist and the terror of nervous old ladies at cross roads. At many of the local cycling and athletic meetings motor-cycle contests were on the programmes, and at the Putney Velodrome a five miles motor-cycle race formed one of the attractions at the meeting of the Putney Athletic Club. The result was:—A. Westlake, Motor Cycling Club, 1; H. Martin, Queen's C.C., 2; J. Cousins-Nixon, 3. The winner was a lap ahead of the second man, his time being 9 min. 38 sec. Three laps divided the second and third.

In the Air.

DURING Easter the newspapers have had many things to chronicle with regard to aerial navigation and ballooning. The Archduke Leopold Salvator, cousin of the Emperor of Austria, has announced his intention of crossing the Alps by balloon; and Madame Otero, the famous Parisian dancer, intends to gracefully float into Biarritz in August in an airship now being constructed for her by a Belgian engineer. The airship will be dragged along by a motor-car, to which it will be attached by a thin wire hawser—altogether a very novel proceeding. M. Santos Dumont has also been much paragraphed during the last few days; the fact that he has dined at the Carlton Hotel, and that his airship is now on view at the Crystal Palace, being equally regarded as worthy of publicity. The rumour, too, is gaining credence that an aerodrome is to be constructed at Chamonix in connection with some Alpine ascents a Swiss aeronaut intends to make. Next week M. Dumont is to sail for the United States, from whence we may expect some "tall stories" regarding his projected flights. Herr Ganswindt, a Berlin engineer, has designed an airship in which a screw propeller is actuated by a small motor; and Mr. Henry Pell is credited with an airship whose motive power is hot air. Next, please!

Tyres.

TYRES are the source of more trouble in connection with motor-car matters than anything else, and a great many of the visitors to the forthcoming Automobile Club's Show at the Agricultural Hall will doubtless be attracted by the fine show of tyres which will be in the gallery of the building. Practically every known variety of tyre suitable for automobiles will be shown, while the practical assistants at many of the stands will be able to give useful hints to anxious inquirers. It must not be imagined that all tyre troubles are caused by the inherent vices of the tyres themselves. Many tyres are strained by careless driving, recklessly turning sharp corners, and sudden applications of the brakes. Of course, the latter is frequently necessary—as in the case of Sir Henry Thompson's recent experience at Watford—but otherwise braking should be cautiously indulged in, and even then reduced to a minimum. By the disregard of carefulness in driving motor tyres can be as completely weakened and strained in a short journey as in the course of fair wear and tear over many miles of road.

The 100 Miles Trial.

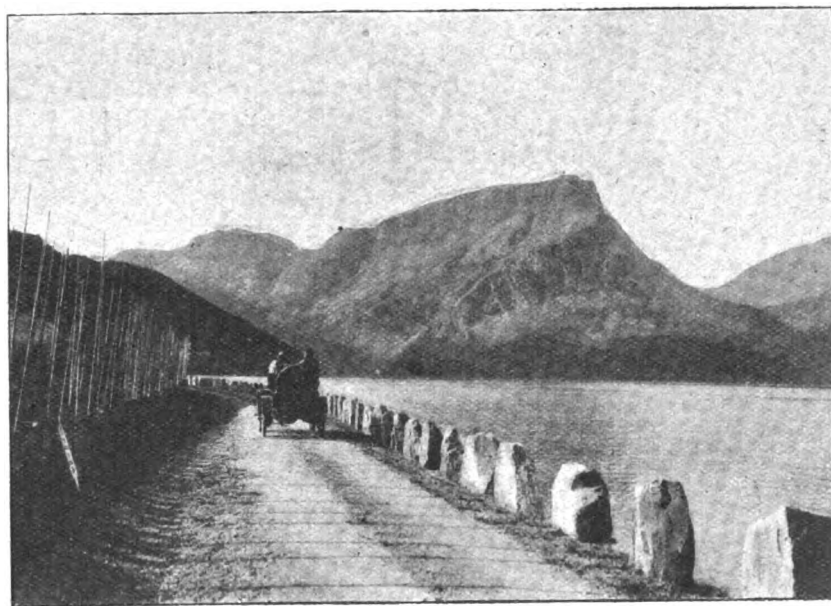
SUPPLEMENTING our reference last week to the quarterly 100-miles trial under the auspices of the Automobile Club on the 25th ult., we now give the performances of the cars in brief. A 5-h.p. Peugeot and a 12-h.p. Gladiator made non-stop runs, the former with two and the latter with four passengers. The Peugeot car consumed $3\frac{5}{8}$ gallons of petrol and a quart of water, the Gladiator 4 gallons $4\frac{1}{2}$ pints of petrol and half

a gallon of water. A delay of ten minutes occurred to a 14-h.p. Dechamps car, owing to the clutch needing adjustment on the outward journey, and at the fifty-second milestone the driver accidentally stopped his engine in turning. Its consumption of petrol was 5 gallons 1 pint. The 4-h.p. Rochet car was troubled with leaky lubrication, necessitating four stops, occupying $10\frac{1}{2}$ minutes in all. Two and three-quarter gallons of petrol and $5\frac{1}{2}$ pints of water were required during the run. The times of the cars up Dashwood Hill and Aston Hills are given below, the former being shown in the first column and the latter in the second:—

				Mins.	secs.	Mins.	secs.
12-h.p. Gladiator	..	..	..	3	15	6	0
14-h.p. Dechamps	..	..	..	3	51	5	58
5-h.p. Peugeot	..	..	..	5	14	9	44
4-h.p. Rochet	..	..	..	5	22	11	35

A Licence Prosecution.

THE Inland Revenue authorities have been on the alert with regard to drivers of motor-cars who have not taken out licences for their vehicles, the first prosecution of the kind having taken place last week. One result should be to cause many applications at local post offices for the necessary licence forms. Mr. A. W. James was driving a motor-car in West Street, Bedminster, when he was stopped and asked for his licence. This could not be produced, and he was summoned to the Bristol police court, where a fine of 20s. and costs was imposed.



MOTURING IN NORWAY—THE ROAD ON THE STUDSHORN.
[La France Automobile.]

Stopping Suddenly.

DOUBT having been thrown on the ability of a motor-car to draw up suddenly in a short space, Sir Henry Thompson gives the procedure as follows:—"The driver is seated with his left foot resting lightly on the clutch pedal, which is first pressed down firmly to throw the engines out of gear; the right foot following as closely as possible on the brake pedal, while the right hand rapidly applies the big drag. All this, which takes so long to write, is instinctively done in the order described by a practical driver almost as rapidly as the eye closes on the approach of a fly. He is fastened in his place by arm and feet; and I at his side, foreseeing the event, have my feet against the dashboard and my arm on the side of the carriage, and our displacement is impossible."

The Yorkshire Automobile Club.

THE first run of the season of the Yorkshire Automobile Club was held on Monday, Harrogate being the rendezvous. The roads generally were in good order, and the weather beautifully fine, the only drawback in this respect being a coldness in the breeze. There was not a large muster, only ten vehicles turning up at Harrogate. The motorists and their friends, including several ladies, left their respective destinations during the morning, and reached the Victoria Hotel, Harrogate, the headquarters for the day, shortly before four o'clock, after having experienced an enjoyable run. The majority of the cars were from Leeds, but Bradford and Shipley were represented.

Farmers Encourage the Automobile.

WHILE the bucolic mind in this country seems to associate automobilism with the decadence of agriculture, the French farming community realises its value as affording a means of cheap and rapid transport. More than that, the utilisation of alcohol as a motor-car spirit is recognised as a direct source of wealth; hence the forthcoming contest organised by the Minister of Agriculture for motor-vehicles using alcohol. The many agricultural syndicates in France are equally solicitous in the matter, and in addition to petitioning the Government to allow the Paris-Bordeaux race, many are offering prizes and doing all they can to foster the industry. The President of the Société d'Agriculture de la Gironde has written to the Automobile Club of France offering a gold medal for the best vehicle using alcohol.

Goggles.

MUCH has been copied in English journals from American exchanges of late anent the influence of automobilism on the eyesight, and alarmist reports have been freely circulated as to the bad effect of motoring on the eyes. Dr. Troussseau, a leading French eye specialist, declares that a person with sound eyes cannot suffer from a trip on an automobile, unless, of course, some foreign substance, such as dust or grit, is admitted to irritate the eyelids. Hence he recommends the use of goggles when on dusty roads in windy weather. But there again there is such a variety of styles of goggles that the choice is not an easy one. Dust will penetrate through the most minute aperture. It is therefore necessary that the lining of the goggles should fit the contour of the eye-sockets. After buying the goggles, the lining should be worked over, re-cut and re-pressed, if necessary, to obtain a regular and close fit. Linings of very pliable skin are frequently used, as they absorb no moisture, and are less liable to deteriorate than those of taffeta. The rims of the goggles should be as light as possible, and should adapt themselves to the form of the face, especially to the curve of the nose. Many opticians are making goggles, but few are adequately studying the subject, and there is room for many new shapes and styles in addition to those already on the market.

Signboards.

ABOUT 2,500 signboards have been contracted for to be put up on Long Island (U.S.A.) roads, and before May Day nearly a hundred of them will be in position. They are furnished by the Long Island Railroad Company and the New York and New Jersey Telephone Company jointly. On each one will appear the number of miles to the next town or village, together with the statement that railroad and telephone stations are located there. When will the old country possess equally useful signboards? Perhaps some enterprising motor-car firms might render service, so far as their own localities are concerned. At Arundel the Corporation have recently erected notice boards calling the attention of motorists and cyclists to the necessity for caution in proceeding through the town. At Hursley, in Gloucestershire, the District Council has decided to erect a danger board on the main road to Chandler's Ford.

Artists and Automobilism.

VERY absurd are some of the conceptions of artists with regard to automobiles, and there are very few really satisfactory drawings of such vehicles to be found in the illustrated papers. A Wimbledon correspondent draws our attention to a large picture of a motor-car which appears in the trade catalogue of a well-known firm of London clothiers, who advertise motor clothing as a feature of their business. The "car" has no engine whatever, no chains, no brakes, no gears, and is altogether a most preposterous affair, to which we notice the words "registered design" have been applied. It is really absurd to find a firm advertising motor clothing showing so little care in the preparation of its trade lists.

Heavy Traffic.

ALMOST every day brings news of the development of motor traction for goods traffic in the North of England. Liverpool, Manchester, Sheffield, and other centres of industry have all daily experience of the value of motor-lorries in the rapid and reliable transit of heavy goods, while for some time the cotton spinners of the Oldham district have been considering the advisability of conveying their goods to Manchester and Liverpool, and transmitting the supply of raw material in a manner which would render them independent of the railway companies. The reason of this is the alleged excessive cost of conveyance. Messrs. A. and A. Crompton, Ltd., of Oldham, have made experiments with much success, and there is every probability that they will extend the enterprise, and thus render themselves to a great extent independent of the railway companies, whose rates are none too light in these days of fierce international competition.

THERE is great commotion amongst automobilists in the south of France in consequence of the reported issue of an order by the Prefect of Cuneo forbidding, in the public interest, the Nice to Abbazia race through the province of Cuneo.

THE chassis of a Milnes' motor-wagon attracted much attention outside the General Post Office, London, on Thursday of last week.

It is practically settled that a speed track will shortly be available for automobiles at Bexhill, and that electrical timing arrangements will be provided.

THE deputy ranger of Richmond Park has refused permission for an automobile hill-climbing competition which the Automobile Club were desirous of holding in the Park.

AT the end of the 52nd milestone, the White steam-car abandoned the run at the last 100 miles trial of the Automobile Club, owing to the rubber tube between the condenser and the feed tank having become disconnected.

MESSRS. MANN AND OVERTON, LIMITED, 25, Mortimer Street, W., have secured the sole agency for the Georges Richard light cars. Various types will be shown at the forthcoming Exhibition at the Agricultural Hall.

AT a recent meeting of the Automobile Club of America Mr. F. R. Hutton, professor of Mechanical Engineering at Columbia University, delivered an address on automobile motive powers. He dwelt particularly on steam, considering it the most satisfactory power at present. Petrol, he said, was, however, the power of the future.

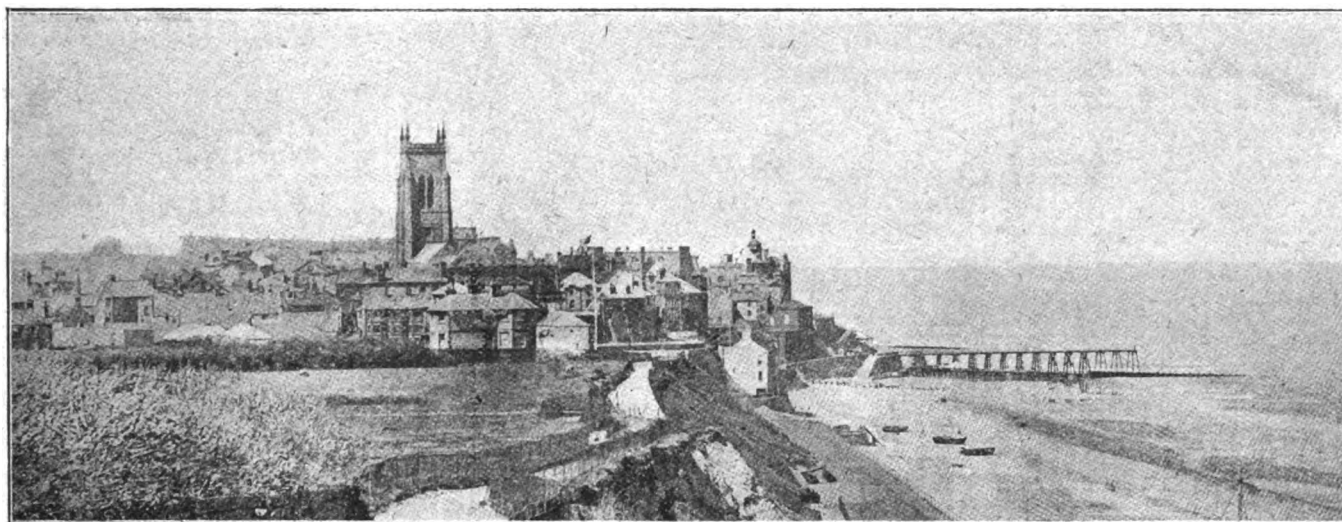
AT last the winners of last year's Paris-Berlin motor-car race have been informed that the cheques representing their prizes are ready. The amounts are not very large. Fournier gets £146, being 18 per cent. of the proceeds of the contest. Girardot, who was second, is awarded a sum slightly under £114; and Giraud, who was first in the light car class, £81. These amounts are not sufficient to cover the competitors' expenses, but each firm, of course, substantially remunerated its representatives in the contest. Fournier, for instance, is supposed to have made £2,000 by his win.

Easter at Cromer.



FOR the Easter tour of the Automobile Club Cromer was selected as the destination, and following out the suggestion in the official notes of the Club we adopted Route No. 3 for the journey to the eastern counties. But instead of starting on Thursday we, with our party, took advantage of our only opportunity to have a holiday before the Exhibition, and so went off a day earlier, viz., on the Wednesday. The day was fine, but windy and cold. The roads were dry and a trifle dusty. They were very loose, much worse, in fact, than we had been led to expect by the report of the journey made over the same route

country journey being made somewhat slowly, owing to the heavy state of the roads, the weather, and the difficulty of finding the way. Our party were the first to arrive at the seaside resort, and the remainder of the day was spent anxiously awaiting other arrivals, and learning of the progress of the wayfarers; but it was not till next morning about 11.30 that Colonel Crompton, on his long-cramped and high-g geared bicycle arrived. He was the first arrival. Next came Mr. Astell and friends, and from him we learnt that in journeying down from town he had passed numbers of cars, but they were *en panne*. We also ascertained by telephone that a very



CROMER—FROM THE EAST CLIFF.

during the previous week by the Club Secretary. Having had bad luck this year with our pneumatic tyres we thought to make certain of an uninterrupted journey by having a complete set of new tyres placed upon our recently-acquired 12 h.p. M.M.C. car. Everything being in working order the journey to Newmarket, seventy-two miles, where we made our first stoppage, was absolutely without incident, and certainly delightful, the time taken being three hours twelve minutes. From Newmarket we went on to Thetford, a distance of nineteen miles. For the first few miles the roads were very rough, but the journey was accomplished in less than forty minutes. At Thetford a stoppage was made for luncheon at the Bell Hotel. Thence to Norwich is a run of twenty-nine miles, over a beautiful road, and in the ancient city we took tea at the famous "Maid's Head." The tram-lines proved a great source of trouble, especially as the roads were very greasy, and we have since learned that an 8-h.p. Decauville was there smashed up. Mr. Campbell Swinton, who travelled on his motor-bicycle the next day, had a bad side-slip at Norwich, and was seen in the mud, owing to the bad state of the granite setts. Leaving Norwich *en route* for Yarmouth, where we intended staying the night, we met Mr. Estcourt, and stopped a few minutes to chat, regretfully having to decline his pressing invitation to visit him at his new and charming place at Wroxham. Then continuing our way we arrived at the Royal Hotel, a most comfortable hostelry, at 5.15 p.m., having travelled a distance of 145 miles since morning.

On Thursday the weather, unfortunately, broke up, and our start for Cromer was delayed by a pouring rain. The result was that we only reached a place called Stalham in time for lunch. It must be confessed, however, that time was spent in viewing Ormesby and other Broad's; a long stop was also made at Potter Heigham. Eventually Cromer was duly reached about 4.30 p.m., the cross-

large party had stayed at Newmarket the previous night. After Mr. Astell came Mr. S. F. Edge and his party, then the Du Cros's, Mr. Kenealy, Captain Locock, and others. Captain Locock informed us that he had ridden down to Newmarket, non-stop, in three hours three minutes. Mr. Edge, however, had done even better than this, having covered the distance in 2 hours 20 minutes. After these the arrivals came fast: Mr. R. E. Phillips, on a 7-h.p. Panhard, and Mr. Isidore Jacobs arrived practically together, while Mr. Burford on a 16-h.p. Milnes, Mr. de Winton, Mr. Stocks, Mr. Freeston, Mr. Bidlake—the latter having been delayed by a puncture—and others came in rapid succession. Mr. C. Johnson being on Mr. Hargreave's car.

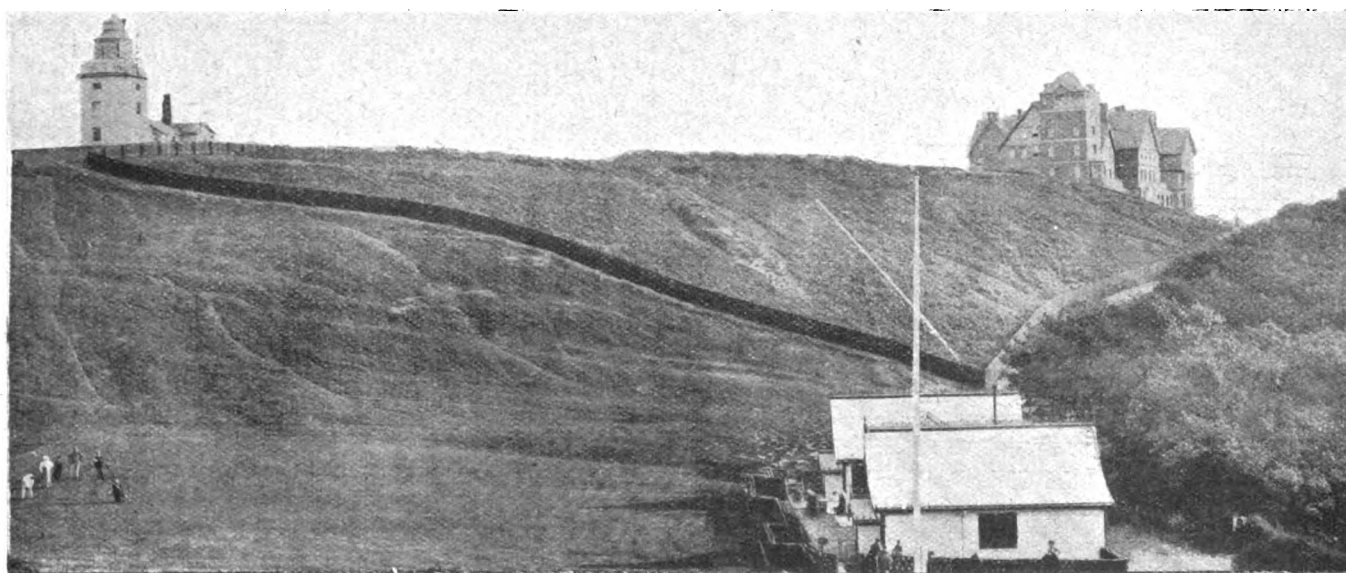
On Saturday members and friends proceeded to Gunton Park, and, although at times the weather looked doubtful, the rain fortunately held off, and an enjoyable time in the open air was spent. We had on board Earl Russell and Mr. Napier as extra passengers, and there was a fine show of automobiles at the entrance gates to Lord Suffield's fine park. The first car to line up was Mr. Gorham's—a 4½-h.p. De Dion; then came Mr. R. L. Elliott with his four-cylindered 14-h.p. Dechamps, followed by, in the order given, the following:—10-h.p. Wolseley, fitted with a racing body, belonging to Captain Locock; Mr. Freeston on his New Orleans car; Mr. Brooke, sen., and Mr. M. Brooke, of Lowestoft, on their new 9-h.p. car; a 7-h.p. Panhard; Captain Locock's second Wolseley 10-h.p. car; Mr. De Wilton's 6-h.p. Panhard; Madame Barreto's 12-h.p. M.M.C. car; a four-cylindered Panhard belonging to Mr. G. Ducros; and another belonging to Mr. H. Ducros, jun.; Mr. S. F. Edge's 16-h.p. Napier; a Locomobile, with Mr. R. Cross, of Worstead, Norfolk; Mr. Estcourt on his Daimler; Mr. Rogers on his Daimler; Mr. Griffiths on a Humber car; a New Orleans; Mr. Grahame

White on his 10-h.p. Mors; Mr. Beavor on 6-h.p. Daimler; Mr. and Mrs. C. Cordingley and party on 12-h.p. M.M.C.; Mr. F. T. Bidlake on 12-h.p. Gladiator; Mr. Burford on 16-h.p. Milnes car; Mr. Astell on four-cylindered New Orleans; Mr. Midgley on 16-h.p. Napier; Mr. Brown, of Luton, on 16-h.p. Napier; Mr. Schlentheim on 12-h.p. M.M.C.; Mr. Kenyon on 7-h.p. Panhard; Mr. Hargreaves on 22-h.p. Daimler; Mr. Kenealy on 10-h.p. Delahaye; Dr. Hutchinson on 20-h.p. Benz; Mr. Hardy on 6-h.p. Delahaye; Mr. G. R. Smith on a Progress; two quadricycles; a De Dion voiturette; several motor-bicycles; Mr. Hutton on 10-h.p. Panhard, with unfinished racing body; Mr. Roger Wallace, K.C., 12-h.p. M.M.C.; Mr. Edge on 50-h.p. Napier; Mr. Mulliner on 6-h.p. Daimler; several steam cars; Mr. Bird on 24-h.p. Mors; Mr. Stocks on 8-h.p. De Dion; Mr. Holder on 10-h.p. Lanchester; Mr. Manville on 22-h.p. Daimler; Mr. Williamson, of Southport, on 22-h.p. Daimler; and Mr. Dangerfield on 6-h.p. M.M.C. voiturette. Mr. G. Johnson was on Mr. Hargreaves' car.

All the above cars not only had their own full complement of passengers, but many were overcrowded, so that there must have been at least 200 members and friends present

of the cars into a tour in miniature, with speed changes and care as to side-slip included. Very few of the competing vehicles went right through on their fourth speed, and one or two never got on to it at all. Naturally the times were quite unrepresentative accordingly, and, curiously enough, the further regrettable feature has to be chronicled that only the kilometre times are given in the official results, as owing to the failure of the electric timing or some other cause the figures for the complete course of a mile are not available. The course in both directions was partly up hill, and contained bends that necessitated cars travelling at high speeds to slow down to get round.

Gunton Park lies some five or six miles away from Cromer, and the numerous cars of competitors and non-competitors left the Royal Links Hotel and other quarters between ten and eleven o'clock. On entering the demesne at a lodge gate they found themselves on a narrow road leading through a wood to a large gateway, through which no car was allowed to pass until 11.30; consequently the cars extended backwards in single file for some considerable distance. There was much stripping of *tonneaus* and other impedimenta during the period of waiting, several horse-drawn vehicles being driven by meanwhile, containing keenly-



THE LINKS HOTEL, CROMER—THE EASTER HEADQUARTERS OF THE A.C.G.B.I.

Amongst the visitors were Princess Victoria and a party of friends, who for several hours watched with evident interest the movements of the cars. Her Royal Highness took particular notice of the trials, and is apparently likely to become as keen a motorist as the King himself. The other distinguished people present included Lord Battersea, Victoria, Countess of Yarborough, Earl and Countess of Yarborough, Earl of Orford, Sir Richard and Lady Musgrave, and the Hon. Mrs. Glyn.

THE SPEED TRIALS AT GUNTON PARK.

Various circumstances combined to make the speed trials in Lord Suffield's park less satisfactory than had been confidently hoped. The course itself, in the first place, proved to be a less desirable one than had been reported, and even under the best of conditions it is decidedly inferior to that of Welbeck. The latter is bordered with hedge-rows on both sides, and therefore to a large extent is sheltered from the wind; it is also nearly straight, and its gradients are all but imperceptible. At Gunton, on the other hand, the drive has no protective fringe; it undulates considerably, and is more or less serpentine in its bends.

Added to these normal factors there were the adventitious ones on Saturday of a high wind and an exceedingly clinging surface, owing to rain, and so far from the speed trials being a fast dash on the top gear, they resolved themselves in the case of most

interested passengers who were presumably friends of the owner of the estate, Lord Suffield. Eventually the word was given, and the cars filed into the park in procession, those of competitors being driven to the far end of the course, and the others on to the grass at various points of view. The first trial was then made from the far end, with flying start, at intervals approximately of three minutes, though more margin was allowed when a slow car was followed by a fast one. At the first flag the time was taken by Mr. F. T. Bidlake; Mr. H. J. Swindley was at the second flag, a kilometre away, and Mr. R. E. Phillips timed at the finish of the mile. An electrical timing apparatus was also used, the cars crossing a wire and thus ringing a bell. Four trials were made in all, or two each way.

Several owners of non-speedy cars participated in the trials, but not so many as might have been expected, doubtless through fear of the discrepancy between the racing and the ordinary small-powered types being too marked. Fate was none too kind, however, to the slow cars. No one who knows what a 7-h.p. Panhard can do will regard the performance of Mr. Granville Kenyon's as typical; Mr. E. de Wilton's 6-h.p. Panhard is also capable of better things than the figures indicate, while Mr. C. L. Freeston's 7-h.p. New Orleans shed a locking ring on the commutator in the middle of its trial. As regards the fast cars, the 50-h.p. Napier went by at a magnificent rate, but nothing approaching what it is capable of. The car which was best able to do itself justice was the 24-h.p. Mors, while the 10-h.p. Panhard proved itself a flier for its size.

An interesting feature of the results was the exactly similar time in which Mr. Harvey du Cros' 16-h.p. Panhard completed two of its trials, in striking contradistinction to the irregularity of most of the other cars' records. The Dechamps car suffered from ignition troubles. Each car, it may be added, was required to carry one passenger beside the driver, whether a two or four-seated vehicle.

The official results for the kilometre course are as follows:—

Name.	Car.	1st Trial.	2nd Trial.	3rd Trial.	4th Trial.
J. M. Gorham ...	4½ h.p. De Dion ...	M. S. 1 54½	M. S. 1 51½	M. S. 1 58½	M. S. 2 4
M. Brooke ...	9 h.p. Brooke ...	1 40½	1 38½	1 26½	1 32½
C. L. Freeston ...	7 h.p. New Orleans ...	1 56½	—	—	—
E. de Wilton ...	6 h.p. Panhard ...	2 28½	2 50½	2 28½	2 37½
H. du Cros, jr. ...	16 h.p. Panhard ...	1 4½	1 5½	1 8½	1 8½
R. L. Elliott ...	14 h.p. Deschamps ...	1 51	1 38½	1 32½	—
M. Grahame-White ...	10 h.p. Mors ...	1 27½	—	—	—
J. E. Hutton ...	10 h.p. Panhard ...	1 11	1 9	1 16	1 16½
H. G. Burford ...	24 h.p. Milnes ...	1 6½	1 4½	1 6½	1 8
E. Midgley ...	16 h.p. Napier ...	1 30	1 22	1 18	1 28½
Captain Locock ...	10 h.p. Wolseley ...	1 32½	1 26	1 25½	1 21½
W. D. Astell ...	14 h.p. New Orleans ...	1 19½	1 29½	1 23½	1 27½
R. W. Wallace, K.C. ...	12 h.p. M.C.C. ...	1 43½	1 35	1 26½	1 31½
R. Bird ...	24 h.p. Mors ...	0 53½	0 56½	0 56½	0 57
G. M. Kenyon ...	6 h.p. Miesse (steam) ...	1 19½	1 14½	1 16	1 6½
S. F. Edge ...	7 h.p. Panhard ...	2 32½	—	—	—
L. Schlentheim ...	50 h.p. Napier ...	53½	0 45½	0 50½	0 54
J. A. Holder ...	12 h.p. M.M.C. ...	—	2 15	1 56½	—
	10 h.p. Lanchester ...	—	—	1 30½	—

the owner of a Mors driving a Daimler, and *vice versa*. For ourselves, we took advantage of the invitation of Mr. Williamson, and went for a spin on his beautiful vehicle. A few miles along the road we saw the 16-h.p. Napier belonging to Mr. Brown, of Luton, firmly wedged in the hedge, the adjacent ground showing prominent evidence of a bad side slip. Mr. Brown was thrown out at the side, and his young lady friend was sent flying a considerable distance. Being a thoughtfully-inclined maiden, she carried a rug with her, and when she reached the ground, placed it upon the place where she sat. The side slip was a very bad one, having shifted the whole of the hedge and driven the earth down the other side into the field. After assisting in pushing the car out of the hedge and rendering it possible for other vehicles to pass, we motored back to Cromer to fetch Mr. Napier, who came along with Mr. Hutton on the Mors, ourselves following with Mr. Williamson. Temporary repairs were effected, and the car was got back to Cromer.

Sunday morning a great break-up of the party took place, many returning to town, others going in other directions. As far as we were concerned, our party, Mr. and Mrs. Roger Wallace, Mr. Williamson, Mr. Campbell Swinton, on his motor-bicycle, Colonel Crompton, and others, made its way to Yarmouth, where an interval for luncheon was enjoyed. Afterwards we all proceeded to the Royal Hotel, making a halt for the day, the distance for the day being only forty-three miles.

On Monday the weather was fine and inviting and, with a party reduced in numbers we made for Aldeburgh, where a stay for luncheon was made, Bury St. Edmunds being the resting-place for the night. The latter portion of the trip was most interesting from the fact that Mr. Rochester and Mr. Cordingley both had 12-h.p. M.M.C. cars, which, being fairly evenly matched, kept close company for several miles.

A late start for town was made on Tuesday after a tedious process of being photographed. The first halting-place was



SNAPSHOTS ON THE ROAD TO GUNTON PARK.

The appended table shows the average speed of the various competitors, in miles per hour, of the four trials over the kilometre course:—

M.P.H.	M.P.H.
S. F. Edge ... 44.02	M. Grahame-White ... 25.96
R. Bird ... 41.18	Captain Locock ... 25.90
H. G. Burford ... 33.80	R. W. Wallace ... 23.84
H. du Cros, jr. ... 33.51	M. Brooke ... 23.74
J. E. Hutton ... 30.37	R. L. Elliott ... 22.09
Miesse ... 30.25	J. M. Gorham ... 19.27
E. Midgley ... 26.23	L. Schlentheim ... 17.51
W. D. Astell ... 26.09	E. de Wilton ... 14.30

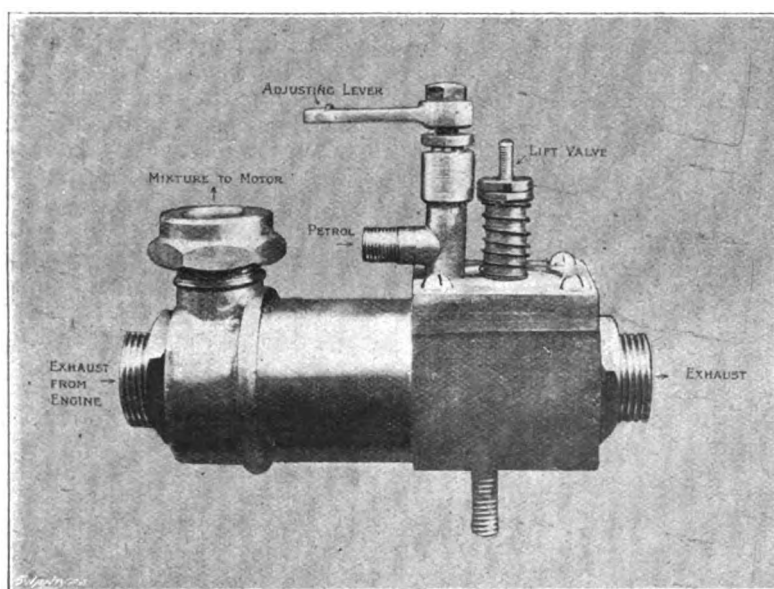
After the trials were over a number of motorists went for rides along the coast. It was the order for owners and passengers to get on each other's cars, and it was no uncommon sight to see

Riston, where our still further reduced party had luncheon at a most comfortable little inn, to wit, the Crown. We here said good-bye to Mr. and Mrs. Wallace, and, after some repairs had been effected to the car, a start was made for home at half-past four. Rain was then descending heavily, but very rapid progress was made until Bell Bar was reached, when the inevitable puncture occurred, causing a further delay of nearly an hour. Home was ultimately reached without further incident, and nothing remains but the memory of a most pleasant Eastertide.

M. MICHELIN predicts that in next year's French cars the wheels will be larger and that the axles will be made straight instead of being curved downward in their middle section.

THE JOHNSTON CARBURETTOR.

THE Johnston is the name given to a new carburettor for petroleum-spirit motors which has lately been put on the market by the Creek Street Engineering Company, Deptford, S.E. The device, of which an illustration is given herewith, consists simply of a lift valve, open to the atmosphere on the top side, which is opened by the suction of the motor, and closed by a spiral spring; the valve has a broad face, to the centre of which the petrol supply is brought, so that, when the valve is closed, both petrol and air are shut off simultaneously. Beneath the valve a tube is fitted, running from end to end of the carburettor, and through which the whole or part of the exhaust gases from the engine are carried. In the annular space between this tube and the casing baffles are fitted, which cause the air and petrol to pass round the tube, which is kept hot by the exhaust gases. A wire gauze diaphragm is also fitted to further intermix the petrol and air. In action, when the engine takes an inhaust stroke, the partial vacuum in the carburettor sucks open the lift valve, and as its lift is small in proportion to its diameter, a strong inrush of air takes place between the valve and its seating. Into this current of air the petrol is sucked and sprayed over the hot tube, which effectually vapourises any



heavy particles which may fall upon it, and the whole then passes to the engine as an intimate mixture of gas and air. The petrol is fed to the valve by gravity, but as the feed depends more on the suction than on the force of gravity, the supply is claimed to be all that can be desired as regards steadiness. The apparatus is of simple construction, and, after being once set to suit the particular motor to which it is applied, requires no other regulation than that of moving the petrol cock.

THE King commenced his holiday trip by visiting several places in the Isle of Wight on his motor-car.

IN driving through Watford recently, Sir Henry Thompson's motor-car was stopped in a distance of nine or ten inches, a testimony to the reliability of automobiles which County Councillors and others should note.

THE Petter portable petroleum engine, to which the name of the Tractor has been given, has been brought out by Messrs. G. B. Petter & Sons, Ltd., Nautilus Works, Yeovil. Although it is a self-propelled vehicle, it is also available for stationary purposes. The Tractor is provided with compensating gear, and drives from the rear wheels. Two speeds and a reverse are fitted. It will probably be found useful on estates and large farms.

EFFICIENCY, POWER, AND CYLINDER TEMPERATURE.

BY CAPT. C. C. LONGRIDGE, M.I.M.E.

BOTH efficiency and power are directly related to cylinder temperature, as partial effects to cause. The nature of the inter-action will be readily understood if the terms are explained. Technically defined, efficiency is the ratio of the heat converted into work to the total heat imparted to the engine. The total heat-units accounted for by the indicator diagram, or by the brake results, show what has been turned into work; while the difference between these and the total heat-units given in the form of fuel state the losses in that conversion. The more considerable source of heat-loss arises from the cooling of the explosion gases by contact with the cylinder walls and piston. Hence the higher the temperature of these latter the lower their cooling effect. High cylinder temperature, therefore, conduces to efficiency. There is naturally a limit, but it is not here necessary to enquire why and when the limit of temperature comes into play. For practical purposes it is sufficient that, within the range of permissible temperatures, the hotter the cylinder the better the efficiency. In the case of power different conditions are required. Power is the conversion of heat into work. The conception stops here. It does not include heat-loss or heat-cost. How many thermal units are wasted, or how much fuel is expended, in producing this result, is beyond the strict range of the term. Consideration is confined solely to the production of energy. In the case of the internal combustion engine it is evident that, other conditions being alike, the more charge is included in a cylinder of given dimensions the more power will be produced by the explosion. Thus power depends on the weight of the charge. Now one charge having half the absolute temperature of another will have double its weight, and its explosion will generate proportionately greater power. Low charge temperature, therefore, increases power. But it is largely by contact with the hot cylinder walls and piston that the incoming charge is heated, so that the lower the temperature of the former the better the condition for power production. In connection with cylinder temperature Professor Hele-Shaw, at the International Engineering Congress, at Glasgow, presented a summary of power tests, confirmatory of the above. The series of experiments showed that in a motor with cylinder cooling water ranging from 77° F. to 250° F. there was with increase of temperature a gradual decrease of power, extending from 4.775 b.h.p. to 3.94 b.h.p. It cannot be said that these results brought to light any new fact hitherto unknown; nor, from the omission to note the engine-speed or the quantity of water circulated, have the figures more than a relative character. But they are an interesting illustration of the value of low-cylinder temperature for power production. Under the condition of limited water supply, therefore, the automobilist who has power rather than efficiency in view may do well to use the rapid and effective forced, rather than the slow and less efficient natural, circulation of water for cylinder cooling. The somewhat antagonistic requirements of efficiency and power, under the aspect here considered, would best be met by compressing in a cool chamber, transferring, fixing, and expanding in a hot one. On this I may have something to say on another occasion.

THE suggestion has been made that the Posting Proprietors' Association in the Dukeries should consider the adoption of motor-vehicles in preference to railing against automobiles.

IN connection with the Nice-Abbazia race, the Continental Caoutchouc and Guttapercha Company is offering a series of prizes for cars fitted with Continental tyres. For cars of 650 to 1,000 kilos, six prizes varying from 2,500 to 200 francs are offered; for cars of 400 to 650 kilos, eight prizes ranging from 2,000 to 100 francs; for vehicles of 250 to 400 kilos, three — 1,000, 750 and 500 francs; and for those below 250 kilos three other prizes of similar value.

THE DELAHAYE LIGHT CAR.

WHILE still continuing to build cars on their old system, with the engine at the rear, Messrs. Delahaye and Co., of Rue du Banquier, Paris, have lately brought out a light car with the engine located under a bonnet in the fore part of the frame, of which we are this week able to publish illustrations. In the new vehicle the motor and its accessories on the one hand, and the transmission on the other, are divided into two

shaft. The belt-shipping arrangement is so devised as to bring the belt on to the loose pulley from either the inner or outer driving pulley. A hand lever at the side of the car actuates band brakes on drums attached to the hubs of each of the rear road wheels. The frame is built low, and as the wheel base is long—5½ ft.—a high speed may be attained without danger. The road wheels are of the artillery type, all being 30 in. in diameter and shod with pneumatic tires. Any type of body, such as the tonneau, as illustrated, phaeton, charette, etc., may be fitted.

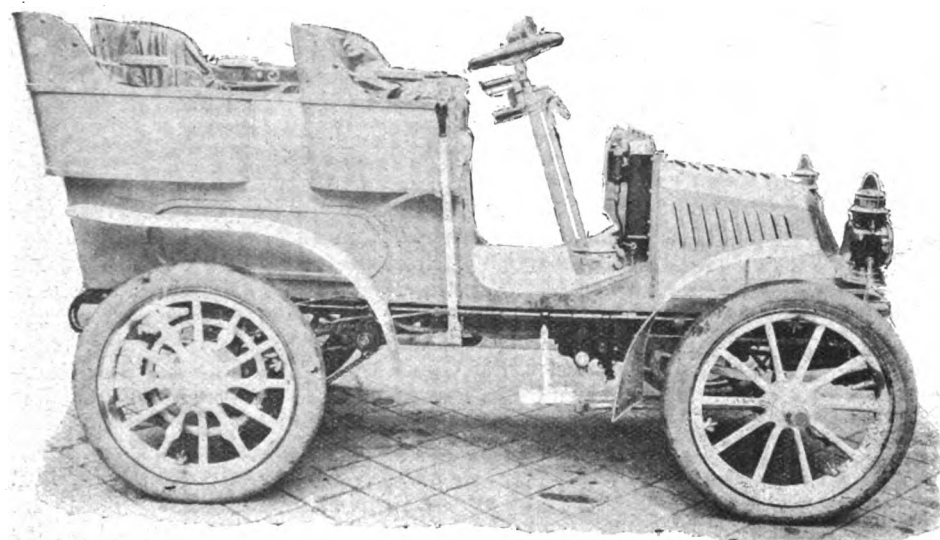


FIG. 1.—THE DELAHAYE LIGHT CAR.

distinct groups, one at the front end, and one about the centre of the car. As will be seen from Fig. 2 the frame is of tubular construction rendered extremely rigid by a series of connecting stays. As regards the engine, the horizontal type has been retained. The cylinder has a diameter of 110 mm. by 140 mm. stroke, and develops 6 h.p. The water circulation is maintained by a gear-driven pump and radiators. The ignition is, of course, electrical, and a novel feature is that, combined with the spark-retarding device, is an arrangement for opening the compression cock.

Coming now to the transmission mechanism, it may be stated here that three speeds forward and a reverse motion are provided. The engine shaft is equipped with a wide pulley, which is connected with either of three pulleys on the differential counter-shaft by a single belt. The outer of the three pulleys is keyed on its shaft, and when the belt is shipped on to it the high speed is obtained. The inner pulley runs loose on the shaft, so that when the belt is on it the engine is thrown out of connection with the transmission mechanism. For the first and second speeds, the belt is moved over on to the inner pulley; the latter is carried on a sleeve on which is mounted a spur-wheel, gearing with a pinion on a short forward countershaft. On the latter are also carried a couple of pinions, either of which may be made to mesh with corresponding spur wheels on the differential shaft, from which the power is conveyed to the rear road wheels by the usual duplicate set of chains and chain wheels. The change speed gear is enclosed in a dust-proof oil-containing case of aluminium. Steering is controlled by an inclined hand wheel, on the pillar of which are mounted the levers controlling the motor and variable gear. The driver has three pedals under his control—one in connection with a throttle on the inlet pipe, one for shipping the belt on to the loose pulley, and one for shipping the belt and applying a powerful band brake on the differential

THE Marquis of Anglesey has been elected a member of the Automobile Club of Ireland, which has decided to open a garage for the use of members. The site selected is Dawson Lane, which is one of the most central position in Dublin.

MR. PERCY W. NORTHEY, of the Electric Motive Power Company, Limited, Balham, S.W., is at present at work on an improved type of electrical motor-car which promises considerable advance in several directions.

A CHILD has been knocked down and run over by the new motor-omnibus plying in London. Great Church Lane, Hammersmith (where the accident occurred) is a well-known narrow thoroughfare, the scene of frequent accidents. So frequently do accidents occur at this place that only recently the local Council decided to spend several thousands of pounds in widening the road.

A FIVE miles motor-cycle handicap was included in the programme of the Brighton Cycling Club's race meeting at Preston Park track on Monday. Twelve riders entered, and eight ran in two heats. The first heat lay between W. J. Westfield, motor-bicycle, scratch; J. J. Leonard, motor-bicycle, 320 yards; E. B. Blaker, motor-tricycle, 2 laps; J. Best, motor-bicycle, 2 laps 600 yards; and F. W. Frith, motor-bicycle, 2 laps. Leonard won in 11 minutes 30 seconds, Best being second and Blaker third. In the second test A. Rivett, on a motor-bicycle, was the only competitor to finish, his time being 9 minutes 26 seconds. In the

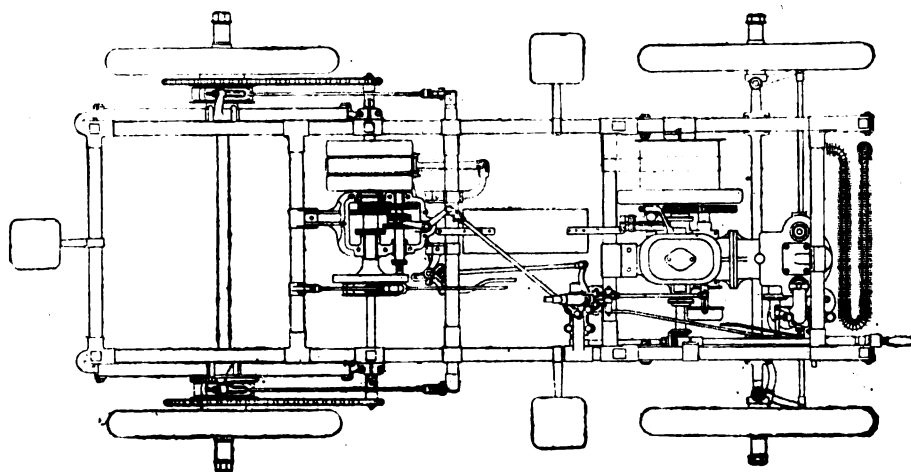
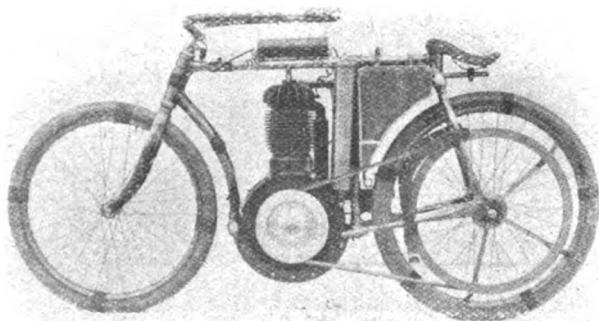


FIG. 2.—PLAN OF DELAHAYE LIGHT CAR.

final. Best, Rivett, Blaker, and Leonard competed. Best's machine gave out after a couple of laps had been completed. The race resolved itself into a contest between Rivett and Blaker, but the former was able to improve the lead already held, and won by a lap and a quarter, Leonard finishing third, three-quarters of a lap behind. Time, 9 minutes 1½ seconds.

A 7-H.P. MOTOR-BICYCLE.

ALREADY motor-bicycles fitted with very high-powered motors are making their appearance for racing purposes. Our illustration depicts a machine which has lately been completed by Mr. William Driver, of Lehigh Avenue, Philadelphia, U.S.A. As will be seen, the frame of the machine is of special construction, the position of the saddle and the enormously long handle bars being striking features. The motor is of the air-cooled variety and is said to develop 7.h.p. at a speed of 1,200 revolutions per minute. It drives the rear wheel by means of a flat belt one inch wide by $\frac{1}{2}$ inch in thickness. No pedals are pro-



vided, and apparently the motor has to be started by running the machine along the road, the rider then having to vault into the saddle.

AUTOMOBILE STATIONS.

THE storage, care and repair of automobiles has developed into a regular business in France and the United States, and is opening up in this country. The majority of motor-vehicle owners who live in the closely-built-up parts of towns have not the facilities or the time to devote to the proper care of their machines, and as a consequence "automobile stations" are multiplying rapidly. One great disadvantage in America, however, is that these stations are usually located in the business parts of the city, at a distance from the residences of the owners of the vehicles, thus necessitating a long ride in the train or the tram-car before a trip can be undertaken.

It was this state of affairs which induced the Century Wheelman, the premier cycling organisation of Philadelphia, if not of the United States, to transform a portion of its immense wheel-room into an automobile station. This has resulted not only in a considerable increase in annual receipts, but in a large accession of uptown automobilists, who embraced the opportunity of securing storage and repair facilities for their machines much nearer home and at less expense than similar conveniences could be had otherwise. This mutual benefit will doubtless result in similar experiments elsewhere, the larger bicycle clubs throughout the country, many of which have been in financial straits since the decline of cycling as a sport, being peculiarly adapted to the purpose, having in the majority of cases large wheel-rooms which are now practically unused, and, besides, possessing well-furnished club houses with locker-rooms and the bath-room facilities so necessary after a long trip with its consequent grime and dust.

The example set by the Century Wheelman will doubtless be followed by many other cycling organisations, not only in America, but also in Europe. Indeed, it is in the nature of things that organisations and individuals interested in good roads should work together. Why should they not live together?

MESSRS. VAUX AND SONS, of Sunderland, are employing motor-wagons in their business.

GLASGOW TO LONDON.

CONDITIONS OF THE FORTHCOMING TRIAL.

THE Scottish Automobile Club (Western Section) is organising a non-stop trial from Glasgow to London to take place on the 16th and 17th inst. It will be conducted under the rules of the A.C.G.B.I., the object being to demonstrate that, with reasonable rest, Glasgow and London are within two days' car runs of one another. It will be a trial of reliability. No advantage, from the point of view of marks, will be obtained by a vehicle which travels at more than twelve miles an hour. Marks will be deducted for all stops other than stops for traffic. The trial is open to motor-vehicles made in the United Kingdom and abroad, and to all persons registered at the Automobile Club of Great Britain and Ireland; but the number of cars of any particular type and horse power, entered by a manufacturer or agent, is limited to two.

The trial will consist of two non-stop runs—Glasgow to York on April 16th, and York to London on April 17th. The route is as follows:—Glasgow, Hamilton, Lanark, Biggar, Peebles, 54½ miles; Galashiels, Melrose, Kelso, Coldstream, Berwick, 114 miles; Alnwick, Morpeth, Newcastle, 177½ miles; Chester-le-Street, Durham, 192 miles; Darlington, Northallerton, 226 miles; Thirsk, York, 258 miles. Tadcaster, Ferrybridge, Wentbridge, Doncaster, Bawtry, Tuxford, Newark, 343 miles; Stamford, Norman's Cross, Huntingdon, St. Neot's, Hitchin, London, 468 miles.

The entry fee is £5 5s., and entries must be lodged with Mr. Robert J. Smith, C.A., 59, St. Vincent Street, Glasgow, hon. secretary, not later than the 10th inst. There will be a maximum number of marks for the run, and one mark will be deducted for every minute during which the vehicle is at rest from the time of starting to the conclusion of the run, except for:—Compulsory stop at York; traffic; accidental detours. There will also be deducted, in addition, one mark for every minute in excess of the official maximum time for the run, the time occupied by all stops having first been added. The official maximum time will be the time which would be occupied by a vehicle in traversing the trial route at a maximum legal speed plus the extra time allowed for towns and villages. Observers will insist on eight miles per hour speed in these places. For the run on April 16th, Glasgow to York, 258 miles, the maximum time allowed is 22 hrs. 50 mins.; and York to London on 17th, 210 miles, 18 hrs. 20 mins. There will be a minimum time for various stages in the journey which will be intimated to drivers and observers before starting. Arrival at the end of a stage in advance of the time allowed will involve immediate disqualification of the vehicle.

Certificates will state the total number of marks, the number allowed, and, separately, the deductions for (1) stops, and for (2) tyre troubles; also the motive power, b.h.p., as stated by the manufacturer, number of passengers carried, and nature of tyres. Vehicles will start from Glasgow Cross, on April 16th, before 7 a.m., and from a point in York, on April 17th, before 9 a.m. On arrival at York time will be taken and the cars will be stored until the following morning. Time in London will be taken at the Automobile Club.

Before the beginning of the second day's run, a vehicle will be allowed half-an-hour for replenishing fuel, lubricating, and adjustment. The number of persons engaged on replenishing, lubrication, and adjustment is limited to two persons per vehicle. One mark will be deducted for every minute occupied in replenishing fuel, oiling, lubricating, or adjustment in excess of the allowance of thirty minutes. If a part be replaced the driver must inform the Club secretary in writing, under pain of disqualification.

The Committee reserve power, in the event of their considering the number of entries insufficient, by giving notice and return of fees to entrants, not later than noon on April 11th, to cancel the trial.

EFFORTS are being made to induce the Indian Government to modify the present regulations concerning petroleum spirit.

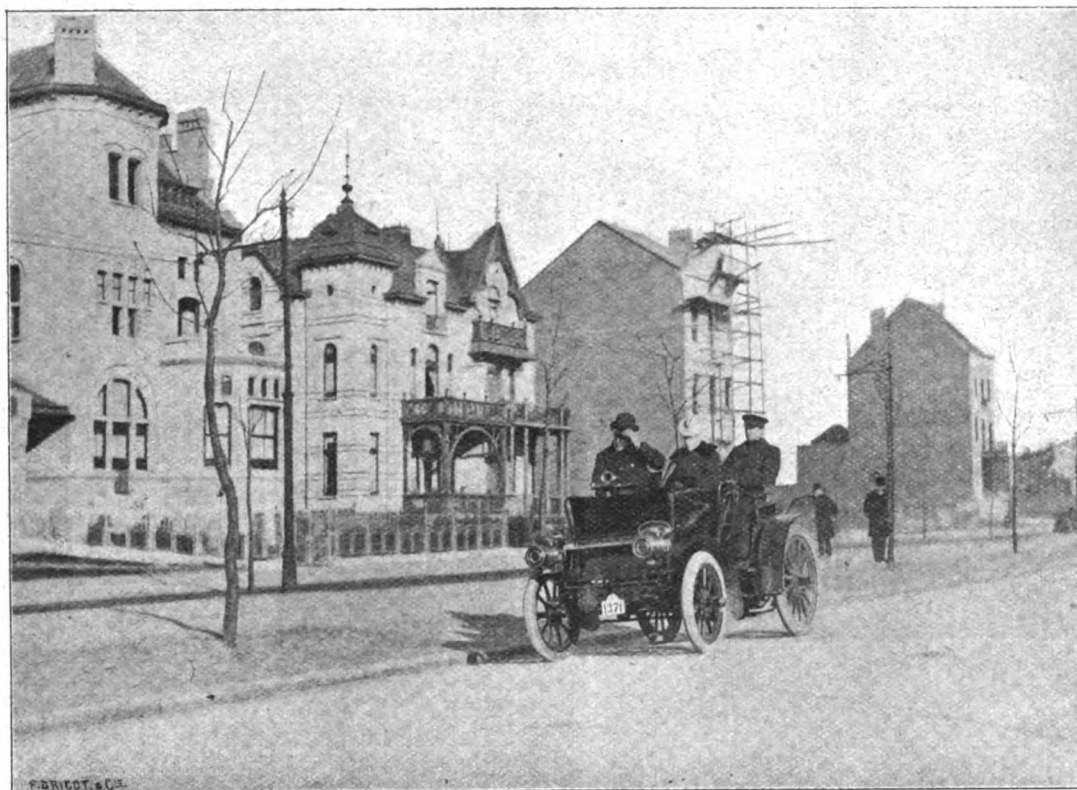
CONTINENTAL NOTES.

By "AUTOMAN."

UNDER the patronage of the A.C.F. the Association General Automobile has been formed with the object of helping the A.C.F. to encourage the progress of the automobile industry. The temporary offices are situated at 46, Avenue de la Grande Armée, Paris. There are to be five classes of members, namely—1, high patrons; 2, honorary members; 3, life members; 4, founder members; 5, ordinary members. The subscription for ordinary members will be 20 francs per annum, but members of the Touring Club of France, Chambre Syndicale de l'Automobile, Chambre Syndicale du Cycle, etc., will only pay 15 francs per annum, whilst members of the A.C.F. and the affiliated clubs pay only 10 francs per annum. Life members pay 250 francs, and honorary members and high patrons nothing. Ordinary members must be proposed and seconded and balloted for, but members of the A.C.F. and affiliated clubs are

which is worrying all of those who are interested in the self-propelled vehicle. The new inventor is M. Lacroix, and he has made an inner tube which is itself covered with compressed rubber and supporting canvas in such a manner that it is almost impervious to nails and sharp articles; and not only that, but he claims that even should a sharp object pierce the inner tube no air will escape, as the compressed rubber will close round the object, which can even be withdrawn with impunity. Another advantage claimed by M. Lacroix is that the inner tube may be blown up to any pressure without possibility of exploding. Trials at the offices of the *Velo* seem to have demonstrated the practicability of the invention.

I AM sorry to say that I cannot quite agree with the opinion which Mr. S. F. Edge expresses in his letter in the last issue of the *Journal* on the subject of "Races on the Continent." It is principally with the foundation on which he bases his argument that I disagree with him, for I cannot see any indication of the



PRINCE AND PRINCESS ALBERT OF BELGIUM OFF FOR A MOTOR-CAR TRIP NEAR BRUSSELS.

[La Belgique Automobile.

admitted without such formalities—just on payment of the subscription. Ladies are eligible for membership if proposed by members of their families.

AUTOMOBILISTS received a shock the other day on seeing a paragraph in the *New York Herald* which gave out that the Paris-Vienna race was to be abandoned on account of the refusal of the Bavarian authorities to allow the cars to pass over their territory. I am glad to say, however, that the report is a canard. The French Chamber is on the verge of a general election, and has, as I write, only a few more days to sit. Therefore many important decisions are left in suspense. There is, however, every probability that a little later on official sanction will be given for the Paris-Vienna race, so far as concerns French soil.

A LEADING article in the *Velo* calls the attention of chauffeurs to the long-looked-for non-puncturable pneumatic tyre. There is no doubt that if such an article could be or has been discovered it would give the trade an enormous impetus and solve a difficulty

racing car being further removed from the ordinary car. In fact, the contrary is the case. Up to 1900 the racing car of the year was the touring model for the following year, as, for instance, Panhard and Levassor's Paris-Amsterdam and Paris-Bordeaux models. In 1901 it is true that Panhard, Mors, and Napier made high-powered, over-weighted cars which are now obsolete; but, on the other hand, the light Panhard and the Renault became standard carriages, and the limit of weight adopted by the A.C.F. put an end to the divergence which might have arisen between the racing car and the touring car, and turned the attention of manufacturers towards the light car, which is not only the racing car of this year, but which is taking the place of the ordinary touring car, thus showing that with the exception of some cars last year the racing models and the ordinary models are following precisely the same lines.

THERE were thirty-one starters in the caravan from Paris to Nice on Monday afternoon last. The tour is being organised by the *Auto-Velo* in connection with the Nice fortnight. The

tourists collected in the Place de la Concorde in front of the A.C.F. The weather was very unfavourable, rain pouring and muddy roads, when, at a few minutes past noon, the first car led off, driven by M. Georges Prade, but later in the afternoon the rain ceased, and the journey to Sens was accomplished successfully. There were no Englishmen in the party. Sir David Salomons, who had entered, sent a messenger to say that he did not intend to start.

MESSRS. W. K. VANDERBILT, JUN., and D. W. Bishop have been touring in the Department of the Var, and one day last week they were detained at Luc for driving their automobiles at excessive speed. It was only after being kept for some hours at the police station that they were allowed to continue their way.



THE STATUARY PRESENTED TO THE MARQUIS DE DION.
(See page 62 of last issue.)

SOME two or three years back a concern, known as "La Poste Electrique Internationale," registered in Belgium with a capital of £320,000, was introduced to the notice of the French public with a great flourish of trumpets. Sumptuous offices were taken in Paris, where the promoter of the undertaking, M. Brémont de Verragaude, installed himself in princely style and began to gather in the money which a naive and simple-minded public remitted by every post in exchange for debentures. The company has long since gone to pieces, but last week, in the Eleventh Correctional Court, the Comte de Morny, Brémont de Verragaude, and other directors and persons connected with the concern were arraigned on charges arising out of the promotion and management of the affair. The object for which the company was formed, as stated in the prospectus, was to establish on all the main roads of Europe relay stations, or "post houses," for electric motor-cars. These post houses were to be at regular distances of twenty or thirty miles, and were to be fitted with all modern conveniences for

recharging batteries, etc. An experienced mechanic was to be in constant attendance, and also a doctor at each post house to bind up any wounds caused by accidents. Even bedrooms were to be provided in case the passing *chauffeur* desired to take a rest. In grandiloquent terms the prospectus stated that, thanks to the new company, the great highways of Europe were to form a vast "electrodrome," over which hundreds of thousands of electric motor-cars were to skim like birds—stopping, of course, on the way, for recharging, refreshment and repairs at the company's electric post houses. The profits were to be enormous. A few months after the debentures had been subscribed, the Comte de Morny resigned his position as director, and lodged a formal complaint against M. de Verragaude. The company went into liquidation, and as the result of numerous complaints a Judge of Instruction was appointed to inquire into the business. Verragaude, the promoter, was arrested, but afterwards admitted to bail. He complained that he, as manager, had merely carried out the instructions of the president, the Comte de Morny, and consequently a warrant was issued for the Comte's arrest. The latter, however, was away travelling in Colombia, and Verragaude insinuated that the Comte had gone abroad to avoid the consequences of his acts. As soon as Comte de Morny heard of this warrant he returned to France and surrendered himself. Last week he was arraigned in company with two other defendants, Chretien and Verragaude. The latter, however, did not appear. Evidence was brought to show that two persons had been induced to pay money, and had lodged City of Paris bonds as a deposit to obtain concessions from the company to work some of its electric relays. These bonds were deposited at the Bank of France, and the company raised a 15,000 francs loan thereon. The case for the prosecution was that Verragaude misappropriated this money with the complicity of the Comte de Morny and Chretien. Morny's defence was that, although he signed the order depositing the stock at the bank, he was not aware that Verragaude intended obtaining an advance, and that he resigned as soon as he heard of it. This defence was corroborated by Chretien, with the result that the Comte was acquitted. Chretien, against whom two previous convictions were proved, was sentenced to six months, and Brémont, alias Verragaude, was fined 4,000 francs and sentenced to two years' imprisonment.

A NUMBER of "heavy-weight" motor vehicles entered in a special long distance contest arranged for conveyances of their class started on their journey from Paris to Nice on Wednesday last week. Fourteen immense cars arrived shortly before six o'clock in the barrack yard at Vincennes, where, under the supervision of the stewards of the contest, they took a stated number of passengers on board or loaded a required weight of luggage. The competing vehicles are divided into five classes, according to the weight carried or drawn. Among the vehicles now on the road are five omnibuses sent by the De Dietrich firm, two by Peugeot, one by the German Daimler Company, and a steam tractor by Turgan and Foy drawing several artillery carts. The long distance from Paris to Nice is to be covered in twelve daily stages. The military authorities are taking much interest in the competition, which is expected to be of great practical value, and three officers are following the heavy vehicles on a motor-car.

THE Thornycroft Motor Wagon Company of America has been incorporated at Trenton, N.J., with a capital of £180,000, to manufacture steam motor-wagons under the Thornycroft patents.

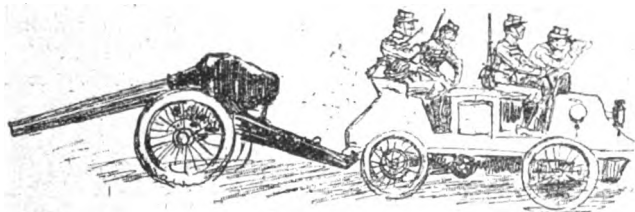
THE Buffoline Noiseless Gear Company, of Chapel Street, Levenshulme, near Manchester, have issued a circular on gears for motor-vehicles, and advocating the Buffoline noiseless gear wheels, which can mesh into any metal wheel, and do not require much lubrication. It remains to be seen, observe the makers, whether builders of automobiles will adopt departures from present custom, and will design vehicles which will enable silent wheels to gain their full advantage.

THE MOTOR-HORSE.

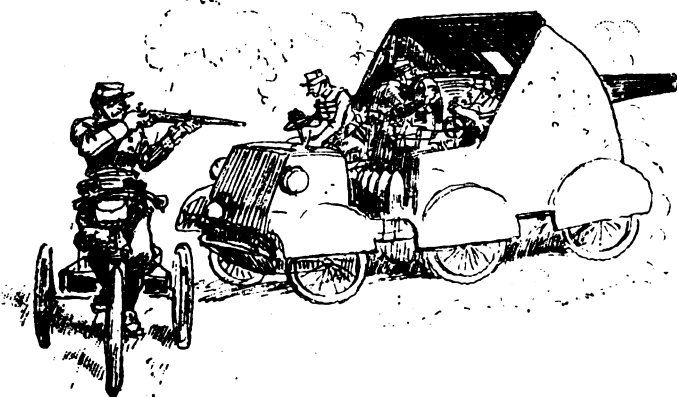
THE most noble conquest ever made by man is that of the motor-horse, his ever ready and willing comrade; his companion since the days of antiquity.



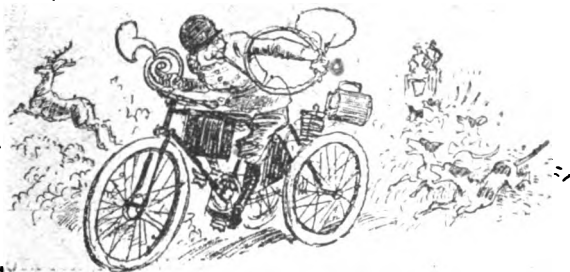
The trusty steed shares with him the fatigues and fortunes of war and the glory of battle. He rejoiceth in days of victory and becomes depressed with defeat.



As dauntless as his master, the motor-horse fears not the clash of arms; he loves it and seeks it with the same ardour

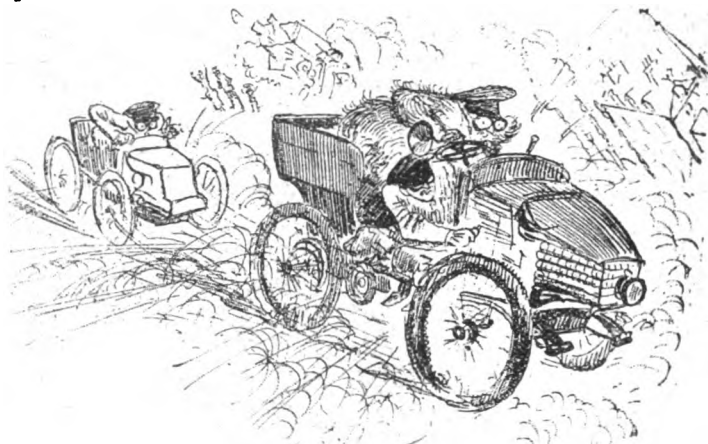


He is cool as a cucumber under fire, and unshaken by the most trying and unexpected incident of conflict.



He shares the pleasures of the chase, and adds to that of his master, who is never troubled by a thought for his mount, confident in the security which the new force has given him.

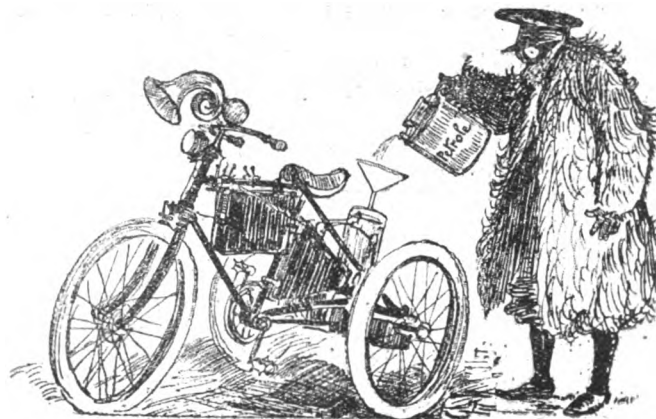
On the race-course he shines and sparkles; it is his element *par excellence*, and the whole world stands and wonders at his speed.



As docile as courageous, he is not carried away by his fire and knows how to display self-control. Evil temper never prompts him to vicious or destructive conduct.



He is always disposed to return to his stables, where he is content with the same limited quantity of food, administered



with due regard to economy rather than appetite. When not at work he conscientiously fasts, and, provided that he is kept clean, he is always ready for work, for he knows not fatigue.—*La Nature*.

THE Princess of Savoy and the Duchess of Aosta arrived by motor-car at Nice the other day.

ONE of the features of the 100 miles non-stop endurance trial to be held by the Automobile Club of America in May next is a tyre contest. The provision which makes all stops due to defects in mechanism, construction or operation count against the obtaining of a certificate from the Club, except those due to tyre troubles, must necessarily bring the latter into prominence. Particular notice will be taken of stops due to tyres, so as not to forfeit the desired certificate, and the record of these stops will constitute a tyre contest.

THE BERGMANN ROTARY MAGNETO-ELECTRIC IGNITION DEVICE.

THE question of the ignition of the explosive charge in petrol motors continues to attract considerable attention. The adoption of the Bergmann rotary magneto device by the German Daimler Company gives colour to the claim that

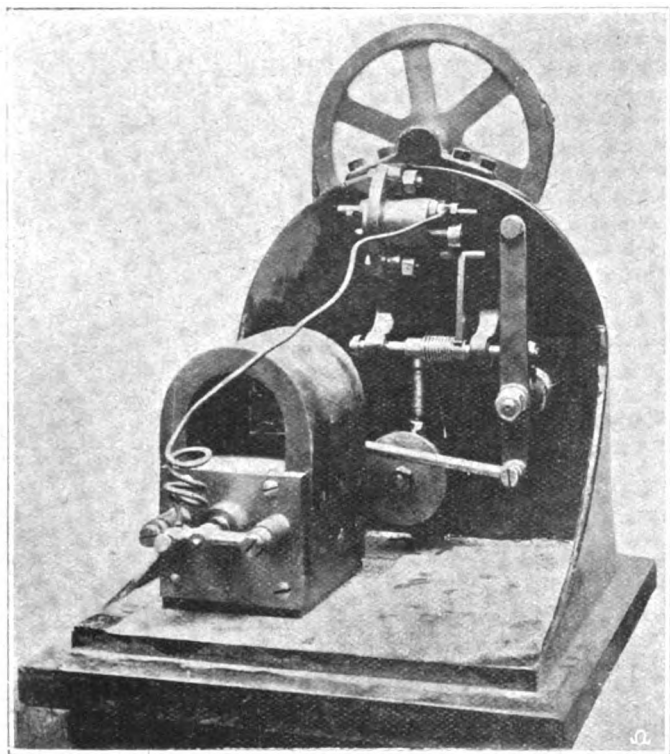


FIG. 1.—FRONT VIEW OF MODEL OF BERGMANN MAGNETO IGNITION DEVICE.

the arrangement possesses some points of improvement, so that a description, with illustrations, may not be without interest. The

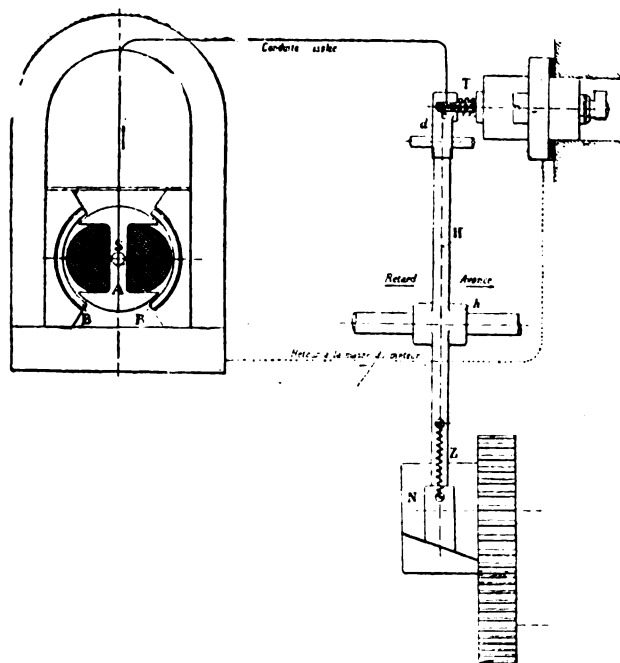


FIG. 2.—DIAGRAM OF CONNECTIONS.

Bergmann rotary magneto-electric machine produces alternating currents of low tension. The only movable part of the machine,

the armature, has a rotary motion. The magnetic field can be shifted so that no matter what be the relative position of the magneto armature and the engine piston, the spark always passes at the moment of maximum tension. The complete outfit is composed of three parts: (1) the magneto generator, (2) the interrupting mechanism, (3) the ignition plug. The magneto is always placed near the engine, which permits the armature to be given a rotary motion. The magneto may be

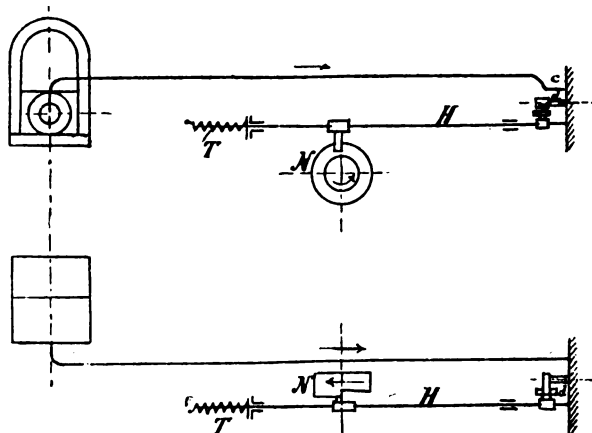


FIG. 3.—DIAGRAM OF CONNECTIONS—ELEVATION AND PLAN.

driven (1) by connecting it directly with the engine shaft this connection should be slightly flexible to allow the armature a little play; (2) by gears, and preferably by raw-hide gears, which are noiseless; (3) by chains and sprockets. The latter are especially applicable where the available space is

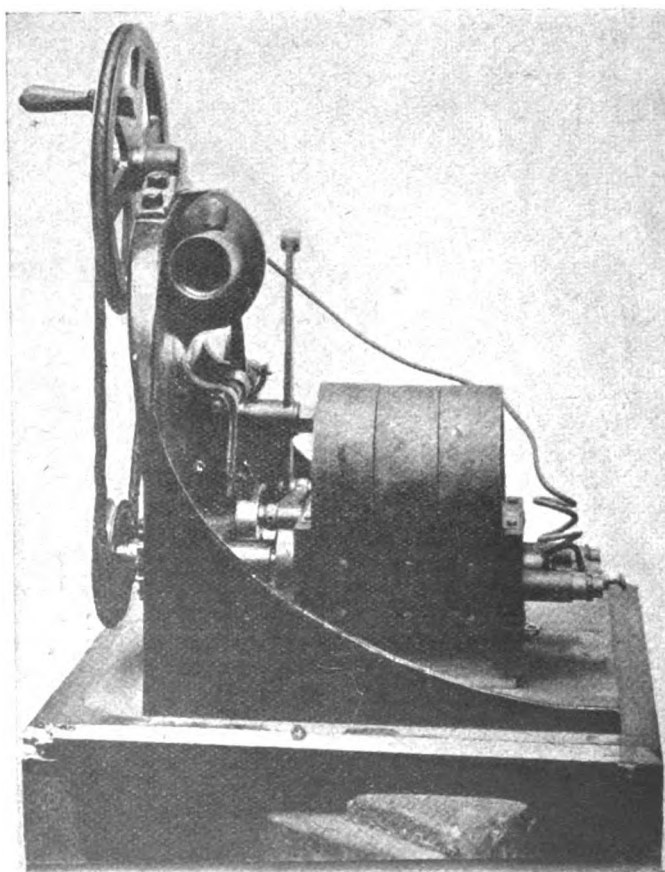


FIG. 4.—SIDE VIEW OF MODEL OF BERGMANN MAGNETO.

limited. This transmission is possible with the Bergmann generator, as the slight variations of the position of the armature coil due to stretching of the chain have no appreciable

influence on the generation of current, and are easily corrected by adjusting the direction of the magnetic field.

The magneto may run at the same speed as the engine. Where possible, with high speed motors, running at 1,200 revolutions per minute, for instance, it is, however, sufficient and even advantageous to reduce the speed to one-half. Sparks of an intensity sufficient to effect ignition are obtained at very low speeds. Around the shuttle armature A (Fig. 2) is placed a concentric sleeve B, which may be turned around its axis, and thus move the direction of the magnetic field.

The interrupting mechanism may be constructed on several

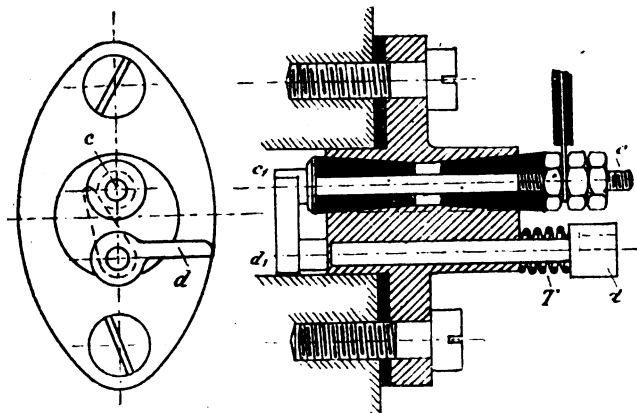


FIG. 5.

different lines, one of which is indicated by Fig. 3. The time of ignition is varied by varying the time of interruption. This may be done by displacing the igniter lever H or the ignition cam N. The lever H must not touch lever d before the moment of interruption. The spark is the stronger the greater the force with which the lever H strikes the lever d. At the moment of rupture in the circuit the magneto produces the strongest current. The adjustment to insure this result is indicated in Fig. 3. By displacing the lever H with relation to the cam N the spark occurs at some other position of the armature with relation to the sleeve

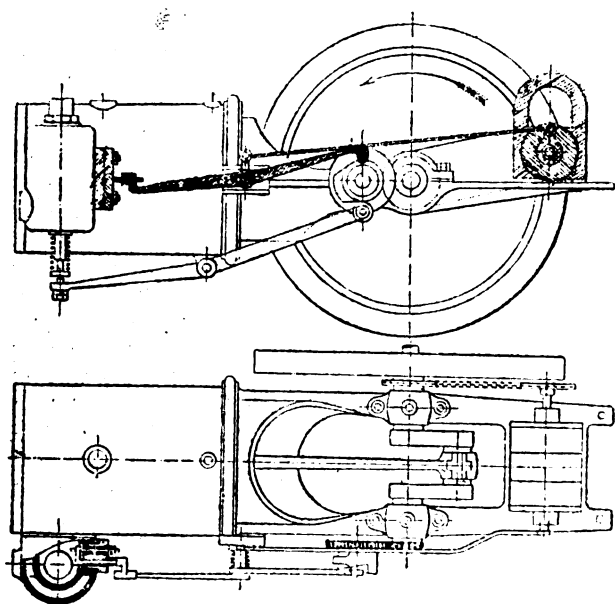


FIG. 6. —BERGMANN MAGNETO, AS FITTED TO BENZ-TYPE MOTOR—
ELEVATION AND PLAN.

B, and is consequently weak. It is therefore necessary to make the motion of the ignition lever and the sleeve dependent, so that an energetic spark is obtained whatever be the timing of the igniter. This end is attained by giving to the sleeve, by means of a link, an angular displacement proportional to the

longitudinal displacement of the lever H on its shaft h. The proportion between the two displacements is determined by experiment.

The igniter, or plug, Fig. 5, is of bronze. The rod d has a bearing in the plug, and the other rod c is insulated from it by steatite. The two rods are of wrought iron, but the hammer is of slightly hardened steel. The plug is fastened to the cylinder by means of its flange, and an asbestos washer is used to insure a tight joint. The interrupting mechanism is charged according to the position of the valve boxes and of the exhaust cam. The ignition cam turns, of course, at one-half the speed of the crank shaft, and may have the raised portion either on its circumference or on the face. The ignition lever H terminates in an elastic piece, which avoids any injury being done to the mechanism by a reversal of the motor. The time of ignition is, however, so easily controlled that a reversal during starting is very improbable.

Among the advantages claimed for the device are: —(1) The possibility of moving the magnetic field in advancing or retarding

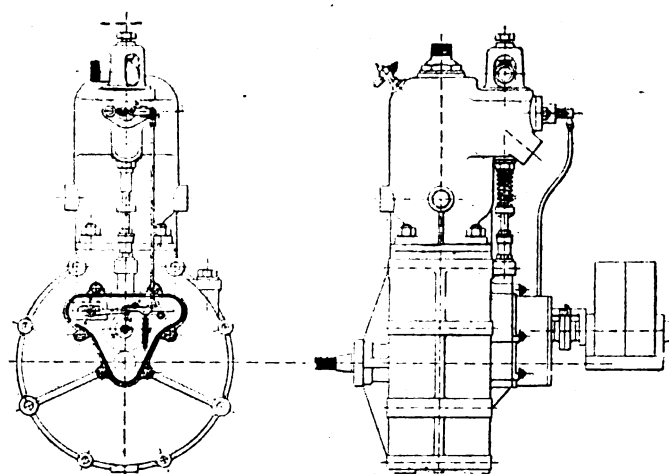


FIG. 7. —BERGMANN MAGNETO, AS FITTED TO DE DION MOTOR.

the ignition spark, and through this changing the speed of the motor; (2) the low tension, which can be easily insulated; and (3) the absence of accumulators, dry batteries, or induction coils. We may add that the Bergmann device is handled in this country by the Orient Express Car Syndicate, 1, Princes Road, Holland Park Avenue, London, W.

At the automobile exhibition just held in Chicago there was exhibited a steam tricycle, fitted with a two-cylinder engine, and placarded with the legend, "Built in 1888 by E. F. Brown, Chicago."

THE Automobile Club of America has decided to award annually a gold medal to the police officer who exhibits the greatest bravery and risk to himself in stopping a runaway horse in New York.

THE president of the Automobile Club of California has issued a circular letter to horse owners stating that it is the desire of members of the Club to be as considerate as possible to them, calling their attention to the fact that horses can easily be accustomed to automobiles, and offering in behalf of the Club to place at any given point two or three motor-cars for the training of timid horses.

AN American genius is reported to have secured a patent for a curious device for creating energy by feeding a tape of explosive caps into a chamber where they are successively exploded by a mechanically-driven hammer. The resulting gas from each explosion passes into a pressure storage chamber, whence it is drawn into a motor, in a manner similar to that in which steam is taken from a boiler into a steam-engine.

A NOVEL STEAM CAR.

A NOVEL form of steam-car, which has been named the "Transit," has lately been completed at the works of the Steamobile Company, at Keene, N.H., U.S.A., from the designs of Mr. W. S. Rogers, the manager of the company. As will be seen from Fig. 1, the novelty lies in the form of the carriage body, the *tonneau* being placed in the front part of the frame, instead of in the rear, as usual. The normal carry-

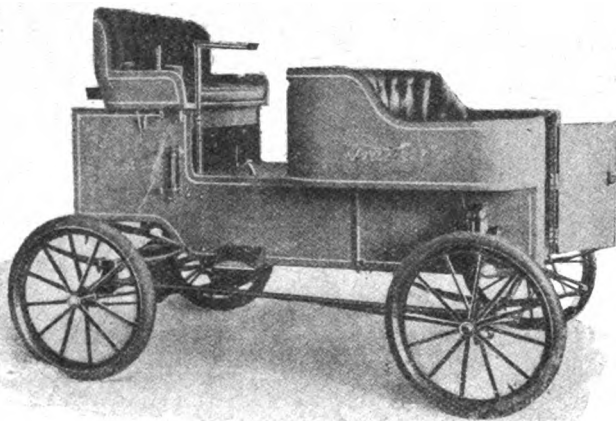


FIG. 1.—THE STEAMOBILE TONNEAU.

ing capacity of the car is four people, but it is stated that "five can ride pleasantly, six comfortably, and seven on a pinch." The claim for the design is that the front passengers have a free and unobstructed view of the road and scenery in front of them and are not annoyed by the dust and dirt to be found on all automobiles where the seats are behind the driver. The driver's seat is no higher than that in the present types of steam carriages, but he is able to see over the heads of the passengers. The *tonneau*, which is large and roomy, with well upholstered seats, can be removed in ten minutes' time and a parcel chest substituted, making it a delivery wagon of convenient form (Fig. 2). The weight of the vehicle complete is about 12 cwt.,

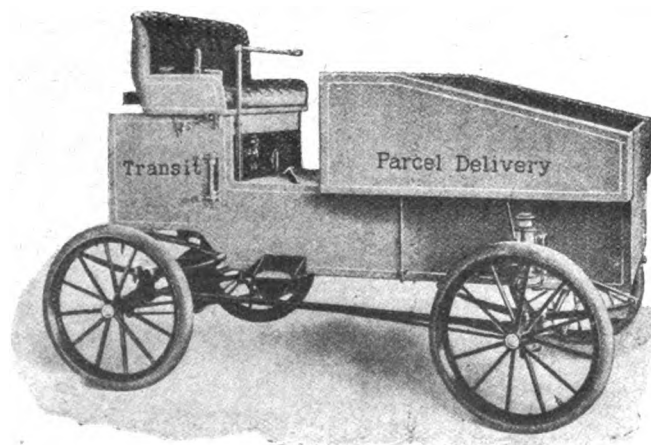


FIG. 2.—THE STEAMOBILE DELIVERY VAN.

water capacity 36 gallons, and the petrol capacity 12 gallons. The car is fitted with the Steamobile Company's special 6-h.p. engine and their straight shell boiler with 428 tubes.

THE Alliance Electrical Company, Limited, of 137, Regent Street, S.W., is, we learn, about to place a new electrical motor-car on the market.

THE stud of electrical motor-cars owned by the proprietors of the Carlton Hotel, London, will be increased in time for the Ascot Races.

HOW TO SELECT A MOTOR-CAR.

ALMOST daily we are asked by some correspondent to specify which is the best motor-car on the market. To such a question it is difficult to give a categorical answer, since personal tastes and prejudices enter so largely into the matter. As the French say, *chacun à son goût*, which means nearly the same thing as the old Latin *de gustibus non disputandum*. Still, so numerous are the various types of motor-carriages now in common use, that one who has but a superficial knowledge of mechanics scarcely knows which form to select for his own purposes. Yet there are several plain considerations which are bound to govern the most inexperienced layman in the choice of a motor-car.

The use to which the vehicle will be put is a question of paramount importance. It should be determined in advance whether the car is to be employed for long-distance travelling or for town driving. In the first case a petrol carriage will probably prove the most serviceable, while in town electrical and steam vehicles may be considered.

The question of price comes next. The automobile industry at present is in very much the same state as was the bicycle industry in 1889. At that time a good machine was worth about £30. Now a bicycle, better constructed and more durable, can be bought for a third of the money. As in those days, it is better to purchase a car from one of the large manufacturers. The prospective automobile buyer should not hesitate to pay £20 or £30 more for a car that will perform all the services which he may expect it to do. When the amateur visits the various depots and compares different models, he should not allow himself to be wholly influenced by the exterior of the carriage or by the more or less happy arrangement of parts; for external appearance has little to do with mechanical construction, and can be made to suit the taste of the purchaser. What is of greater moment is the motor and co-acting mechanism. The motor constitutes the essential part of the car; everything else is largely of secondary importance. The purchaser should carefully examine the car which he has in mind and ascertain whether its motor and power-transmitting mechanism are good and adapted to the needs of the vehicle; whether the framework is strong and capable of yielding to strains and shocks, and whether the controlling and steering mechanisms are easily operated. The prime consideration, it must be repeated, is a good motor, simple in construction and operation, all the parts of which are readily accessible and easily controlled.

Light cars, of which there are several types in general use, have the advantage of being cheaper than the larger automobiles. They are eminently serviceable, not only in towns but also for long-distance travelling and touring. An important point on which the purchaser of a motor-car for country use should satisfy himself is the hill-climbing power of the vehicle submitted to him. It is not necessary that the car should take its full load up a steep hill, but it is essential for satisfactory touring that ordinary hills should be taken at a fairly good speed, and without having to shed any of its passengers. Many automobiles are so under-powered—that is, the weight of the carriage body and load is too great for the power of the motor—that on a hill of any length or height they cannot pull their load at a speed of more than four miles an hour. The buyer should insist on a hill-climbing test in his presence. After this purchasers would do well to take the time over a mile on the flat, to see that the car as geared for hill-climbing will also make good time on the level.

An engineer's shop is to be established in connection with the Sheen House Club, so that repairs to members' motor-cars can be done on the premises under competent supervision.

MR. J. BROUGHTON DUGDALE has been re-elected president of the Midland Automobile Club. The new committee consists of Messrs. Austin, Millership, Dixon, Cox, Palethorpe, Siddeley, Crowdy, Holder, and Chatwin.

HERE AND THERE.

In replacing the outer cover of a motor pneumatic tyre great care is necessary to avoid pinching the air tube. There are many motorists who consider that nearly all damage to air-tubes is caused by external objects, and that nails in particular are the worst enemies of the pneumatic tyre, but it has been proved by experience that many cases of tyres bursting have been due to pinched air-tubes. There are two kinds of pinches; pinching the air-tube between the cover and the rim (Fig. 1), and pinching it between the cover and the valve stem or the safety belt. To minimise the risks of pinching in mounting the tyres it is necessary with ordinary inner-tubes to have their section smaller than that of the inside section of the covers, so

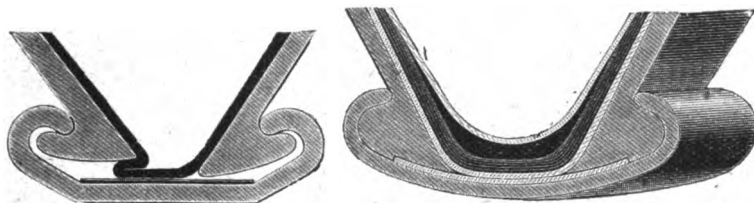


FIG. 1.

FIG. 2.

that when the tyre is inflated the air-tube is fully stretched and, therefore, in the worst condition in case of perforation. Fig 2 shows an air-tube designed to avoid pinching, which can be made of such a size that, even when fully inflated, the rubber is not extended, and will be in the best condition to close a puncture and avoid rubbing against the walls of the cover. It is known as the "Compoid," and is manufactured by Messrs. Falconnet, Perodeaud and Cie, of Choisy-le-Roi, France, who claim for it many advantages and that it does not diminish the resilience of the tyre nor increase its weight in an appreciable manner.

AN order for a 35 h.p. Mors car has, it is announced, just been placed by the King of the Belgians.

THE Wurttemberg Engineering Society has decided to affix a memorial tablet on the front of the residence of the late Herr Gottlieb Daimler.

A MORNING journal tells of the new enthusiasm of the Pope for automobilism; but is it so new? We believe Leo XIII. had his first motor-car ride about two years ago.

MESSRS. ROTHERHAM AND SONS, of Coventry, who are making a speciality of lubricators and other small accessories for motor-cars, have sent us a copy of their price-list of the same.

SO much has already been written in these columns about the Nice-Abbazia-Nice race that it must now suffice to remind readers that the event commences on Tuesday, the 8th inst.

THE latest entry for the Paris-Vienna motor-car race is that of a young lady, Mlle. de Meuve, who has not contented herself with entering in the tourist division, but will compete in the regular racing class.

A STORY is told of a negro in Alabama who for the first time saw a motor-car. He called his friend and said: "The Yankees freed de nigger, and now I beliege they have gone and freed de mule."

M. LE GRAND, of Levallois, near Paris, has just brought out a new tyre for motor bicycles, the tread of which is covered with thin steel plates, similar to the "armoured" tyres seen on many of the cars at the last Paris Show.

SEVERAL hundred members of the Automobile Club, on sixty-five cars, stayed at Newmarket on Thursday night and left on Friday morning for Cromer; so we learn from a paragraph circulated by one of the news agencies.

THE cost of maintaining a 16-h.p. American-made automobile for thirty days, during which time the vehicle covered 700 miles, has been recently published. It totalled thirty-eight dollars for gasoline, cylinder oil, and glycerine, and included twenty dollars for the month's storage.

A MOTOR-CAR service is being projected between the West End of London and Windsor and Kingston-on-Thames.

THE York City Council is being asked to make special bye-laws regulating automobiles within the walls of the city.

MESSRS. HIGGINS AND Co. are opening a motor-car depository and garage in the Margravine Road, Fulham Palace Road, W.

THE Bridgwater Motor Company, who have been appointed repairers to the Automobile Club, have room on their premises to store seventy cars.

MR. WILLIAM LEA, of Berry Street, Liverpool, will keep his motor-car dépôt open day and night, Sundays excepted, during the coming season.

A PAPER on motor-cars will be read at a conference on rural industries, which the Countess of Warwick is convening at Warwick Castle on May 1st.

PROPRIETORS of garages, repairing depots, and hotels wishing for appointments for 1902 by the Automobile Club should make application before Saturday, the 19th inst.

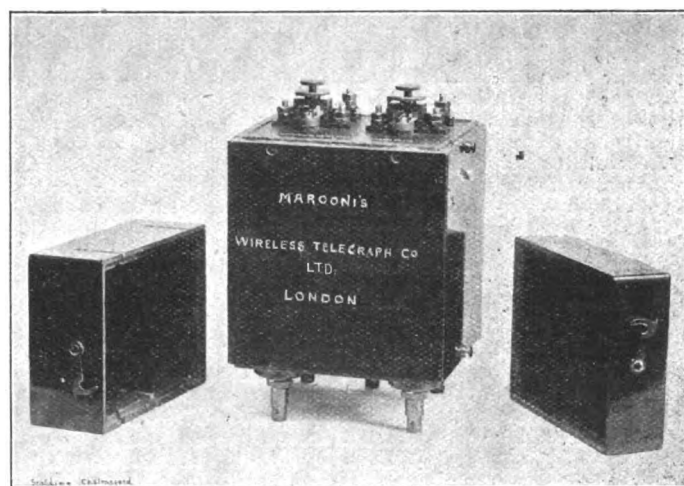
AMONG the South Coast firms on the Automobile Club's list of repairers is the Brighton and Sussex Motor Car and General Engineering Works, of which Mr. F. Constable is manager.

MR. J. H. YOXALL, M.P., has promised to do what he can "to promote improvements upon highways, which will tend to facilitate the use of mechanical traction for the purposes for which horses are now used too often, because unavoidably, in a cruel way."

THE Archduke Leopold Salvator recently undertook a tour on a 6-h.p. Locomobile *via* Tullnerbach-Pressbaum, Laab, Kalksburg, Mauer, Schonbrun, and up the Gloriette. On the return journey the Archduchess Blanca, with three princesses, entered the car to drive back to the Palace.

PRESSURE on our "Correspondence" columns prevents the publication this week of a characteristic letter from Mr. Joseph Pennell, in which he suggests that Mr. Kennett may care to join him for a portion of a thousand miles trip he intends to take to Florence on his motor-bicycle.

THE manufacture of induction coils for use in connection with the electrical ignition on petrol motor-cars has been taken up by the Marconi Wireless Telegraph Co., Ltd., of 18, Finch Lane, London, E.C. The chief claims put forward in favour of the new coils are—strength, certainty of sparking, economy in current consumption, high finish, proof against damp, and low price. The illustration shows the general appearance of the coils,



which are stated to be absolutely damp proof, a consideration of the greatest importance. Owing to the company's experience in the construction of large coils, specially wound to withstand the trying conditions of wireless telegraphy, it is able to produce a thoroughly trustworthy coil, generating a greater heat in the spark than is attained in the usual type. We understand that the Daimler Motor Company has already placed a substantial order for this type of coil with the Marconi Company.

CORRESPONDENCE.

COST OF MAINTENANCE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to the letters on Motor-Drivers, Mechanics and their Wages, I cannot understand any reasonable gentleman expecting to get a mechanic and driver to look after an 8 or 12 h.p. car (not a voiturette be it noted) at the wage of £50 a year. If a man is expected to clean the car properly, also engines, bearings, etc., and to be able to take off wheels, adjust bearings, chains, and see that engines and parts are kept clean and in good order, also to understand the engines, etc., should they stop or not give off their proper power, is it not better to have a man who understands these various parts and is able to adjust them on the road than to have to keep writing or sending to makers for the least thing that should happen which causes delay and waste of time?

Should the gentleman take great interest in his vehicle, and have time to look after his engines, etc., then he certainly does not want a mechanic, but a man just to clean car, oil, and fill up, etc. For this kind of work the man could not expect more than 18s. to £1 a week. If you want a practical man to look after a car, keep it in good order, and to do repairs, then you cannot get one for 18s. a week. If a car is worth paying £600 to £800 for, I should think it is worth looking after. My experience is that people who own motor-cars seem to forget that their men like one day a week to themselves. Instead of that, Sunday is generally as long as any other day. Perhaps this is one reason why they expect a little more than 18s. a week.

Yours faithfully,

W. R. R.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—To a man of no mechanical knowledge the parts and system of a motor-car appear complicated, but to the handy man with a desire to learn, it is very simple, as in all good makers' cars the parts are interchangeable. The aspirant who will content himself with a 4½ h.p. car carrying three or four up most gradients, and running over the legal limit, content with say 3,000 miles a year, ought to do it on £1 or £1 10s. per week. The only simile I can give is the yachtsman (proper) who wastes money, and the more practical amateur yacht owner, who gets as much pleasure at two-thirds of the cost of the former. With regard to the engineer refusing to help a fellow motorist on the road because this poor fellow only paid his engineer 18s. a week, it reflects no credit on either the owner of the car or the engineer.

My advice, after over two years' experience, is:—(a) Buy a simple car; (b) As parts are all interchangeable any ordinary mechanic under your direction can replace them; (c) solid tyres for the driving wheels, pneumatic front; (d) drive yourself; (e) When in trouble that you cannot find, send for a man who has interest in your car, pay 15s. to £1 per diem and travelling expenses.—Faithfully yours,

AUGUSTUS KENT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have been wanting to get a small motor-car, but have been waiting for the exhibition in April before deciding which one to get. On reading in the *Journal* for March 18th, the letter from "A Motorist," a doubt occurs in my mind as to whether I can stand the annual expense. I have always thought that if I could get over a first outlay on the car I should get on well and have good times, but now my eyes have been opened by his letter, and I can see I have to face a still greater outlay in expenses, with the result that I am doubtful about getting one at all.

I also notice in the *Journal* a statement that the cost of repairs for the second year is £6 to £7,—compare this with the other. The more I read, the more I think myself like the lively ball of the table, knocked from end to end until I am afraid I shall be knocked out altogether.—Yours truly,

ONE IN DOUBT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to a letter in your columns from Mr. Mawdsley Brooke, I fail to see his reason for keeping a man to fill his water and petrol tanks, and grease cups, because if the owner be a man who thoroughly understands his machine, and is also a thrifty person, I wonder he does not let the £50 per annum accumulate. What is more ruinous to a rising industry than to see a car in charge of one of these cheap men being towed along with a horse, through some trifling failure, which a man paid a decent wage and who understands his work would have put to rights very quickly.

The wage Mr. Brooke suggests is not equal to that of a carman, whose work requires no special knowledge or skill, who at the same time has no Sunday work and fairly regular hours, which a motor driver does not. I could give numerous instances in which a cheap man has practically ruined a car, costing the owner in the long run a good deal more than the extra wage paid for a competent man, under whose care such things would not have occurred.—Yours truly,

A PRIVATE DRIVER.

MOTOR-BICYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to my letter of the 8th ult., I should possibly, for the benefit of your less practical readers, have been more explicit, and have to thank Mr. Pennell for calling my attention to it; 2½ in. by 2½ in. would be the diameter of piston and length of stroke respectively, which, with the size of the discs (or flywheels), we may call the vital part of the motor from the power point of view. Horse-power is nowadays a very vague and variable term. That motor-bicycles of moderate weight, well under 100 lbs., and not above the foregoing dimensions, can and are being built capable of doing good work on a journey of more than fifty miles without trouble, as Mr. Pennell remarks, is confirmed by a communication I have just received from Zurich, where a friend arrived on his Trent motor-bicycle after having done 650 kilometres, and with no trouble whatever, not even a puncture.—Yours faithfully,

A. E. BOOKER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I read with interest Mr. Swinton's "Experience with Motor-Bicycles" in your issue of the 22nd ult. I have ridden a "Werner" with engine in front of handle bar over 3,000 miles and find it a thoroughly reliable machine, my only drawback being the tendency of the large belt rim fixed on the road-wheel to get out of line owing to the fastening clips giving with the pull of the belt; in resetting the fasteners either work loose or snap off.

This winter I have had fitted by Messrs. Evan Jones and Sons, cycle makers, Carnarvon, a new driving-wheel, with the belt rim built in the spokes, which is much stronger, and a decided improvement on the Werner method. Since the alteration was made I have had no trouble whatever, and I have already travelled some 500 miles, 100 of which were covered through two and three inches of snow in a hilly district at an average rate of fifteen miles an hour.—Yours truly,

G. H. JONES.

CRACKED WATER-JACKETS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to your correspondent, "W. B.," who wishes to know if there is any means of repairing a cracked water-jacket, I may say that if the crack is situated in a part of the cylinder with a clear space free from projections, such as valves, bosses, etc., a thin steel clamp may be used, drawn together at its ends with a bolt and nut, and packed where the crack is with thin sheet asbestos covered with white lead. If, however, the crack is so situated that it is impossible to fix a band round the cylinder, it is advisable to carefully fit a plate over the crack, securing it to the wall of the jacket with small screws, and packing with asbestos and white lead. The holes for the screws may be drilled right through the shell, and if the screws are made a good fit in the holes and the packing is carefully done there will be no leakage. This method also has the advantage of strengthening the damaged part, especially if the crack be round the cylinder. Many cylinders are made so light in the wall that the outer shell of the water-jacket (when cast in one piece with the cylinder) gives a large amount of support in resisting the force of the explosion, especially in the case of premature firing.—Yours truly,

JOHN W. SMITH.

QUERIES RE PETROL CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Will any of your readers kindly inform me what they think is wrong with my International Charette? I can get a very good spark on the plug, but only a very feeble explosion, although on advancing the sparking I can get a fairly good backfire. I have varied the mixture, but it only answers with the lever in one place. The accumulators are fully charged and ignition seems all right. I use Pratt's motor-spirit. I have tried two or three different plugs with the same results in each case.—Yours truly,

ST. NICHOLAS.

LIGHTS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have for nearly a year driven a car carrying at night two Dietz lamps, each showing a white light ahead, and a small red light in rear, and have never been challenged for carrying insufficient lights.

When purchasing the lamps for a new car I was warned that it is obligatory to carry a red light on the off rear end of the car, and that the small red spot lights in the backs of the front side lamps do not comply with the regulations of the Board of Trade.

These latter provide that:—"A motor-car must carry a lamp (not two) attached to the extreme point of its off-side, free from all obstruction to the light, and so constructed as to show a white light to the front, and a red light behind."

I shall be glad of opinions as to whether I am more correct in maintaining that if the side-lamps have red spot lights in the backs, and are not obstructed by wings or otherwise, they are sufficient, and that no third lamp is necessary.—Yours truly,

CHARIOTEER.

FRANCE COPYING ENGLAND.

TO THE EDITOR OF *The Motor-Car Journal*.

DEAR SIR,—Referring to Mr. G. Henderson's letter in the issue of the 15th ult., I cannot see why he should suggest that the Wolseley car does not compare with French productions. I think it is far ahead of French makes for its price and finish. It is made to wear. Speaking of horizontal engines, I can say after five years' experience there is little or no fault to find with them. Perhaps Mr. Henderson will explain the disadvantages, etc. I think if Mr. Henderson was to ride on a two-cylinder car with horizontal engine, either Wolseley or Benz, he would soon change his opinion; and this is the reason why they are not so out of date as he thinks.—Yours truly,

W. RANDOLPH.

BREAK-DOWNS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to "Doc's" letter, in your issue of the 22nd ult., I venture to give a few hints as to temporary break-downs. In the first place, owners of cars should study their machines so as to be thoroughly conversant with them. Do not forget to turn on the petrol tap and switch on electricity, seeing that the small connecting plug is in its place. The mixture is found by turning starting handle and moving mixture lever backward and forward. If then you cannot start, examine sparking plug by taking out and laying on any metal part of engine, care being taken that the part connected with high tension wire does not touch the motor. Turn handle or fly-wheel of motor round slowly with current on. If the spark is a fine healthy one it is all right, but if feeble your batteries may be getting low. Another cause of a feeble spark is that the wire to earth may be broken or disconnected. If so, it must be repaired or replaced immediately. If there is no spark at all, examine battery with a volt or ampere-meter. It should not register less than $2\frac{1}{2}$ amperes. If batteries are all right examine trembler, which is the most frequent cause of stoppage, due to oil getting between the platinum on trembler and platinum-tipped screw. The best way is to take trembler off, and scrape or file the platinum clean. See that all wires are intact and terminals screwed up tight. If spark is satisfactory, and you cannot then get a start, examine carburettor. If a spray, the small apertures that convey the petrol into carburettor may have become stopped up, or carburettor may have flooded through float leaking and filling with petrol, sinking it, and so letting petrol get above its proper level. See that the petrol spirit is of the proper density. In summer it should not be of more than 70 and in winter 68 specific gravity at a temperature of 59 deg. Fahr. This is important, as there exists a difference of eight-tenths of a degree in the density of the petrol for every degree of temperature.

Missfires may be due to: 1. Batteries running down; 2. Trembler wanting adjustment; 3. Broken porcelain; 4. Broken wires; 5. Sooty plug, through bad mixture or too much lubricant; 6. Bad spirit; 7. Bad mixture; 8. Motor overheating; 9. Loose terminals.

Sudden stoppages may be due to: Keys in either valves jumping out, broken valves, exhaust valves jamming, loose terminals, exhaustion of petrol supply, high tension wire becoming disconnected from plug or carburettor getting flooded. Of course, there are other causes of getting hung up, due to secondary things, but these are the principal causes of non-working.—Yours truly,

J. H. DICKINSON.

MECHANICAL FLIGHT UP-TO-DATE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Your correspondent Mr. Fred Crockett, alluding to my current series as above, remarks: "I feel so far pleased to know that I have not been working on the wrong lines in my experiments." As Mr. Crockett proposes experimenting on buoyancy or ballooning lines, and as his remark implies that I favour such lines, I wish him to grasp the fact that I repudiate any such advocacy absolutely. I thought some of the past chapters had expressed my conviction on that point unmistakably. Let Mr. Crockett refer to the chapter on "Anti-Levitation," as it appears doubtful whether he can have read it. In remarking that "I have been interested in the study of mechanical flight," &c., Mr. Crockett, in a manner, contradicts himself: balloon propulsion is not mechanical flight. The former system stands no chance whatever of being the ultimate means of aerial transit. If Mr. Crockett becomes a convert to the cause of legitimate mechanical flight, i.e., aviation, I shall be glad to advise him further as to choice of motor, or anything else on the subject he may wish to know.—Yours faithfully,

SIDNEY H. HOLLANDS.

ELECTRICAL IGNITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It is with somewhat mixed feelings I have followed this correspondence in the *Journal*. The state of things electrical in motor-car and cycle work was brought vividly to my notice, however, a week ago by being called in by an acquaintance of mine in connection with his coil and spark-

ing troubles. A few minutes' examination put the matter right—simply a wrongconnection, and want of a little expert adjustment. He is now delighted with his "fat" spark. In your issue of the 22nd ult., I notice the plaint of "Seven Horse," who wants to go back to tube ignition. But given the right material to begin with, there should be no worries with electrical ignition gear. If those not acquainted with electrical apparatus were just given a few simple explanations and rules to follow by an electrician who is an expert on induction coils, the bulk of these "mysterious" failures would disappear, and the undoubted advantages of this method would be more fully realised, and in a measure give confidence in an industry which has every need of real help from its well-wishers. With this end in view, I shall be happy to give any advice or help on this matter to those who are experiencing electrical difficulties.—Yours truly,

ROBT. HORNBY.

THE AUTOMOBILE MUTUAL PROTECTION ASSOCIATION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to the report of a meeting of manufacturers and sellers of motor vehicles, held at the Automobile Club on the 20th March, Mr. S. F. Edge is said to have stated that the Automobile Mutual Protection Association, Limited, was not open to all members of the trade; the statement was not only inaccurate, but Mr. Edge was, of all people, least justified in making it, inasmuch as some months ago he wrote me saying he would like to join the Association, and asking what was required of him to enable him to do so. I not only gave Mr. Edge all particulars, but told him I would be pleased to put his name forward for election, if he would fill in a form of application for membership which I sent him. This form he never made use of.

I need only add that, with but one exception, no candidate for election has been refused admission to the Association, and in the case referred to the Committee considered that the person in question was not a member of the motor industry, and entitled to admission under the regulations.—Yours truly,

GEO. R. HELMORE, Sec. A.M.P.A., Ltd.

Mr. Edgar Soames replies to "W. B.'s" inquiry as to repairing a cracked water-jacket by saying that he repaired a somewhat bad exterior fracture with red lead.

MOTOR-CYCLE TRIALS.

THE Motor-cycle Trial organised by the Metropolitan District Association of the Cyclists' Touring Club and the Automobile Club of Great Britain and Ireland is to take place at the Crystal Palace to-day (Saturday) at 4 p.m. The meeting is open to motor-bicycles of any horse-power, and motor-tricycles not exceeding $2\frac{1}{2}$ h.p., that is, the cubic contents of the cylinders must not exceed 19.9 cubic inches. No prizes are offered, and no certificates will be given, but records of the consumption of fuel, non-stop, and speed on hill, and general results, will be published. Competitors must be on the ground within the cycle track at the Crystal Palace with machines at 4 p.m., otherwise they may be disqualified. The stewards of the Automobile Club will then fill up petroleum spirit tanks completely. Motor-cycles will then be ridden 20 miles on the Crystal Palace track. This will not be a race, and no records of time will be taken, except that if the time taken by a motor-cycle in completing the 20 miles exceeds one hour it will be disqualified. Pedalling after the motor-cycle has crossed the starting line will not be permitted. The use of the pedals after starting will disqualify. If a motor-cycle stops on the track after starting it will be disqualified.

On the completion of the 20 miles the machines will be ridden directly off the track without dismounting, and will proceed up Rock Hill, turn at the top, descend, turn at the bottom, and repeat the ascent twice, making three ascents in all, and return without dismounting to the track enclosure. Pedalling will be permitted when the motor-cycle leaves the track, but if the motor-cycle be ridden up the hill without the use of pedals the fact will be recorded. Stopping or dismounting from the time the motor-cycle leaves the track enclosure until its return will disqualify unless the stop be caused by traffic or for other reasons admitted by the observers. On returning to the track enclosure the consumption of petrol spirit will be measured and recorded. Exhaust boxes must not be removed or opened.

LEAVING CARS ON THE FOOTPATH.

EVEN motor-cars must not be left on the footpath opposite one's own house. This was the discovery made at King's Heath Police Court by Charles Thompson, residing at Heron Gate, Alcester Road, King's Heath. He left the car on the path for over thirty-five minutes. He was indignant at being told that he would be reported, and he kept the car for another quarter of an hour in the same position. In turning round in the road he nearly ran the policeman down. The defendant denied the insinuations of the officer, and said that owing to the lamp giving him some trouble he had to leave the car there longer than he expected. He was fined 10s., and 8s. 6d. costs.

FURIOUS DRIVING CASES.

At Hove, Richard Greenhill Silverlock (15), of Sackville Road, Hove, denied having driven a light locomotive at a speed greater than was reasonable and proper, having regard to the traffic on the highway, in Old Shoreham Road, Hove, about five o'clock on the evening of the 5th ult. Evidence in support of the information was given by P.C. Walter Easton, a Hove constable, who said defendant was driving a motor-bicycle to which a chair was attached. In the chair was defendant's mother. The constable said the bicycle went 200 yards in 15secs., which witness said worked out at the rate of about twenty-seven miles per hour. Defendant was fined 5s. and 12s. costs.

At the Salisbury County Petty Sessions, Robert Standish Sievier, of Elston House, Shrewton, was summoned for driving a motor-car at a greater speed than was reasonable and proper, so as to endanger the lives and limbs of passengers, on the highway at Downton, on February 13th. Mr. A. Whitehead, for the defence, contended as there was no evidence to prove that his client was the driver of the car, the case should be dismissed. The magistrates, however, imposed the full penalty of £10 and costs.

THERE was a renewal of motor-car prosecutions at the Chertsey Petty Sessions last week. H. S. Halford, Kensington; Herbert Froy, Court Field Gardens, S.W., and B. Dodson, Long Acre, London, were summoned for furiously driving motor-cars in Oatlands Drive, Weybridge, on March 8th. A fine of 20s. and costs was inflicted in each case.

ANDREW FLETCHER, who was described as of the 2nd Life Guards, was summoned before the Brighton Borough Bench for furiously driving a motor-car on the Grand Junction Parade on March 15th. Police-constable Ranger said about 3.30 on Saturday afternoon he was on mounted patrol duty on the Grand Junction Parade, where he saw a motor-car being driven at a furious rate. He estimated the speed at from sixteen to eighteen miles an hour. Witness put up his hand, and shouted to the driver to stop, but as no notice was taken he had to gallop after the car. It slowed down somewhat, and when witness caught it up the driver steered it into the centre of the road so that it struck the hind quarters of the horse. The car was travelling at a pace much too fast for the safety of the public. George Morant, staying at the Hotel Metropole, said that when the constable galloped after the car it was going about twice as fast again, and it would have been impossible to catch it unless it slowed down. The Mayor said the Bench were quite satisfied that the car was being driven at much too rapid a rate, and defendant would be fined £5 and costs.

FREDERICK PARRISH, motor-car driver, Melton, was summoned at the Melton Mowbray Petty Sessions for driving his car furiously on the highway at Kirby Bellars on the 7th ult., and also with driving without a proper light on the 14th ult. at Melton, and further with driving backwards on the latter occasion. Mr. G. Rowlett appeared for the police, and stated that the defendant was not allowed by law to drive more than twelve miles an hour. Superintendent Mantle deposed that he was driving from Melton Mowbray to Kirby Bellars when defendant came towards him at a rate of eighteen to twenty miles an hour. The Bench retired to consider their finding, and on their return inflicted fines amounting together to £2 10s.

ROBERT M'GILWIE, 1, Thistle Place, Edinburgh, was fined £3, at the Edinburgh City Police Court, for furiously driving a motor-car. The accused has been previously convicted, and on the present occasion he collided with a cable car.

At Daventry Police Court, Leo Bryan Tucker, of Coventry, was fined £5 and £1 0s. 6d. costs, for driving a motor-car through Daventry above the rate of fourteen miles an hour. Henry Longland, a farmer, of Newnham, said defendant passed him on the Birmingham road, travelling at twenty to twenty-five miles an hour. He gave no alarm, and witness's horse was so frightened that it bolted, smashed a lamp-post, and broke the shafts of the vehicle. Defendant did not stop to see what had happened, and consequently witness telegraphed to the police of the next town, Towcester. Police-constable Benson also stated he saw the car travelling at the rate of twenty miles an hour. Defendant said he blew his "hooter" on passing Longland, and slowed down to three miles an hour. The magistrates observed that by Longland's telegram it was proved that defendant went the eight miles from Weedon to Towcester in a little over a quarter of an hour. It was a bad case, they said, made worse by the defendant not stopping when he saw the accident.

A. H. DOWSON, of Keynsham, was summoned at the Bristol Police Court for furiously driving a motor-car. The police said he was travelling at the rate of 22½ miles per hour, but the defendant stated that he was not going at more than ten miles an hour. The Bench imposed a fine of 40s. and costs.

FREDERICK BERSEY was defendant in an adjourned summons at Brighton, which alleged that he drove a motor-car at a greater speed than was reasonable and proper on King's Road on the 8th ult. A plea of guilty was entered. P.C. Sheppard estimated the speed at which defendant was travelling at 18 miles an hour on King's Road, about 11.30 in the morning. The Mayor said just now Brighton seemed to be a happy hunting ground for motor cars, and defendant would be fined £5 and costs.

W. L. CREYKE, of Oxford, was summoned at the Abingdon County Petty Sessions, for driving a motor car at an excessive speed, in Sunningwell, on March 11. He pleaded guilty to driving at a rate of

more than twelve miles an hour. P.C. Ponsford said he timed defendant, and found he covered 530 yards in thirty-five seconds, or at a rate of more than thirty miles an hour. A fine of £10 was imposed, with 8s. 3d. costs.

A MOTOR-CAR MYSTERY.

WALTER BRANDON, of Gordon Mansions, W.C., has surrendered to his bail at Marlborough-street Police-court, London, to answer the remanded charge of having caused an obstruction in Great Windmill-street, W., with a motor carriage on the night of the 18th ult., and reported in the JOURNAL on the 22nd ult. It was alleged by the police that on the night in question a motor-car was left standing outside the Trocadero Restaurant from five minutes past eleven till five minutes past twelve, causing a great obstruction to the traffic. The police sent into the restaurant several times asking for the driver, and were informed that he refused to come out and take it away. Eventually Mr. Brandon came out, and the police asked him if he were the owner, and he said he was not, but it was alleged, admitted that he had been driving it. Mr. Brandon was eventually taken into custody and charged with causing an obstruction with the motor. On the case coming on for hearing, Mr. Staplee Firth, solicitor, appeared for the defence. After hearing evidence at great length, Mr. Denman said it was a difficult matter when a motor-car was left like that in question to find out to whom it belonged. The police appeared to have done what they could to ascertain who was the owner, but the evidence called for the defence showed that Mr. Brandon had nothing to do with it. A mistake had been made, and the charge must be dismissed.

THE Auto-Carriage Company, Ltd., are removing from Great Portland Street, W., to larger and more convenient premises at 15, Newman Street, London, W., where a repair department for Bardon cars is being established.

THE French Chambre Syndicale de l'Automobile has adopted a recommendation that the mechanism of a motor-vehicle should be so arranged that no part projects above the upper plane of the frame. This decision has been arrived at in order to avoid the necessity of hollowing out or cutting away parts of the body which would impair the strength of the latter.

ACCORDING to the decision of a French court, the manufacturers or agents of automobiles, or their agents, must supply the *permis de circulation* as an accessory. It appears that a Frenchman bought a motor-car of the Paris agent of a foreign manufacturer, but the *permis de circulation* was refused because the model was not approved by the expert engineers appointed *ad hoc*. Thereupon the court, upon being appealed to, decided as above.

IN connection with the International Exhibition to be held at Cork this year, an artistic souvenir has been issued which should do much to attract visitors to the city on the Lee and motorists to the south of Ireland. Every year sees an increased number of motor-cars in the Emerald Isle, and this illustrated souvenir, which has been published for the Exhibition authorities by Messrs. Guy and Company, Limited, will prove useful as well as interesting. While we must regret that the jaunting car will have to go, it is satisfactory to know that the vehicle to supersede it will not cause pain or trouble to the jarvey's faithful friend for so many generations.

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THE Motor-Car Journal.

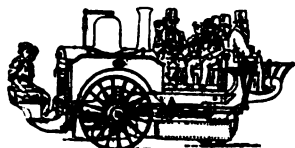
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COMMENTS.



AS Saturday, the 19th inst., draws near the thoughts of motoring enthusiasts are more than ever concentrated on the Exhibition which will then open at the Agricultural Hall, Islington, N.—a place within easy reach of all the great railway termini, and therefore one that is likely to attract a large number of provincial motorists who are sure to take this opportunity of seeing the most complete and representative collection of motor-cars ever got together in this country.

The Exhibition.

In addition to the display of automobiles from all the leading European countries, as well as from the principal British works, there will be some features of considerable interest, notably a dirigible balloon fitted with a Buchet motor. In steam and electrical vehicles, as well as in petrol cars, many new ideas will be shown for the first time.

The Prince of Wales.

THE interest of the English Royal family in motoring has been so strongly shown of late that it will occasion no surprise to learn that the Prince of Wales has signified his intention of visiting the forthcoming Exhibition at the Agricultural Hall. Last year's display of automobiles attracted a large attendance of public men and leaders of Society, but this year's Exhibition will probably eclipse all its predecessors so far as a representative attendance is concerned. In determining to visit the Exhibition the Prince of Wales not only gives further evidence of his interest in the sport, but also his desire to see the automobile industry in a thoroughly prosperous condition.

Dinner at the Exhibition.

On the Wednesday of Exhibition week the Automobile Club will hold a dinner at the Agricultural Hall, to which members and their friends are invited. The tickets will be 5s. each, and can be obtained on application to Messrs. Cordingley and Co., at the Hall during the Exhibition, or from the steward of the Automobile Club. It will be remembered that it was at one of these Exhibition dinners that Sir Francis Jeune made his first memorable speech on the delights and pleasures of automobilism; and although the list of speakers has not yet been arranged, it may be taken for granted that the high level of previous years will be fully maintained.

Collapse of the Great Race.

GREAT was the surprise at the announcement in last week's *Journal* as to the possibility of a collapse of the much-anticipated Nice-Abbazia-Nice race. Unfortunately the possibility materialised into a certainty, and great was the consternation amongst Continental automobilists when it became known that the race had been prohibited. After all the preparation that had been made and the great expense to which French manufac-

turers had gone in connection with the matter it seems a wanton piece of irritation on the part of the Italian authorities to throw obstacles in the way of a contest at the last moment.

Some Reasons.

MR. BALLIN HINDE, who is making a motor-car journey from Frankfort, via Nice, to London, has just returned from a journey over the Italian portion of the course which was to have been taken in the Nice-Abbazia race. He reports that the North Italian roads are narrow, irregular, and sinuous, the major portion of the route requiring the greatest care in negotiation. The peasants with their market carts on such roads present an ever-recurring danger. Quite unaccustomed to automobiles in any form, they are incapable of judging in any way the speed of an approaching car, and it is upon them in the narrow channel before they with their unmanageable wagons can get clear.

Why not Before?

ALL this is urged on behalf of the Italian authorities; but it was as equally true when the matter was first mooted as within six days of the event, and it is this action of the Government at the last moment that all interested in the matter naturally complain of. Makers had gone to enormous outlay, with a view to the contest, in building more than sixty new racing cars as well as in establishing extensive storage and repairing premises at Nice, and at various Italian towns, and, finally, in paying the expenses of the drivers of the machines, and of armies of mechanics, engineers, and skilled workmen, who have been sent to the Riviera. The Automobile Clubs of France, of Nice, and of Turin had, moreover, disbursed money to provide for the arrangements of the contest, and this outlay has all been thrown away. M. Serpollet's lament is not exceptional when he says, "Two hundred thousand francs I have thrown out of the window."

A Strange Difference.

Two cases heard at Chelmsford—the one immediately after the other—illustrate the obviously unfair way in which motorists are treated in many parts of the country. In this particular instance a Leytonstone engineer, driving a motor-car at a speed which was said to be eighteen miles an hour, was fined £5 and 10s. 6d. costs, whereas a drunken carman in charge of a horse and cart and similarly charged was let off with a fine of 10s. and 3s. 6d. costs. Surely we are not to infer that a sober motorist is to be regarded as more dangerous than a drunken carman. Curiously enough, we have since seen the report of a case at Wimbledon, where a motorist charged with being intoxicated and driving a motor-phæton to the common danger, has been fined only 40s. including costs.

Club Trials.

ELSEWHERE we give some of the regulations and classifications which have been agreed to by the Races and the Trials Organisations Committees of the Automobile Club. It has been proposed to hold these trials in September, but the Committee which is advising the Club with regard to electrical vehicles recommends July as the most suitable month for the

competition of electrical cars. Steam cars will have a place in the forthcoming trials, and marks will be deducted for stops made for fuel or water, but the cause of stoppages will be published in the results.

Steam Cars in Australia.

A MELBOURNE correspondent informs us that Australia has been invaded by the Locomobile Company of America, a representative of that concern having recently arrived with twenty-three vehicles. Agencies have been established at four different points, viz.: New Zealand, Sydney, Brisbane, and Melbourne, and it is stated that all the cars were disposed of within four weeks. He then took steamer for China, where he expects to meet another consignment of his company's vehicles. Our correspondent continues:—"The great drawback to motor-vehicles in Australia is the high price of petrol, a difficulty which must be overcome, and which ought to be easy enough to do by a proper arrangement for buying and shipping. We are very much in the dark here as to which is the better, steam or petrol vehicles for general purposes. I had about made up my mind to get a petrol car, but since the new steamers arrived I have almost been persuaded from my first love and think that I will now wait for more information on the subject."



MR. F. OWERS AND MR. S. H. PEARCE ON THE FORMER'S
18-H.P. DAIMLER.

Provincial Representation on the A.C.G.B.I.

FOR some time the leading provincial clubs have felt that metropolitan influence overwhelms country opinion at the committee meetings of the Automobile Club, and representations on the subject have lately been made. These have been considered by the Club Committee, who have made inquiries which show that the present day of meeting (Monday) is the only day in the week that suits the existing members of the Executive Committee. Under these circumstances the Executive Committee has agreed "that if any representative of a provincial Club on the Club Committee could see his way to attend on Mondays, and would be willing to sit from 5 o'clock until midnight every Monday, he should be appointed immediately a vacancy occurs on the Executive Committee." Whether this will be agreeable to provincial representatives remains to be seen.

The Chicago Exhibition.

GREAT success seems to have attended the Automobile Exhibition recently held at Chicago, and the exhibitors were well satisfied with the results. Not only were the public anxious to see the novelties, but the manufacturers were equally desirous that their employees should see the show, and thus become fully equipped with knowledge of the most modern types of cars, etc. Several makers sent their foremen and leading workers, paying their expenses on a liberal scale, so that they should learn what competitors were doing. The idea illustrates the keenness of business methods in the United States, and will probably find imitation at the Exhibition which opens at the Agricultural Hall on Saturday, the 19th inst.

Motor War Cars.

COLONEL CROMPTON and others have shown the War Office the value of mechanical traction in offensive operations, and now Mr. F. R. Simms is emphasising the utility of motor-vehicles in defensive schemes. Last Friday at the Crystal Palace he gave a demonstration of the war car described on another page, and he must be gratified with the attention which the Press has bestowed on his invention. Sir Fortescue Flannery, M.P., was among the visitors, and recognised the ingenuity with which the arrangements have been devised to secure storage capacity for ammunition as well as safety for the gunners. In the course of a brief speech to the company, Mr. Simms drew attention to the fact that although the King is not alone as a Royal motorist, he is the only head of the State who also owns a racing stable—a distinction that affords another proof of the interest that sportsmen have in the automobile.

Prosecutions in Surrey.

SURREY has an unenviable reputation—or rather notoriety—among motorists, and the vigorous action of its authorities against steam-vehicles still continues to cause expense to the county with no result—save to cause motorists to avoid many of the Surrey roadways. The latest instance of the absurd character of the persecution now going on has just occurred at Dorking, where Mr. Payne, of the Carlton Hotel, has been summoned under the old Locomotive Act, his steam-vehicle having been blowing off steam—an offence that seems to incur the wrath of the Surrey police to an inordinate degree. Once previously at this bench a fine had been imposed; but Mr. Payne was fortunate in obtaining the services of Mr. Staplee Firth for the defence, with the result that the summons was dismissed. We believe that about thirteen similar cases have been dismissed, and that Surrey is the only county in which such prosecutions take place. In an interview with Mr. Halsey, the Chairman of the Surrey County Council, that gentleman says that that body is not responsible for these silly and expensive prosecutions. There is a joint committee of the magistrates and the Council who have the necessary authority to undertake such prosecutions, but we should like to know who is actually and directly responsible in the matter.

A Scottish Agitation.

AT the last meeting of the Brechin District Committee, Mr. John Shiell brought up the question of motor-cars being run on the roads in Lochlee parish. The roads there were very narrow, and people walking or driving were in danger of their lives when they met a motor-car rushing along. Mr. Smith said that that was more a matter for the County Road Board to deal with. Mr. Soutar asked if the drivers of motors were bound to stop when asked? He said he had often held up his hand as a signal for the drivers of the vehicles to stop, but they paid no attention to him. He had also remonstrated with them, but as most of the drivers in Glenesk were Frenchmen he was afraid they did not quite understand his broad Scotch. It was ultimately agreed to bring the subject under the notice of the County Road Board.

**The Automobilist's
Spring Cleaning.**

In another part of the present issue we reproduce an article by Mr. A. L. Clough, in the *Horseless Age*, the perusal of which can be strongly recommended to all motorists. That motor vehicles, like all other pieces of mechanism, will get out of order and require repairing is to be expected, and the advice given to spend a little time on a general overhaul of one's vehicle ere summer, with its warm, long days, is upon us, will, if followed, conduce largely to the pleasure of the many enjoyable runs that motorists have in prospect.

**The Friend
of
Horses.**

AMONG those who are devoted to animals, the Rev. F. Lawrence, hon. secretary of the Church Society for the Promotion of Kindness to Animals, is well known as an advocate of everything tending to mitigate the troubles of animals. In a circular recently sent out to the branches of his society, as well as to individual sympathisers, he writes:—"I submit for universal acceptance that the general use of motor-cars will contribute to the benefit of horses, who will be better treated and more highly thought of, and no longer called upon to perform such drudgery as dragging heavy loads up steep ascents." With this view of the case every automobilist will be found in accord.

**The Demand for
Mechanics.**

WE have received an interesting letter from a mechanic, who comments on the difficulty there exists as to finding good mechanics in connection with automobilism. He cannot endorse, from his own experience, the statement that good mechanics are in demand, and says he was stranded in a West of England city. An advertisement was inserted several times in many engineering journals offering his services as a good all-round machinist understanding motors. Since then he has approached a number of motor-car manufacturers—all to no purpose. Regretfully he comes to the conclusion that good men are not so much in demand as he had been led to believe. At the same time, while giving expression to these views, we must repeat that the trade does find a difficulty in getting really reliable and efficient mechanics. The number of men in this country with a thoroughly practical knowledge of automobile matters is comparatively limited.

Electrical Critics.

WHY cannot our contemporaries devoting space to electrical investments, vehicles, and similar matters, maintain a businesslike attitude towards petrol and steam cars? They never seem so happy as when decrying petrol cars; certainly they would be better employed in keeping to the matters about which they are supposed to know something than in criticising one form of automobilism that is making great headway. So far as we are concerned we welcome electrical and petrol steam vehicles with equal pleasure, because it must be recognised that there is a niche for all, and that each has its peculiar features rendering it valuable under certain conditions. But to attempt to assert (in the present state of the industry) that only one form is really valuable is absurd.

**Impartiality
Necessary.**

THAT every form of motive power should be encouraged is a statement that finds assurance in the new classifications for steam and electric vehicles which are being made in connection with the automobile contests to be held this spring by the Long Island and the American Automobile Clubs. There will be classes for electrical vehicles capable of covering 100 miles without the necessity of recharging, and also for steam vehicles able to run 100 miles without the renewal of water. This fact alone demonstrates the advance that has been made

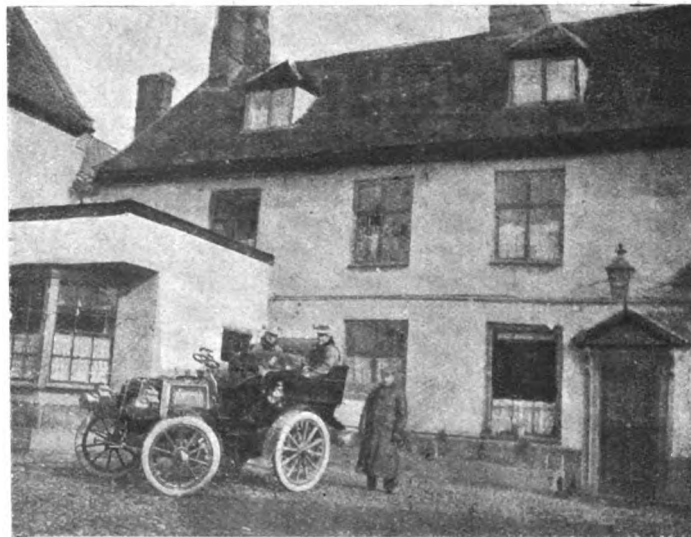
during recent months, and shows how ridiculous are the critics who would seek to disparage steam, electricity, or petrol in connection with automobilism.

**Motor 'Bus
Services.**

MANY provincial towns are as much in need of efficient and reliable motor-bus services as is London, and we are glad to see suggestions in advocacy of such innovations are being made in several places. Outside our own little island, too, interest is being taken in the subject, and we hear from Shanghai that the Municipal Council there is prepared to receive offers for a motor-omnibus concession. Whether this will be arranged on equitable terms we will not venture to say, but the fact that such a venture has been mooted is significant of the forward policy that is characteristic of Eastern countries.

Weak Points.

THOUGH we sometimes see descriptions of cars in which weak points are absent, such desirable vehicles are rarely to be met with in a material form, and the lines on which a large proportion of the advance made during the past few years has proceeded, consist in the suitable and convenient location of such parts as must "go" under continuous wear or abnormal strain. The coming of the pneumatic tyre, the weak point *par excellence* of the modern car, is chiefly due to its being a preferable victim to road inequalities rather than that wheels, springs, or machinery should suffer, and its eminent suitability for roadside repair. The adherence of a minority of two or three makers to the belt as an item in the transmission mechanism may well be due to the same reason. Two mishaps to a car which recently came under our notice are a good illustration of the advantage of having weak points in convenient places.



AT THE BELL HOTEL, TRETTFORD.

**Further
Examples.**

THE car was one in which the application of the foot-brake did not disconnect the engine, and a sudden stoppage to avoid a collision resulted in the shearing of a rather weak key connecting the engine shaft with the gear—no very troublesome repair, which was made apparently with a stronger key to avoid a repetition of the mishap. Shortly afterwards, similar circumstances, same neglect to ungear; result, a badly-stripped driving sprocket. Of course neither need have occurred, and neither reflected on the car, but it is certainly preferable that the part to give way, even with careless driving,

should be an easy one to replace. In another case, a pump firmly connected to the driving shaft broke one of its pump-cogs, and, of course, was jammed to destruction; while in another car we recently saw, the connection, also a direct one, avoiding the trouble of friction wheels, etc., was made by a simple wire staple, which, though amply strong enough to drive, would certainly give way and save the pump in case of its jamming. The worst point about gear-driven live axles is that the bevel gear, usually the first part to "go," is an inconvenient and expensive replacement; one might almost suggest that weakness in the shaft or its universal joints would be preferable; while in such minor matters as studs, a weak centre that would avoid the necessity of drilling out if broken commends itself as a minor consideration in building a "fool-proof" car.

A WRIT of *fi. fa.* is in the hands of the Sheriff in respect to the taxed costs in connection with the Maybach carburettor case of the British Motor Traction Company, v. Friswell. The company was registered with a million pounds capital and, we understand, there are debentures outstanding in the hands of Mr. H. J. Lawson and others.

ON Wednesday, before the Association of Engineers in Charge, at the St. Bride Foundation Institute, London, E.C., Mr. W. Hollamby read a paper on "Self-Propelled Road Vehicles." Mr. Percy Richardson, London manager of the Daimler Company, presided.

A NEW catalogue of the Weston steam cars comes from 14, Mortimer Street, W. It gives illustrations and descriptions of the Stanhope, Victoria, and dogcart phaeton vehicles, as well as of the heavy touring car recently referred to in these columns. The Weston water lift is also fully described, and the catalogue will be of interest to all contemplating the purchase of a steam car.

LAST week a new 10-h.p. car was delivered to its owner at the works of Georges Richard at noon, and with four passengers started in the pouring rain on a journey to Marseilles. It rained in torrents for the first day and a half; so much so that the occupants were obliged to buy new clothes, as they were wet to the skin. On Saturday night they slept at Montargis, 87 miles from Paris; on Sunday, at Bourg St-Andeol they passed through snow a foot deep, and spent the night at Valence, 397 miles from Paris. On Monday, noonday, they arrived in Marseilles, 554 miles from Paris, having averaged 25 miles per hour, notwithstanding the adverse climatic conditions.

THE latest production of the Milwaukee Automobile Company, of Milwaukee, U.S.A., is a steam touring car with a tonneau body. In general appearance the vehicle closely resembles a petrol car, the boiler being located under a bonnet in the fore part of the frame. The boiler is of semi-flash pattern, similar to that used in the torpedo boats in the U.S. Navy. It comprises 526 feet of $\frac{3}{4}$ inch tubing, and has a steaming capacity of thirty-two boiler horsepower. Steam is delivered at a normal temperature of 400 degrees F. Sufficient water is carried for a run of 150 miles. The burner is of the Clarkson type, but modified, and possesses radical improvements over the original. Paraffin is used as fuel, the supply carried being fifty-two gallons. The engine is a compound condenser with central valves, and is entirely jacketed. Working as a simple engine it develops 26-h.p., and as a compound 13-h.p. A feed water heater which delivers the water to the boiler at a temperature of over 212 degrees is fitted. All lubrication is by force feed from one reservoir. Another novel feature is a system of variable speed gears, giving three speeds. The normal gear gives a ratio between the engine and driving wheels of two and one-half to one. A hill-climbing drive gives a ratio of four to one. For racing purposes a third gear is provided of one and one-half to one. Other new departures in steam cars are the adoption of inclined wheel steering and artillery wood wheels. We may add that Messrs. Shippey Bros., the British agents, have a number of these cars on order, and hope to be able to show one at the forthcoming Exhibition.

THE NICE WEEK.

NICE has this week been quite busy, from an automobile point of view, although the interdiction of the Nice-Abbazia-Nice race has taken a good deal of interest out of the event. The week was opened on Sunday with a battle of flowers in the Jardin Public. Numbers of beautifully decorated cars took part, and the route was lined with distinguished people. On Monday the annual hill-climbing competition from Nice to La Turbie, over a hilly course of 15½ kilometres, was held. The contest was divided into eight categories, viz.:—(A) Motor cycles weighing less than 50 kilogrammes; (B) motor-cycles weighing between 50 and 100 kilogrammes; (C) light racing cars weighing between 250 and 400 kilogrammes; (D) racing cars between 400 and 650 kilogrammes; (E) racing cars between 650 and 1,000 kilogrammes; (F) touring cars weighing between 400 and 650 kilogrammes; (G) touring cars between 650 and 1,000 kilogrammes; and (H) touring cars over 1,000 kilogrammes.

Considerable disappointment was evinced when it was announced that the Panhard racers would not take part in the competition, which was further adversely affected by the heavy fog which hung over the route. In Class A, Williams was first, his time being 22min. 2 4-5sec. Osmont on his De Dion tricycle was first in Class B, time 18min. 6 3-5sec. In the other sections, the fastest times were made as follows:—Class C, Guillaume, 20min. 20sec.; Class D, Gabriel on a Darracq, 16min. 50 3-5sec.; Class E, Stead on a Mercedes, 16min. 37 3-5sec.; Class F, Tranchant, 27min. 59 2-5 sec. Class G, Count Zichy, 19min. 20 2-5 sec.; and Class H, Gray Dinsmore, 25min. 21 3-5 sec. It is noteworthy that the first five cars in Class D, racers weighing between 400 and 650 kilogrammes, were all Darracqs.

The triumph of the Mercedes car, driven by Mr. Stead, moved M. Gabriel to attempt the same feat on a 20-h.p. Darracq, weighing 1,300lbs. On Tuesday morning he went for the Nice-La Turbie record, and did the distance in 15min. 46sec., beating the previous best by 51sec. He had, however, the advantage of clear weather as compared with the fog of previous day. On Tuesday and Wednesday the various cars were placed on exhibition in Nice, while Thursday was devoted to the annual series of mile contests on the Promenade des Anglais, the results of which are not to hand at the moment of going to press.

MESSRS. DAVIS, ALLEN AND COMPANY having accepted the challenge of the Birmingham Motor Manufacturing and Supply Company, a hill-climbing and speed trial between the Mitchell and Rex motor-bicycles is to be held near Coventry this (Saturday) afternoon.

ON a stony road at the Parc d'Achères, near Paris, the Hon. C. S. Rolls, on Wednesday, beat the French automobile record for the kilometre by 6½ seconds with a flying start. He attained a speed of sixty-five miles an hour on a 28-h.p. Mors car, the time being taken by the official timekeepers of the A.C.F.

IN addition to the new 22-h.p. car which the Daimler Company are building for the King, there will be on view at the Automobile Club's exhibition to-day (Saturday) week, the car upon which Dr. Lehmann intends to tour round the world. As already announced, this tour will begin at the Agricultural Hall, on the 23rd inst. During the past week the travellers have been taking spins around Paris on their car and attracting universal attention.

THE firm of Georges Richard are giving steady deliveries to their customers of their new 10-h.p. and 20 h.p. cars which were the object of so much attention at the last Paris Exhibition. Their London agents, Messrs. Mann and Overton's, Limited, will exhibit at the forthcoming exhibition at the Agricultural Hall, the first four of these new cars imported into England. The 10-h.p. car weighs a little over 13 cwt., and has two cylinders, three speeds and reverse, and is gear driven and chainless, whilst the 20 h.p. has four cylinders, and is also chainless, and weighs complete with body about 17 cwt. The first 20 h.p. to come to England has been purchased by Mr. Isidore Clifford.

MECHANICAL FLIGHT UP-TO-DATE.*

BY SIDNEY H. HOLLANDS.

CHAPTER VI.—*continued.*

TO advert now to the next class in order—the wing or flapping type of propeller. The very earliest record we have of the application of wing-propellers is that of the mechanical dove of Archytas (who is also the reputed inventor of the kite) living 400 B.C. This is rather remote and legendary, but if true it antedates the aerial screw by about two thousand years. The old, old story of the winged Dædalus and Icarus is far too mythical and impossible for further comment, and is now worn quite threadbare. Wing and screw propellers have been held to belong to the same class. Their respective functions and working conditions, however, differ so that they must be classed separately. Apart from the fact that, while the one is vibratory and intermittent, the other is rotative and continuous, the wing is not only a propeller, it is a propeller-sustainer, while the screw, or rotating fan is not, the function of the latter being propulsion only. So-called "ascensional," or lifting screws (rotating on a vertical axis) may at once be summarily and finally dismissed as a *practicable* means of flight. We now know, and the fact is recognised by the best authorities, that this oft-proposed system is the most extravagant of any in its demand for power. Besides requiring an enormous power ratio, this system, of course, derives no assistance from gravity and air-inertia (as systems of true flight do), but exactly the reverse. In short, horizontality of propulsion (together with high velocity of transit) may be said to be imperative to economical flight.

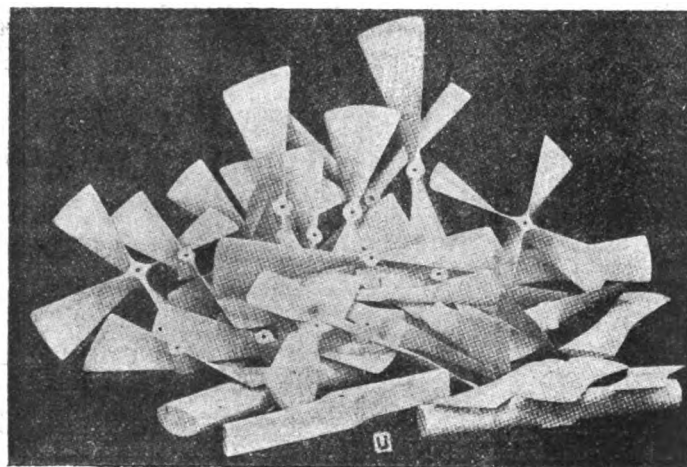
Hitherto, the best results have been obtained with screw-propulsion, *i.e.*, screw-propelled inclined aerocurves (Langley), in which the total load sustained and propelled was 30 lbs. for one actual b.h.p., and it is claimed for the Maxim aeroplane machine that a total weight of 28 lbs. was lifted and propelled for each b.h.p. These results are so far highly satisfactory, in that they have proved indisputably the practical possibility of true mechanical flight; but they have by no means conclusively proved that the rotating screw or fan is the most efficient propeller, particularly when we remember that the rival winged system includes sustentation (in part at least) with propulsion. We have not yet been enabled to make a fair comparison of these two systems. No winged machines comparable at all in size or in power with the screw-propelled machines of Langley and of Maxim have yet been constructed. The best wing-propelled machines that have yet been made (using steam motors, too) are the admirable "Hargrave" models. (Mr. Hargrave has also made and tried screw-propelled models.) These have actually made considerable flights for models, and—I think and hope Mr. Hargrave will pardon my saying—in spite of a rather rudimentary and inefficient form of wing. These results, among others, have led me to hope great things from wing and "wave-action" propulsion.

When we turn to the birds, we find that instead of a total load of only 28 or 30 lbs. sustained and propelled per actual h.p. expended on it, we have in the pelican 230 lbs. per actual h.p. This, it must be said, however, is the highest weight ratio yet found in nature; the comparatively small allowance of power for weight in this bird indicates, too, that it derives exceptional aid from the extraneous natural forces, and we must contrive to follow its example. When we come to the pigeon we see that it is comparatively a very powerful bird, having at the rate of one actual h.p. per 45 lbs., and yet the Langley "aerodrome" had and needed a 50 per cent. higher power-ratio than even this.

These facts look very encouraging for wing propulsion. It is only logical to attribute this marked disparity, at least in a great measure, to the higher efficiency of winged systems. I am fortunately enabled to give some interesting particulars of the

performance of the best and largest of Mr. Hargrave's winged models, *viz.*, "No. 17" (illustrated in the previous chapter). Its total weight is 4 lbs. $\frac{1}{2}$ oz., including 5 ozs. weight of fuel (spirit) and water; the wings swept through arcs of 112 degs. at a speed of 140 double-strokes per minute, which produced a horizontal thrust of just one pound, the effective power was 166 ($\frac{1}{8}$) actual h.p. The maximum range of flight, limited by supply of water and fuel, was 1,640 yards. Thus we see that we have here a practicable, though small, steam winged aviator, with a power ratio of one actual h.p. per 24 lbs. of total weight, and the probability that with an improved form of wings much better results still would be obtained.

Reverting now to the "wave-action" type of propeller-sustainer, this ingenious system is analogous to the undulatory locomotion of the skate, and other flat fish. It was introduced by that earnest and veteran aviationist the late Frederick W. Brearey, B.Sc., about twenty-two years ago, who gave numerous lectures on it, with successful demonstrations by models, all over the country. The prime mover in these little machines consisted of stout indiarubber strands in torsion, one machine being of such size and power that it was hard work for one man on a winch to wind it up, no better motor then being available. At the best, this form of motor gave but very short duration of flight, as for an equal duration of power it was much heavier than the beautiful light steam motors



A GROUP OF SCREWS AND OTHER OBJECTS EXPERIMENTED WITH. (MAXIM.)
Note—Some of the above are *embryo* propellers, but are all of the same diameter, and their resistance to rotation (severally) was compared with that marked U. (UNITY.)

now have available for that type of machine, but which at that time unhappily were not. A motor that I subsequently designed specially for Mr. Brearey's machine—and only shortly before his decease—is illustrated in the preceding chapter. The "wave-action" system is described in Mr. Brearey's own words as follows:—

"A surface is provided according to the weight to be carried, the supporting surface of a parachute being known. Placed upon a truck, so that its position shall be horizontal whilst run down inclined rails, the fabric will be inflated by the upward pressure of the air, and the wave arms raised to that point where their further elevation is restrained by the pectoral cords. The machine will naturally float away from the incline, and the occupant must then set his motor in action. The downward blow of the wing-arms will cause the wave fabric attached thereto to imprison a mass of compressed air, and the following wave will force it along the underside of the fabric. This will cause propulsion. The return or upstroke cuts off and diverts from the upper part that air which, but for the rise of the wave-arms, would flow over the back and shunts it underneath, whilst that which is embraced in the concave fabric following the upstroke is thrown off in a wave to the rear above the machine and so on alternately."

* All rights reserved.

THE VICTORIA MOTOR-BICYCLE.

THE latest motor-bicycle to appeal for public favour is the Victoria, of which an illustration is given herewith (Fig. 3). A novel feature of the engine is that the cylinder is bored from the solid steel bar, the radiating fins being turned up in the lathe. The diameter of the cylinder is 70 mm., and the stroke 72 mm.: the engine, which is fitted with an outside fly-wheel weighing 15 lbs., and having a diameter of twelve inches, is claimed to give off $2\frac{1}{2}$ actual horse power on the driving rim. The exhaust valve is actuated by a special two-to-one reducing gear, as shown in the illustrations of the motor (Figs. 1 and 2). A special ball valve permits the air to escape out of the crank case without forming a cushion resistance against the working of the piston. As this escaping air generally carries oil with it, a nickel-plated pipe is fitted, which leads the oil drop to the ground behind the bottom bracket, but just outside the path of the tyre. The lubrication of the cylinder is carried out by means of a tongue, which licks the oil inside the crank case and throws it up into the cylinder. Provision has been made so that no trace of oil can reach the sparking plug, which is located in the centre of the combustion chamber. The normal speed of the engine is 1,600 revo-

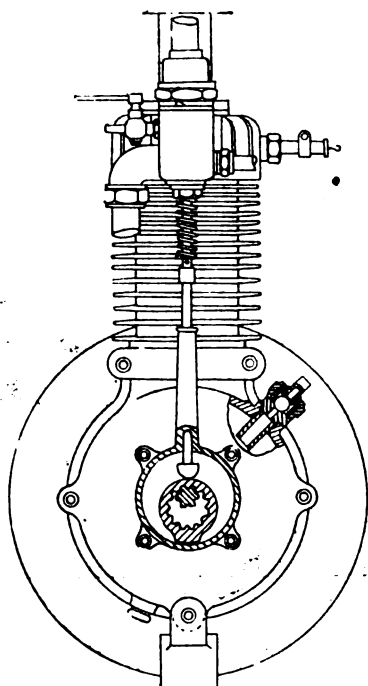


FIG. 1.

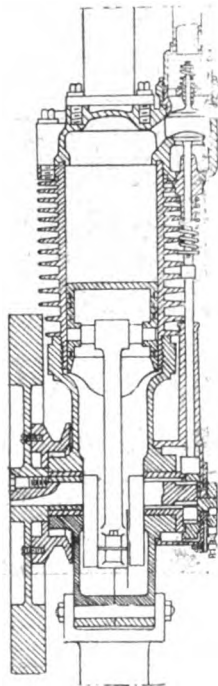


FIG. 2.

lutions per minute. Either a surface or spray type of carburettor can be fitted. Electrical ignition is employed, the induction coil having a special silk insulated cable, wound by a new process. The high-tension wire is about $2\frac{1}{2}$ inches long, and does not touch the frame at any point. The frame or earth wire is only one inch long, so that, with the exception of the switch wire, no wires run along the frame. As will be seen, the motor forms part of the seat tube of the machine, and drives the rear wheel by a $\frac{3}{4}$ inch round twisted chrome belt. A jockey pulley is arranged to slide up and down, to allow the belt to be easily adjusted by the displacement of a hexagonal nut. The machine is being put on the market by Messrs. Brandes and Perkins, of 178, Lockhurst Lane, Coventry, who claim that a speed of forty-four miles per hour can easily be reached on the level, and that no hill, provided the belt is well adjusted, is too steep for it to climb.

In case of petrol becoming accidentally ignited, it is useless to try to extinguish the flame by means of water, as the spirit will float on it and continue to burn. Dry sand is very effective as an extinguisher, and a supply should be kept constantly on hand where petrol is stored or used.

CONTINENTAL NOTES.

BY "AUTOMAN."

IN twenty years' time, when the leader-writer of the day sits down to chronicle the rise and progress of automobilism, and to hold up to public ridicule the then incomprehensible opposition which it had to encounter and surmount at the opening of the twentieth century, the most startling fact to point back to will undoubtedly be the extraordinary veto put on the Nice-Abbazia-Nice motor-car race, at the eleventh hour, by the ill-advised Italian Government, who have already begun to regret and to fear the consequences, which may be far reaching. The most unexpected consequence is the storm of abuse levelled at the devoted heads of the Government by almost every section of the French press, who, forgetting that they are somewhat responsible for the course of events, owing to their attitude over the unfortunate accident in the Paris-Berlin race, are unloading vials of printed wrath, and with one accord dubbing the Italian Government, and all that pertains to it, with the opprobrious title of "Muffe."

THE history of the affair is interesting. In the first place, and in reply to a letter addressed to him by the Baron von Zuylen, president of the A.C.F., the Minister of Public Works wrote, on January 21st, from Rome, as follows to M. le President de l'Automobile Club de France, to inform him "that I have watched with sympathy the steps taken by the Automobile Club of Nice, and seconded by your honourable association, and that as far as possible I am willing to remove all difficulties, in order that the projected race may be a success. I will give special orders along the route, with the exception of special precautions and eventual responsibilities in case of accidents." On the 22nd of January the Minister wrote to Count Biscaretti di Ruffia, president of the Automobile Club of Turin, as follows:—"The Minister of the Interior has communicated to me your letter concerning the coming race for automobilists from the frontier to a city in the kingdom not yet determined. I am inclined to free the participants from the observance of the law of April 28th, 1901, but, in order that I may give instructions to the prefects, I must know the towns on the route."

ON the strength of these letters it was publicly announced that the race would take place, and the Italian Government cannot possibly have been ignorant of the fact that it was being organised and that large sums of money were being lavished on it. The papers all the world over talked of it, and all went well until April 2nd—just six days before the start for Abbazia—when the Minister of the Interior withdrew the permission. The Baron de Zuylen immediately telegraphed to the Minister, but received no reply. After waiting a couple of days he telegraphed as follows:—"Giulitti, Minister of the Interior, and Zanardelli, President of the Council of Ministers, Rome, beg to point out painful impression and indignation felt by numerous manufacturers, who, trusting in the word of the Italian Government, have sacrificed large sums of money in view of the Nice-Abbazia-Nice race, authorised by letter of January 22nd. This prohibition, coming at the eleventh hour, when more than 100 vehicles have been made specially for this race, is such a fragrant violation of the most elementary laws that we are still confident in the good faith of the Italian Government, and trust you will still withdraw the veto." It was not until the evening of April 5th that the following reply arrived:—

"By telegraph to-day, the Minister of the Interior begs me to reply to your telegram addressed to Rome, and which he received at Cavour, and by which you requested him to revoke the order vetoing the automobile race across Italian territory from Coni to Abbazia. I have to say that the race has been forbidden because the conditions laid down by the Minister of the Interior have not been observed, namely, not to use roads on which there were steam tramways, or to cross communes on fair or market days.

Public opinion being very much against races of this kind, which have already caused damage and are very dangerous in countries where the population is thick, the veto is absolutely irrevocable."

FURIOUS is not an adequate word to describe the condition into which the French manufacturers were thrown. Austria has not yet consented to authorise the Paris-Vienna race, and fears are freely expressed that the Italian prohibition may incline the Austrian authorities to follow in the same direction, so that the year's effort will be a dead loss. There is only one remedy possible. The French Government cannot stand idly aside and look on complacently at the injury of a great industry, due to a hasty decision, brought about by the imprudent speech of M. Gautier de Clagny at the time of the Reims accident. The revulsion of feeling has already begun, and there is already a governmental automobile race authorised. To save the trade from disaster they will almost be compelled to step in and authorise the Paris-Vienna race on French soil, and a side wind says that after the elections it will be done. In the meantime the *rapprochement* between Italy and France has

HIGH EXPLOSIVES IN MOTORS.

THE problem of using high explosives as a source of energy has always been a fascinating one, but the difficulties and dangers besetting the path of the investigator in this line have hitherto rendered progress almost imperceptible, though since the days of the early "gunpowder motor," consisting of a fan-wheel actuated by the blast from an explosion-chamber fed with charges by its rotation, such ingenious though unpractical devices have appeared as the Bourdon tube motor of (if memory serves) M. Tatin, in which a cartridge was fired at each stroke, actuating the mechanism of a model flying machine by the consequent pulsations of the Bourdon tube, and the somewhat mythical Pennsylvania production of five years ago, in which a bicycle motor 3 in. by 1 in., worked by powder of some kind, was said to give one h.p. The question, however, has acquired an additional interest in view of the reported use of picric acid, one of the best known of modern explosives, by one of the competitors in the recent French consumption trials,

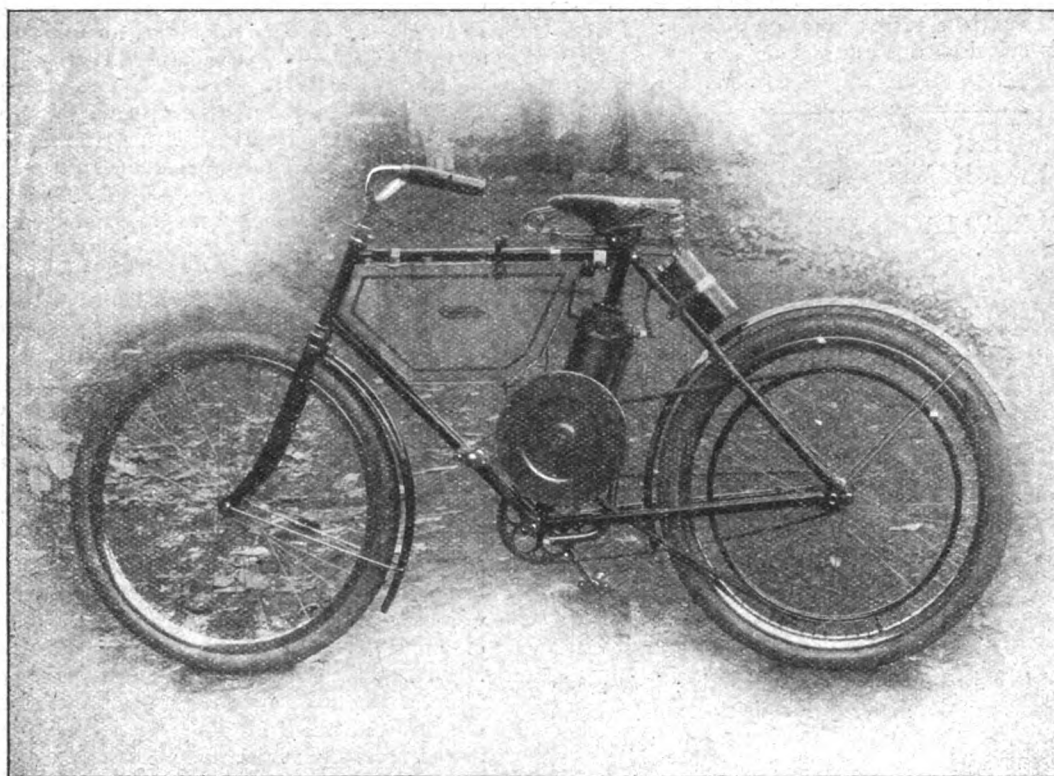


FIG. 3.—THE VICTORIA MOTOR-BICYCLE. (See opposite page.)

suffered a severe blow, because every Frenchman, whether automobilist or not, is deeply offended.

THE London Motor Garage Company, Limited, has been registered, with a capital of £20,000, to carry on business as storers and repairers of motor cars and cycles, etc.

MESSRS. STERN BROTHERS are now producing a new oil for super-heated steam which, they inform us, will stand a temperature of over 800 degrees Fahrenheit. The oil is pure hydrocarbon, and is said to be particularly suitable for Gardner-Serpollet cars.

MESSRS. J. ROTHSCHILD AND FILS, LIMITED, has been registered with a capital of £4,000 to adopt an agreement between Rheims Auscher and Company (representing J. Rothschild and Fils, of Paris) of the one part and A. R. Lucas of the other part, and to carry on business as manufacturers of and dealers in motor-cars, etc.

and though no very definite information regarding the experiments in this direction are available as yet, some remarks on the substance in question may claim a certain amount of general interest, as well as laying a desirable emphasis on the risk attaching to incautious experiment in such a tempting field.

Picric acid, or trinitrophenol, is a substance obtained by the action of nitric acid on carbolic acid, and thus bears a certain analogy to nitro-glycerine, though its explosive properties remained long unrecognised. If gently heated it may be melted (at 120 deg. C.) and even vapourised, the vapour burning without explosion. If, however, it is heated suddenly, as by throwing on a red-hot plate in small quantities, it explodes, while its salts, as potassium and ammonium picrate, are even more explosive, the latter, mixed with potassium nitrate, forming Brugère's powder. The pure acid, though not easily exploded alone, does so violently if ignited by a detonator, and a special point to notice is that with some metallic oxides, and even with a few fragments of lime, it becomes capable of violent explosion. This sensitive-

ness to the action of oxides may obviously prove a source of risk to its use in motors. It does not leave any residue on complete combustion, but this is not attained without the addition of an oxidising agent, which, as increasing its explosive force, would probably be quite inadmissible for motor purposes, and the question as to what residue, and whether a dangerous one, might accumulate under such conditions of use requires investigation. It is soluble in 100 parts of cold water, and also in either alcohol and petroleum, though to what extent in petrol does not appear, while its temperature of explosion is said to be 2,620 deg. C., and its heat of combustion 618 calories.

The advantages which may accrue with modern high-speed motors by the admixture of substances with the normal fuel which increase the rapidity as well as the force of combustion is obvious, but an ample course of experiment with stationary motors, with particular reference to indicator readings, to discover whether danger may be apprehended from irregular, oscillating, and excessive explosions (as has been the case with acetylene motors), is desirable before taking them as companions of the road—lest the ardent motorist, or what is left of him, find cause to echo the motto of the sixteenth century alchemical compiler:—

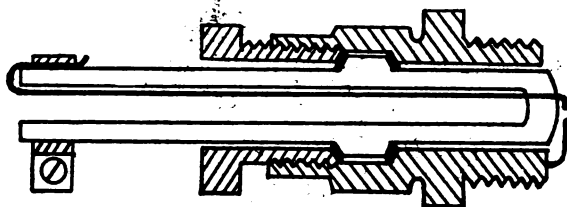
"Crede ratem ventis, corpus ne crede chimistis :

Est quaevis chimica tutior aura fide."

R. W. BUTTEMER.

THE "SEER" TRANSPARENT SPARKING PLUG.

MR. G. CALVERT, 12, Woodville Road, Mildmay Park, N., has been experimenting for some time past to produce a transparent sparking plug, enabling the spark to be seen when under compression. After abandoning several types, he has hit upon an arrangement which, after trials, he claims to be thoroughly satisfactory. Referring to the sectional illustration given herewith, the main shell of the plug is of the usual De Dion type, the difference being in the insulator employed.



This is tubular, and is closed at the inner end only; it is made of a specially annealed fireproof glass, such as is used in chimneys for incandescent gas lights, and globes for incandescent electric lamps. The high-tension wire is fused through the glass, and is perfectly proof against leakage. It then passes along the inside of the tube, and is turned over at the end, and secured by a band slip, to which the high-tension wire from the coil is attached. By looking down the tube the spark can be plainly seen and tested under compression. The insulator is adaptable to any De Dion plug. Mr. Calvert adds that he has found that glass is not nearly so liable to harbour a deposit as porcelain, nor so liable to breakage when properly annealed.

A CYCLE dealer at Dalkeith, Mr. Walter Young, who has just been a bridegroom, has created some local excitement by utilising a motor-car for his wedding party. This is said to be the first motor-car wedding that has taken place in Scotland.

MR. E. KEYNES PURCHASE is acting as hon. architect and surveyor in connection with the new premises of the Automobile Club. It is hoped that these will be illuminated with Bleriot lamps during the Coronation festivities.

AMONG new members of the Automobile Club are Prince Dolgorovki, Earl de Grey, Messrs. W. J. Bull, M.P., P. S. Foster, M.P., J. Gretton, M.P., W. H. Allen, M.R.I., and H. E. Esmond, Major H. L. Sapte, and Captain Bowman-Manifold, R.E.

A RUN INTO CORNWALL.

A PARTY of four—Mr. Edmunds and his son and manservant, and Mr. Crampton—left London on the car "Antrona," a 10 horse-power Daimler, on March 19th, leaving Streatham at 2 p.m. They travelled *via* Kingston, Staines, towards Windsor, and intended going through Windsor Forest, Bishops Gate, to Forest Gate, thence to Reading, but were informed at the Park gate that motor-cars were not allowed. So they had to divert their course, running through Windsor on to Reading, arriving there at 4.40, a distance of about thirty-five miles. The day was bright and fine, and the roads dry and dusty. Capital running was made after leaving Reading on to Newbury, a distance of seventeen miles, where the party stopped at the old coaching inn, "The George," while tea was being prepared. Losing no time, as night was approaching, "Antrona" left Newbury at 6.10, running through Hungerford at 6.45, thence through the lovely forest of Savernake. The sun had just set, a brilliant moon was shining, and the forms of the startled deer, as they heard the approaching car, made a picture not easily forgotten. As the car neared Marlborough lamps were lighted before leaving the forest, for under the shade of the trees and high banks it was very necessary to have the full power of the Bleriot assisted by three oil lamps. It is under conditions like this that one appreciates the value of the acetylene flame. Marlborough was reached, then Calne, and on through Chippenham, where the sleepy inhabitants seemed much startled and interested as the car passed swiftly on to Box. A lovely run on top speed down the roads, which were in splendid condition, into the old city of Bath followed, "Antrona" arriving about 9 o'clock at the New Empire Hotel. The car was put up for the night at Stuckey's stables, and the party, somewhat dusty in appearance, presented a strange contrast to the good folk in evening dress seated in the lounge of the hotel.

The next day revealed a great change in the weather. It was very disappointing to look on the wet roads and roofs from the hotel windows, and it was decided to wait till the weather cleared somewhat, and make use of the time in oiling and cleaning the engines and changing the sprockets, as it was reported that a very hilly district awaited them. A spare pair of new chains and nine-tooth sprockets were substituted for the elevens, and subsequently the party felt they were amply justified in making the change. On replenishing the petrol tanks, which were completely filled before leaving London, it was noted that only four gallons had been consumed during the journey to Bath. Messrs. Fuller, coachbuilders, placed their very commodious showroom at the disposal of the party for carrying out the work on the car, and much interest was taken by the various employees in the proceedings. A somewhat hurried visit was made to the cathedral and the old Roman Baths, and had not time been very pressing some of the party would certainly have got into hot water (from the natural springs). Bath was left, after a very enjoyable lunch and long cigars, supplied by an admiring Norwich friend, who professed to be almost persuaded to automobili-m. though no man more devoted to horses lives in his county, where the party were invited to visit him with the motor-car at the earliest opportunity.

The place to fully appreciate the value of hill-climbing sprockets, powerful engines, brakes, and everything under control, was never more apparent on the whole run than on the road between Bath and Wells. Through the heavy rain falling on the dust-coated roads, a peculiar condition of slime had been produced that was most treacherous and difficult to negotiate the car over, and consequently very slow travelling was made. At one time the hail and wind storm was so severe that the car had to be turned round and stopped, so that the hood formed a protection against the elements. Fortunately, the rain ceased, and "Antrona" proceeded very carefully down the tortuous hills into the old cathedral town of Wells, where it arrived at 5.45. A break in the clouds and a bright gleam of sunshine enabled a fair photograph to be taken from the car of the beautiful cathedral, with its wonderfully carved west front. Passing under the old

gateway the cathedral close was reached. A halt was made of a few minutes, and a consultation held, to consider whether the party should proceed, or stay the night at Wells, in consequence of the unpromising weather and the vile state of the roads. It was decided to push on, and the quaint old town of Glastonbury was reached in about 30 minutes, the roads, though wet, having a good safe surface. A call for light refreshments was made at an inn, where the party was so hospitably welcomed that they were almost persuaded to stay the night, and when persuasion did not avail, they were warned as to the difficulty of the roads and the bad condition for running on to Taunton in the dark. Neither persuasion nor warnings prevailed, however, and, with a view to making up for lost time, "Antrona" departed at top speed on to Street, a town which apparently takes its name from being one long continuous street for two miles, with houses on each side, and dusk coming on it seemed as if one would never get to the end of it. After this a very monotonous run on narrow roads, over a greasy surface, with miles of hedges and ditches, was made over Sedgemoor, until the Bridgwater road was reached; here again the good quality of a well-made road was much appreciated while running in the dark to Taunton. The last few miles seemed interminably long, and it was difficult to distinguish in some places between roads and walls, and but for great alertness a serious mistake might have been made at a railway bridge, where a parapet wall, being of the same colour as the road, was nearly run into.

At Taunton the manager of Claridge's London Hotel gave the party a most hospitable welcome, and though 8.30 at night, he provided an excellent repast for the hungry travellers, taking especial pains when he learnt that it was a birthday anniversary for the senior member of the party.

Next day the weather looked somewhat more promising. Before leaving Taunton the works of the Newton Engineering Company were visited, and the courtesy of Mr. Hickley, the manager, much appreciated. Himself a motorist, he took great interest in the car, which he supplied with petrol and other small items. Here "Antrona" was weighed on the weighbridge, turning the scale, when empty, at 27½ cwt. Taunton was left at 10.45, the roads being in fair condition, and the scenery very interesting through the lovely district between Wellington, South Appledore, and Cullompton. They were now nearing Exeter, making good running, with roads of excellent surface, but the sky looked threatening, and just before entering Exeter encountered an almost cyclonic dust storm. Evidently here the rain had not fallen; the dust was so dense the car had to be stopped a few seconds, as it was impossible to see the road. One noticed that in this district the horses seemed very frightened, and the drivers even more so, evidently not being accustomed to the new mode of travel. A capital lunch was excellently served at the old Royal Clarence Hotel, facing the cathedral, which was reached at 1.15, a distance of thirty-three miles from Taunton. At 2.45 "Antrona" started again, going down the main street of Exeter, with its steep grade, crossing the bridge over the river Exe, then ascending a very stiff long hill to Crockerwell, over roads of good surface, though, like many in Devonshire, none too wide, and with many turns; and great caution was necessary in going at top speed with so limited a view of the road ahead. The country was now getting wilder and grander, there were many hills with stiff grades, and the roads had patches of unrolled stones, amounting in the aggregate to several miles, between Crockerwell and Okehampton. It is impossible to adequately describe the conditions, apparently tons of stones, many of them being three or four inches cube, and simply dumped down on the road, covering like a blanket the whole width of the road, not unlike a railroad in course of construction before the top-dressing or sleepers are laid; and it was here that one realised the value of the Collier Twin tyres, which, though they had been running without attention, in fact ever since put on the car in November last, stood bravely up to their work, and showed that they had come out unscathed when the car arrived at Okehampton at 4.45. This quaint little out-of-the-world town is evidently keeping up with the times, as the hotel

was electrically lighted. When the party stopped for tea the people were much interested in the car. A glance at the Contour maps will show the heavy grades and hilly district through which "Antrona" was travelling, but the roads were fairly well laid, and the surface, though wet, not slippery here. The weather had broken, and the car was travelling alternately through heavy rain and patches of bright sunshine, and skirting Dartmoor as the evening was coming, some of the cloud effects and distant views were magnificent. Again many patches of stones were met, but, fortunately, without any bad results. The quaint old town of Launceston came into view about 6.45; this is literally a city built on a hill, the ruined old castle at the top being visible for many miles. The steep road down to the bridge of the river Tamar was in a very greasy condition, and but for careful handling a sideslip would have been certain, it being only prevented by most judicious application of brakes and very slow running. Crossing into Cornwall a long stiff hill with a horrible surface of wet



THE ARRIVAL OF THE "ANTRONA" AT FALMOUTH.

slime was encountered, and it was with considerable feelings of thankfulness that the party reached the top safely, passing under the old gateway, catching a glimpse of the wonderfully carved granite walls of the old Launceston Church. Running along narrow winding streets, "Antrona" was brought up in front of the White Hart Hotel at 7 o'clock: here rooms were obtained and dinner ordered. As the car was being driven round to the coach-house adjoining, an enterprising agent for petrol, Mr. Prockter, appeared, and expressed every readiness to supply the necessary requirements for "Antrona" as regards petrol, lubricating oil, and carbide. It was particularly gratifying to note, when so far away from one's base, that people were sufficiently interested in automobilism to thus cater for the wants of the motorist. It was surprising to see how little lubricating oil—less than a quart—was wanted to replenish the stock for the whole run from London to Launceston, a distance of over 230 miles. This is probably due to the excellent effect of the Estcourt cooler. Though considered unsightly by some, it is certainly a most valuable adjunct in a long run; it obviates the necessity and care of a pump, and, in the case of "Antrona's" cooler, when full only requiring 1½ gallons of water, and during the whole run at no time was a replacement of more than two or three pints of water necessary. Evidently an engine can be overcooled as well as overheated, and much of the efficient running of "Antrona's" engines is due to the Estcourt radiator.

(To be concluded.)

E

MOTOR-BICYCLE TROUBLES AND THEIR REMEDY.

IN view of the increasing popularity of motor-bicycles, a few remarks as to the causes of stoppages and the way to remedy them may not be without interest. Short circuiting (escape of electric current) may be caused by several means, such as the insulating material covering the wires being worn through or worn so thin by chafing against a portion of the tank or frame work that the current can escape from the wire to the frame. Another simple cause of stoppage is owing to one of the terminals or connections of the wire coming loose and the contact not being sufficiently close or firm to pass the current with regularity. A loose contact generally results in a very jumpy gait of



MR. E. H. ARNETT ON HIS WERNER.

the motor and occasional backfires. Wet is a very frequent cause of trouble, water being an excellent conductor of electricity, and if two of the terminals or two of the wires get connected by a film of moisture a short circuit is the inevitable result. If the rider should happen to be riding for a considerable time in the rain the insulation round his wires may get soaked through, and as a matter of course trouble may be expected. It is, however, very easy to avoid electrical and all other troubles on any first-grade motor-bicycle. The rule is, first of all, to test the accumulator with a voltmeter to see that the necessary charge is there (or, if a battery is used, test with an amperemeter), then see that all contacts and connections are firmly made, and that every wire connection is covered and insulated perfectly by the proper insulating tape or rubber supplied by all motor firms for this pur-

pose. Except for a breakage in the wire or a defective induction coil, the rider should, if these cautions be observed, be free from electrical troubles between the battery and the sparking plug. I am assuming that the rider knows about the adjustment of the contact breaker, though, of course, he might possibly have trouble at that part of the machine owing to the platinum points becoming worn down or dirty with oil, in which case the engine would "miss fire," as only a weak current, or possibly no current at all, would pass. Jumpy progression of the machine is also sometimes caused by the platinum on the contact blade or upon the tipped screw becoming loose. The remedies in these cases are very obvious: clean the contact points, or replace with new blade or screw as required.

The sparking plug seems to cause a lot of trouble with some people, but I myself have not experienced this, for with three genuine De Dion plugs I travelled as nearly as I can estimate 11,000 miles during a season and a half. The porcelain of the plugs is, of course, very brittle, and care must be taken not to knock it. Apart from an absolute breakage, the main cause of stoppage is through the plug inside the cylinder getting fouled with soot through an imperfect mixture being used, or more often through there being too much lubricating oil in the cylinder, which oil, getting over the top of the piston head, gets burnt up when an explosion takes place, causing a heavy deposit of soot. When this happens remove the plug and clean both the points of the wires and also the porcelain with petrol and a piece of fine rag, or with a little fine emery cloth. Soot is a conductor of electricity, and if the soot is not removed the current passes through this instead of from wire to wire as it should do to cause a spark. The points of the wires should be about one thirty-second of an inch apart. The switch-handle sometimes gets fouled inside, and requires cleaning before a proper contact can be made. The carburettor is also a cause of stoppage sometimes. In cold weather a "surface" carburettor frequently fails to act if the machine has been left standing for a time. The best way to get started is to procure some boiling water, and, after soaking some rags in the same, wrap the hot rags round the carburettor till the petrol in the carburettor is warm enough to evaporate sufficiently. I have found that the most reliable carburettor, and also the most certain in its results, is one of the spray type as fitted to the new Werner motor-bicycle.

ERNEST H. ARNETT.

ACCORDING to the *Star*, J. H. Martin, the jockey, has a motor-car, "and he clothes himself when driving in a bearskin." Really!

LAST week the King landed at Lulworth, and went by motor-car to Melbury Park, Evershot, the country seat of the Earl of Ilchester, a trip that gave His Majesty typical views of Wessex.

THE opening run of the Motor Cycling Club will take place to-day (Saturday). The meeting place is to be at the Station Hotel, Purley Corner, at 3.30 p.m. to start at 4.0 p.m. Those who elect to start nearer London will meet at Hyde Park Corner (St. George's Hospital) at 2.30 p.m. Tea will be taken at Crawley at five o'clock, and dinner at the Gloucester Hotel, Brighton, at 8.15 p.m., Mr. Mark Mayhew, L.C.C., in the chair. Tickets (4s. each) for the dinner can be obtained from Mr. Anthony Westlake, hon. secretary, 20, Endell Street, W.C., or Mr. G. E. Roberts, hon. assistant secretary, 29, Horsford Road, Brixton Hill, S.W.

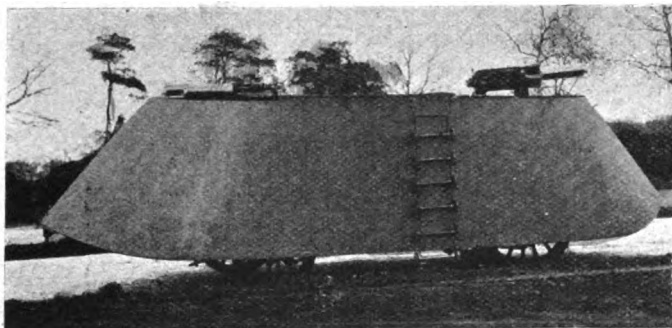
ON Thursday last week we had an opportunity of inspecting the first of several cars that the Motor Manufacturing Company, Limited, are building for a public service in South Africa. The vehicle was just on the point of being despatched to the docks, so that we were only able to give it a brief examination. The motor comprises four cylinders, and is of 12 h.p. A new departure is in connection with the governor, which now acts on the admission instead of on the exhaust valves. The radiator, too, is on new lines; it is of the ordinary form, but is inclosed in a casing open at the front and rear, the cooling of the water being accelerated by means of a fan driven off the engine shaft. The carriage body is of wagonette form in natural wood, and has seating capacity for twelve persons. Sirdar solid rubber tyres are fitted to the road wheels.

THE SIMMS WAR CAR.

THE workmanlike appearance of the motor war-car which Mr. Frederick R. Simms has designed was well demonstrated at the Crystal Palace a few days ago. The car has been constructed by Mr. Simms for Messrs. Vickers, Sons and Maxim, Limited, and represents the culmination of nearly three years' experimental work. As will be seen from the accompanying illustration, the car is rectangular in form, and enveloped with armour of crinoline shape, longitudinally flattened, and having a ram fore and aft of an angle of 45 deg. The extreme length is 28 ft., the beam 8 ft., and the height of the armour 10 ft.—this being about 18 in. from the ground. As showing the extreme care and thoughtfulness with which the car has been designed, we may mention that the inside top edge of the armour is filled with half-embedded rollers, thus preventing anyone, even if he succeeds in scaling the sides, obtaining a hold when he gets to the top.

Semi-elliptical springs are used in attaching the armour to the frame of the car. These are mounted on steel trestles, suitably braced and stayed to the main frame. The armour is consequently not rigidly fixed to the car frame, but is separated from it, thus obviating the detrimental vibration imparted by the road wheels to the frame. This is practically the only means of preventing the rivets joining the armour-plates from shaking loose. Distance links are also fixed between the armour and the frame to prevent excessive lateral movement.

The engine employed is of the Cannstatt Daimler type, 16 h.p., and fitted with the Simms-Bosch magneto-electrical ignition and timing gear. The bore of the cylinder is 90 mm., the stroke 130 mm., and the compression 60 lbs. per square inch. Cooling is effected by a Cannstatt marine type cooler. The engine is located in the centre of the frame of the car so as not to impede operations of the crew. Four speeds—1½, 3, 5, and 9 miles per hour—are provided, which can, however, be increased 25 per cent. by means of the accelerator. Power is transmitted to the driving wheels by means of a counter-shaft, on which is fitted the differential gear. At either end of the shaft is a sprocket wheel, and these sprocket wheels drive the rear wheels by means of Brampton chains. The steering is controlled by hand wheel and gear, and



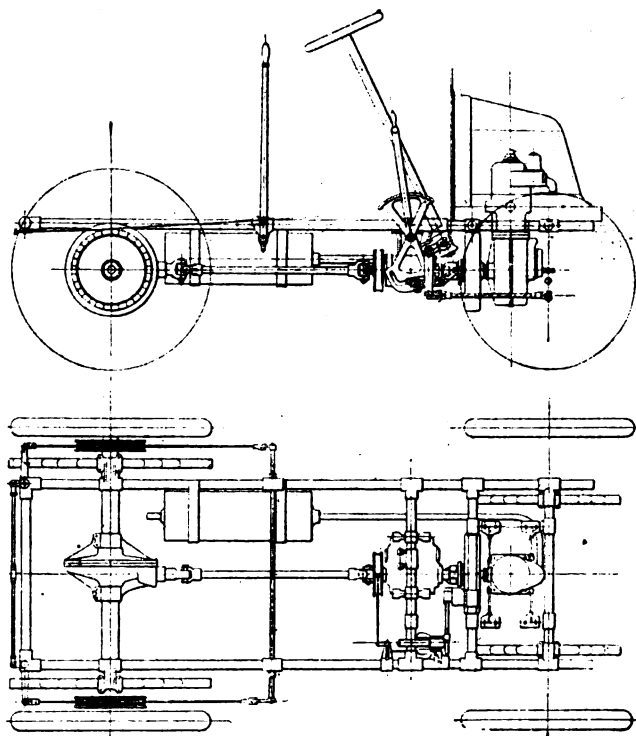
so efficient are the braking arrangements that, when going at full speed, the car can be brought to a dead stop within six to eight yards—a capital performance, when it is remembered that the total weight of the car complete, with armour, two pom-poms, and two automatic quick-firing Maxims and fuel, is 5 tons 12 cwt.

At the back of the rear axle and underneath the main frame is a tank carrying enough fuel for 200 miles, while in the front and rear of the armour are boxed compartments to contain 10,000 rounds of ammunition. There is sufficient platform room for about a score of men, and a specially-constructed rope ladder is provided, which can be drawn in when the car is moving or engaged in action. The Simms war car will doubtless prove useful as an adjunct to the defensive equipment of our coasts.

THE Kingston Motor and Cycle Company, of Kingston-on-Thames, has been placed on the list of repairers to the Automobile Club.

THE ARGYLL LIGHT DELIVERY VAN.

IN addition to pleasure cars, the Hozier Engineering Company, Limited, of Bridgeton, N.B., are now devoting attention to light delivery vans. Fig. 3 on page 102 depicts a vehicle of this type they have lately turned out for a Glasgow firm. It is fitted with an 8-h.p. engine, and is intended to carry a



FIGS. 1 & 2.—ELEVATION AND PLAN OF ARGYLL 8 H.P. CH. SSIS.

load of 8cwt. at a maximum speed of fourteen miles per hour. So far as the mechanism and general construction of the van is concerned, this is identical with that of the Argyll light car described in a recent issue. It need therefore only be mentioned that two types of engines are being fitted, either of which may be had to order—namely, the Simms, fitted with Simms-Bosch ignition, or the latest De Dion pattern made by the Motor Manufacturing Company, Limited. The power is transmitted from the engine to the gear-box by means of a friction clutch of large diameter. Three speeds forward and reverse motion are provided, all actuated by one lever, a cam being used which renders it impossible for any one gear to get into mesh before the other is released. A universally-jointed shaft transmits the power from the gear-box to the back live axle (Figs. 1 and 2). Efficient brake power is provided. The frame of the vehicle is tubular, the rods running along the whole length to make it perfectly rigid. The road wheels are of the artillery type, and in the case of the delivery van are shod with 2 in. solid rubber tyres.

THE Victoria Motor Company, Limited, has been registered with a capital of £2,000, to deal in motors, motor-cycles, etc.

AN enterprising motor-cycle agent in the Thames Valley is offering instruction in the management of motor-bicycles at 3s. per hour, the sums thus paid to be returned to purchasers of machines.

THE Western Section of the Scottish Automobile Club is arranging motor car runs as follows:—May 3rd, to Biggar; June 7th, to Girvan, where the members of the Club will be the guests at the country seat of Mr. Weir, of Cathcart.

THE invention of a brass clamp to fasten the nets to the table in connection with ping-pong is said to have raised a Birmingham brass-founder from a comparatively obscure position to an altitude of prosperity that provides him with the luxury of a motor-car.

THE AUTOMOBILIST'S SPRING CLEANING.

THE approach of spring, which is the signal for a burst of unappreciated activity upon the part of our friends the poets, and which means to them a return of the flowers and the birds, is none the less interesting, though of less romantic concern, to the automobilist. To him the year is divided into two parts, namely, the season when one can use his vehicle with pleasure and the season when one cannot, although there are motorists to whom a long drive in winter is a source of joy; and the significance of spring to him is that it ushers in the former long-sighed-for period. Just as spring cleaning is now the order of the day in domestic circles, at the present time the motorist may well indulge in a complete overhauling of his vehicle preparatory to its season's work.

There are usually quite a number of minor defects about a car, which are tolerated as long as they do not seriously interfere with

of a half-dozen or more separate oil cups, or has become disgusted with the dribble of the lubricant from oil reservoirs packed with wick. In that case he may look about for room to locate a multiple oiler and its necessary piping. If water economy has proved unsatisfactory in past seasons one may be led to seek relief, in this direction, by adding a circulating pump and radiators. And then there is the matter of painting. If the vehicle has seen hard service during the past season, the probability is that it is needed. One should be sure to wait until every bit of mechanical work about the carriage is completed, beyond any possibility of resumption, before any painting or varnishing is done. It requires only a very few slips of the mechanic's monkey wrench to chip off the shining new coat to a state of shabbiness, and the prints of black hands upon fresh paint are not ornamental.

In case there are no special repairs needed or improvements to be added, the spring cleaning resolves itself into a thorough course of inspection, cleaning and readjustment covering all parts of the machine. One is always interested to see in what condition tyres



FIG. 3.—THE ARGYLL LIGHT DELIVERY VAN. (See page 101).

its operation, and which are not serious enough to warrant the loss of use which their cure, in the busy season, would entail. Now is the proper time to look after these with such a degree of thoroughness that their recurrence during the coming season may be next to impossible. If the vehicle has shown any bad habits, it is a favourable opportunity to institute an investigation for the purpose of locating the trouble and applying a suitable remedy. It may be, too, that it will be found upon inquiry that the manufacturers have brought out some useful improvement or attachment, which it may be practicable to install upon the vehicle, and thus, to a certain extent, bring it up to date. The better class of manufacturers will be found ready to give an old customer the benefit of any such new "wrinkle" at a reasonable price, to the end that he may remain upon the satisfied list.

It may be found that the manufacturers have improved their carburettor to such an extent that a change may be warranted. Perchance the owner is weary of filling and regulating the feed

will prove to be, as it is a matter that affects the pocket-book most deeply. The tyres should, of course, have been relieved of the weight of the vehicle during the period of disuse. They should now be pumped up, and, if any one does not hold air properly and the fault is not in a leaky valve, it should be taken off and examined. This is a good time to have wire wheels trued up and to look out for broken spokes. The bearings of the wheels should be thoroughly cleaned, readjusted if there is need, and packed with vaseline or heavy lubricant. It is well to bear in mind that steering gear and brakes are the two special parts of an automobile upon the integrity of which human life depends, and these portions should be given a special inspection. Backlash or lost motion in the steering gear is a most annoying thing and one which inevitably results from long usage. If there has been any nut or screw upon any part of the steering gear that has shown a tendency to work loose, do not tolerate it a moment longer, and do not trust any nut without a split pin to hold it. The brakes, too, are en-

titled to a really painstaking examination. There will be a certain amount of stretch of the pull rods and wear of the braking surfaces to be attended to at the end of a season's use. There should be no "drag" of the brake shoes or straps allowed when the brakes are supposed to be out of action. The utmost care as to the security of all nuts will be well expended here.

Upon almost every car there are usually one or more nuts which seem to have a congenital tendency to work loose, as they are found in that condition at almost every inspection of the machine. It is a favourable time to deal finally with these bad nuts so that they may never again figure in the trouble account. One can deal with bad nuts either by providing split pins, check nuts or set screws, or even by the brutal recourse of heading over the end of the stud. For large nuts that are otherwise incorrigible the application of a set-screw will prove a certain cure.

It is well to take off the chain and put it to soak in paraffin in order to clean it thoroughly. If it is soaked in a pan having a false bottom of wire-netting and the liquid is agitated from time to time, the dirt will collect below the false bottom and leave the chain quite free from grit. The paraffin may then be drained off and the chain given a bath in warm melted tallow, with which has been mixed some graphite of the finest grade. A chain should be examined for stretch, and, if enough wear is found to cause it to run seriously out of pitch, it may be good policy to discard it, and invest in a new one. If the chain is very much worn the probabilities are that the outlines of the sprocket teeth are badly out of shape, in which case it may be best to secure new sprockets, for it is just as bad judgment to put new chains on old sprockets as "new wine in old bottles." If sprockets are to be changed, it is well to consider whether any other "gear" would be preferable. Automobiles are generally geared to meet average conditions, but if a particular car is to be used in a very hilly country, where the roads are bad, it may be good policy, when a change is to be made, to add a tooth or two to the rear sprocket and thus secure a gear better adapted to the conditions; while, if the carriage is operated in a level country, where the roads are fine, and a little more speed is desired, a tooth or two may be dropped from the rear sprocket.

Despite the utmost precautions, a considerable amount of dirt and moisture will be found to have collected in the carburettor and the petrol tank. The carburettor should be disconnected and taken entirely to pieces, and all parts and passages should be thoroughly cleaned. If the needle valve which is operated by the float does not shut off properly it should be ground into its seat until tight. Every drop of liquid should be drained out of the tank and every particle of sediment should be washed out with petrol in order to make a fresh start. The rubber connections of the cooling system may need renewal, as they deteriorate under the action of hot water, and tanks or radiators may have developed slight leaks which demand treatment.

If the engine has been addicted to any bad habits now is the time to try and reform them. There may have been an annoying knock, which can be disposed of, or perhaps the compression, which is the very life and spirit of a petrol motor, may have become weak. The old oil should be drawn off from the engine-crankcase and the reciprocating parts given a bath of paraffin. The bearing of the connecting rod on the crank-shaft should be carefully examined to see if there is any back-lash which might give rise to a "knock." If so, it should be taken up by an adjustment of the brasses, at the same time assuring oneself that the brasses are left in a perfectly secure condition; for a loose connecting rod is a very destructive thing. The main crank-shaft bearings and the bearing of the connecting rod in the piston should be looked after as regards their adjustment and the efficiency of their lubrication. Both the exhaust and the inlet valve should be carefully ground into their seats by the use of emery or quartz paste, if there is the slightest suspicion against their tightness. Care should be taken to see that the jacket water does not leak into the cylinder on account of the cylinder head joint having given out. A general examination as to the lubrication of all parts should be made. Oil cups should be removed and cleaned, so that their

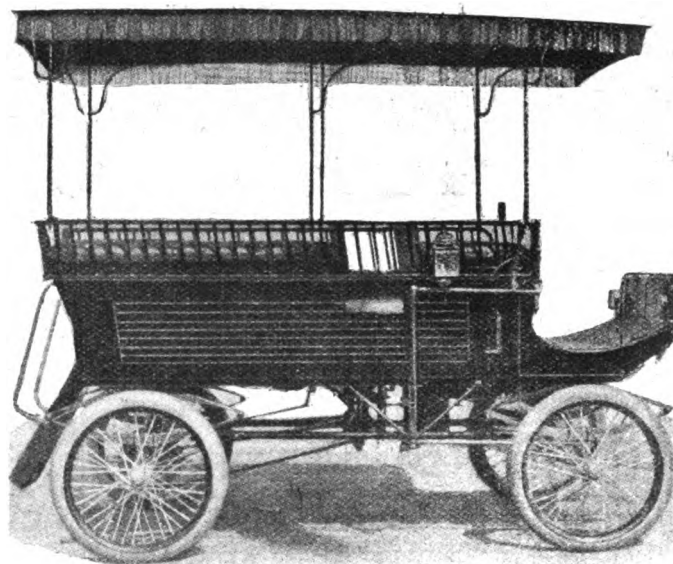
sight feeds may be visible, and all oil-ways should be demonstrated to be clear.

The ignition mechanism deserves its share of attention. If any trouble has ever been experienced from broken wires or short circuits this is a good opportunity to re-wire the carriage. In the general overhauling the friction-clutch should not be overlooked, but should be adjusted carefully.

If the automobilist's spring cleaning and renovating is well done, it will bear abundant and satisfactory fruit in a smoothness of operation and a comparative freedom from trouble during the coming season, and will save many fold the time and trouble spent on it.

A PUBLIC SERVICE STEAM CAR.

THE Mobile Company of America, of Tarrytown, on the Hudson, N.Y., U.S.A., has recently introduced a public service car driven by steam. As will be seen from the accompanying illustration, the mechanical part of the vehicle is similar to that adopted in the now popular light American steam cars, the only difference being a stronger frame,



longer wheel base, and a wagonette body to seat ten persons. A car of this type, with nine passengers, recently made the journey from Tarrytown to New York, a run of twenty-eight miles, in somewhat less than two hours.

MR. W. R. McTAGGART, 102, Grafton Street, Dublin, has been appointed sole agent for F.N. motor-bicycles in Ireland.

"TUITION in roadside repairing" is offered to motorists by a firm in the West End of London. Such information can be given "at your own residence if required." Certainly it is better to do all needful repairs at home than to wait till a public road is reached.

THE Automobile Club of America is arranging for a series of tests over a mile course. The competition will be divided into classes as follows: (1) Motor-bicycles and tricycles; (2) petrol vehicles, sub-divided into three classes, viz., under 1,000 lbs., between 1,000 and 2,000 lbs., and over 2,000 lbs.; (3) steam vehicles; (4) electrical vehicles.

THREE prizes of respectively £500, £250, and £100 are being offered by the German Ministries of Agriculture for the best military tractors operated by alcohol motors, the vehicles to be of home construction and to be capable of hauling a load of fifteen tons at an average speed of five kilometres per hour. Entries close on January 1st next, and the trials are to take place in February, 1903.

A COMBINATION BALL AND ROLLER BEARING HUB.

THE accompanying illustrations depict a combination ball and roller-bearing hub for the road wheels of motor-cars, which has just been introduced by Mr. J. R. Churchill, of 115A, Queen Victoria Street, E.C. The object of the arrangement is to obtain the advantages of roller bearings without the expense of employing two such bearings for each wheel. It will be seen that the device comprises

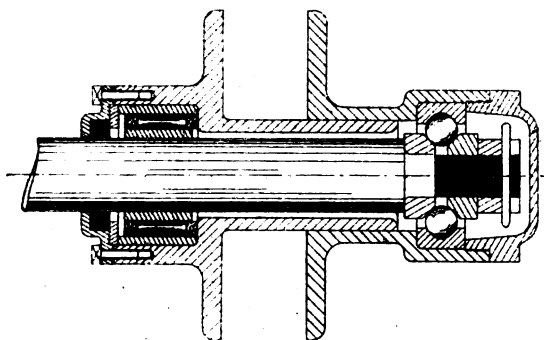


FIG. 1.—HUB FOR REAR AXLE.

a special hub and flange proper, together with only one set of rollers in a cage and one set of balls to work in suitable races. The rollers are so placed as to receive all the dead weight on the wheel (or as much of it as may be desired in any special case), the balls being placed to take none, or very little, of the dead load,

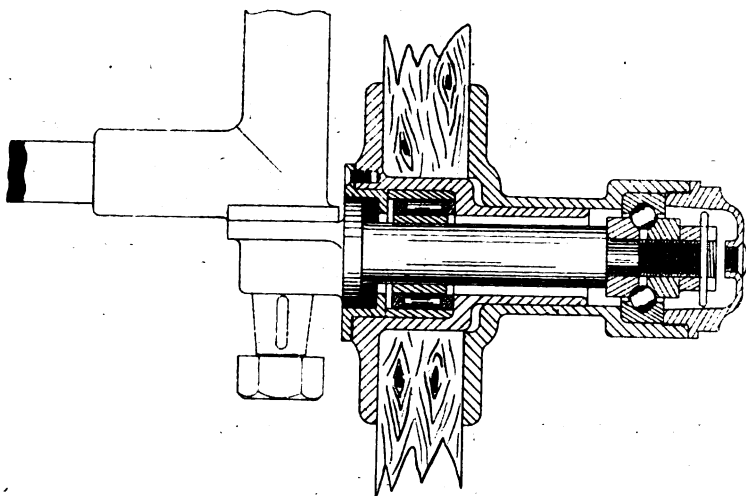


FIG. 2.—HUB FOR STEERING AXLE.

the function of the latter being to take the side stresses coming on the wheel when in actual use. By their joint action, the roller bearing and the ball bearing are claimed to keep the wheel in strict alignment with the axle. In the case of rear wheels for side chain drives, the roller bearing is placed so as to take, direct, the full pull of the chain on the sprocket as well as the dead weight on the wheel itself. The hubs are made for both front (steering) and rear axles in a variety of sizes.

THE Aero Club of the United Kingdom has ordered its first balloon.

On Saturday last, at Netherall Gardens, N.W., some trials were made of a new device intended to prevent the running back of motor-cars on steep grades. It consisted of a couple of large wooden wedges supported one behind each of the rear road wheels. In climbing hills these can be let down on the road behind the wheels. While it cannot be said that they add to the appearance of the car, the wedges appear to be capable of preventing all chance of the car running back in a hilly country. We may add that a very similar arrangement was shown on one of the cars at the exhibition in Paris, in January, 1901.

MOTOR-CYCLE TRIALS.

THE Motor-Cycle Trial organised by the Metropolitan District Association of the Cyclists' Touring Club and the Automobile Club of Great Britain and Ireland took place at the Crystal Palace on Saturday last. The meeting was open to motor-bicycles of any horse-power, and motor-tricycles not exceeding $2\frac{1}{2}$ h.p. The conditions were that the stewards of the Automobile Club would fill up petroleum spirit tanks completely, after which the machines were to be ridden 20 miles on the track. It was not a race, as no records of time were taken, but if the time taken in completing the 20 miles exceeded one hour the rider was disqualified. Pedalling after the motor-cycle crossed the starting line was not permitted, a stoppage of any kind on the track disqualifying the machine and rider.

On the completion of the 20 miles run the machines had to be ridden directly off the track without dismounting, and proceed up Rock Hill, turning at the top, descend, turn at the bottom, and repeat the ascent twice, making three ascents in all, and return without dismounting to the track enclosure. Pedalling was permitted when the motor-cycles left the track. The hill is 800 yards long, the steepest portion of which has a gradient of 1 in $6\frac{1}{2}$.

The afternoon was anything but a pleasant one, heavy showers falling at intervals and completely drenching the track. It was, therefore, not surprising that out of the 23 entries only fifteen put in an appearance. The operation of filling the petrol tanks on the different machines was put in hand at about the appointed hour, the riders being despatched on their journey, not together, but at somewhat irregular intervals. Of the fifteen machines which started, fourteen were motor-bicycles—representing thirteen different makers—the fifteenth being a Singer motor-tricycle. Although the 20 miles on the track was not to be a race, it was soon evident that a trial of speed was being indulged in by two of the competitors—H. Martin, on the $2\frac{1}{2}$ h.p. Excelsior, finding a rival in a 2 h.p. Mitchell, ridden by G. V. Rogers, an expert American motor-bicyclist, who reached this country only a week or so ago. As already mentioned, no records were taken of the time occupied by the different competitors in reeling off the 20 miles on the track, but we ascertained that Rogers on the Mitchell led the pace by doing it in 37 min. Of the fifteen competitors, ten succeeded in completing the 20 miles without pedalling or a stoppage of any kind, which, under the weather conditions, is very satisfactory; while, as will be seen below, the cause of the stoppages of the remaining five were not such as would be a serious matter on the road.

As a result of the starting of the competitors at irregular intervals, certain of the riders finished their 20 miles on the track a long time ahead of the others, so that machines were leaving and re-entering it for the second part of the programme while others were still careering around, and, as a result of the somewhat unsatisfactory arrangements at the gate, it was a wonder that no accident occurred. As it was, there were some very close shaves. The difficulty of the hill-climbing task was increased owing to the wet and soft condition of the roadway, particularly on the steepest grade, and it was a matter of some surprise that such a large proportion got through the task. Of the ten competitors left after the track trial seven succeeded in performing the hill-climb the stipulated number of times, the failure of the Mitchell, which did so well on the track, being due to the stretching of the driving belt.

As the competitors returned to the track, after the hill-climbing trial, the consumption of petrol was ascertained, under the direction of Mr. Worby Beaumont, the method adopted being to pour from a measured glass sufficient petrol to refill the tanks on the machines. No new types were seen amongst the competing machines, but we noticed a new departure on the Werner ridden by E. H. Arnott. In place of the small flat-belt pulley on the motor shaft, a small chain wheel was fixed, the power being conveyed to the ordinary belt pulley by a block chain of the usual bicycle type. There were no teeth on the rear pulley, the necessary grip or slip being obtained by a small sprocket mounted as an adjustable idler behind the motor. Mr. Arnott

informed us that while it is merely an experiment, so far as he has tried it the arrangement has given very satisfactory results. We append a table giving a *résumé* of the results of the trials, and, to save reference, may add that 20 fluid ounces are equal to a pint:—

Name of Competitor.	Machine.	Petrol Consumption.	Time occupied in making Ascent and Descent of hilly course in grounds.					
			First Attempt.	Second Attempt.	Third Attempt.	Fourth Attempt.	Fifth Attempt.	Sixth Attempt.
F. Birch ...	Singer 2½ h.p. Bicycle	31½	1 57½	1 56½	1 40½			
B. Yates ...	Humber 2 h.p. "	38	1 30½	1 31½	1 44			
T. B. André ...	Derby 1½ h.p. "	42	2 10	2 21½	2 50½			
E. Perks ...	Singer 2½ h.p. Tricycle	42	1 31½	2 46	1 38			
H. Martin ...	Excelsior 2½ h.p. Bicycle	44	2 28	1 41½	1 28			
A. T. Nixon ...	Hewetson 1½ h.p. "	50	2 19½	1 48½	1 52½			
E. H. Arnott ...	Werner 1½ h.p. "	110*	2 5½	1 56	1 58½			
C. R. Abbott ...	Stretton 2½ h.p. "	—	stopped on track owing to failure of sparking plug.					
W. Parry ...	Minerva 1½ h.p. "	—	2 17½	—	—			
J. C. Nixon †	U. M. I. 1½ h.p. "	—	1 52½	2 33½	1 49½			
E. Perman ...	Enfield 1½ h.p. "	—	3 1½	—	—			
G. V. Rogers ...	Mitchell 2 h.p. "	—	3 30½	—	—			
A. Westlake ...	Chapelle 2½ h.p. "	—	stopped on track owing to loose ignition wire.					
A. C. Wright ...	Ormonde 1½ h.p. "	—	driving belt broke on track.					
J. J. Leonard ...	Werner 1½ h.p. "	—	did not complete 20 miles on track owing to error.					

* Large consumption was due to petrol tank leaking at top.

† Consumption not taken because of stoppage on track owing to belt coming off pulley.

The best performance of the day, from the consumption point of view, as will be seen, was that of the Singer 2½-h.p. bicycle, its steadiness of running being much commented upon. The Humber 2-h.p. bicycle was a good second as regards consumption, and in the hill climbing came out with the best times, the Singer being second, the use of the pedals being not resorted to, we understand, by either machine during the whole of the trial.

At a recent fire at Bryn Mawr College, Bryn Mawr, Pa., U.S.A., the private motor-car of Mr. L. S. Clarke, president of the Autocar Company, Ardmore, Pa., rendered signal service in carrying coal from a neighbouring coal yard to the fire engines.

MESSRS. COXETER AND SONS, Limited, of Abingdon-on-Thames, will have a supply of petrol at their Oxford depot in Broad Street on the occasion of the Automobile Club's trial on the 3rd prox. Workmen will also be in attendance should any cars require repairs.

MR. A. E. EDWARDS, who was to have read a paper on Motor-Vehicles before the Birmingham Association of Mechanical Engineers on Saturday last, unfortunately met with a motor-car accident a few days before. The reading of the paper has been postponed until to-day (Saturday).

It is proposed to establish a small model village at Willingdon, near Eastbourne. Should the proposal become a reality, a rapid and inexpensive means of transit between the two places will be necessary, and already a motor-bus service is being advocated in view of the early completion of the King's Drive.

MESSRS. JOHN CHILD MEREDITH, Limited, of Birmingham, have sent us a sample of the "Bilar" sparking plug, which, apart from its small size, comprises several special features. No cement is used in its construction, and the porcelain is in two pieces to allow for expansion, the outer part taking the form of a bell-shaped piece. A rod passes down the centre, and is held in position by a lock nut, between which and the porcelain is fixed a small spiral spring. Thus, while the rod is securely held, provision is made for the expansion of the porcelain without it becoming crushed. We have not had an opportunity yet of testing the plug, but the arrangement strikes us as being a good one.

ENGINES AND BOILERS FOR LIGHT STEAM CARS.

DURING the past twelve months we have had many enquiries as to where engines and boilers could be obtained suitable for use on light steam cars similar to those used on the increasingly-popular vehicles of America in construction. Several firms are now going into this department among them being Messrs. F. Wilkinson and Company, of the

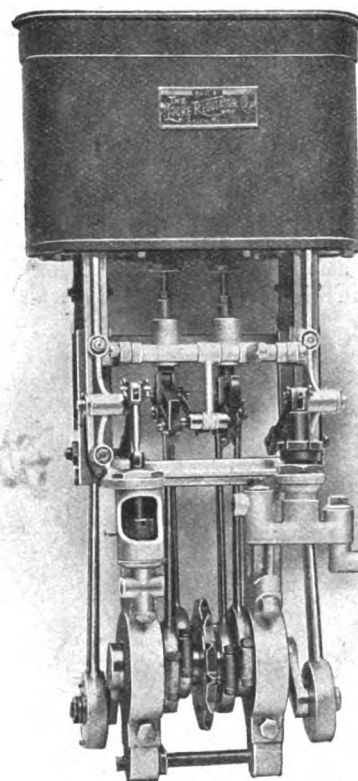


FIG. 1.

Beaver Steam Car Works, Cornbrook Road, Manchester, two of whose specialities we are this week able to illustrate.

Fig. 1 shows a two-cylinder steam engine developing 5 h.p.; the cylinders are 2½ in. diameter by 3½ in. stroke. The engine frame is made wholly of gun metal. The valves are set to

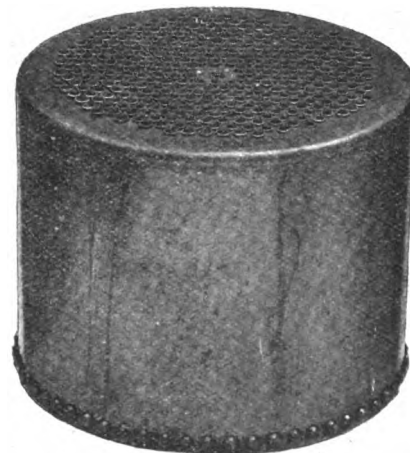


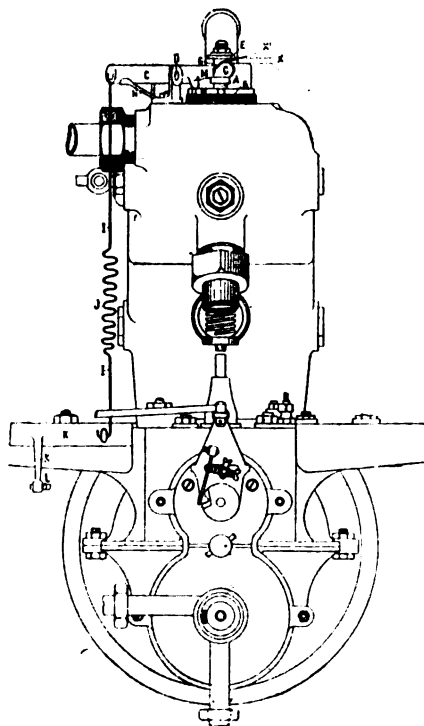
FIG. 2.

cut-off so as to use steam expansively. The main eccentrics run on ball bearings. The engine, which is of American construction, is equipped with boiler-feed and fuel pumps.

Fig. 2 shows a steel boiler of the type used on light steam cars. It is fitted with a large number of ½ in. copper tubes, and is made in a variety of sizes according to the steam-raising capacity desired.

THE BOLLÉE VARIABLE ADMISSION VALVE MECHANISM.

M LEON BOLLEE, whose novel three-wheel car will still be remembered by most motorists, has recently devised a new variable admission valve mechanism for petrol motors. The device, combined with the admission valve, A, of the motor, which is controlled by the spring, B, and has under normal conditions of running a maximum opening or lift, X, consists essentially of a lever, C, pivoted at D, the arm of the lever toward the valve stem terminating in a fork, F, embracing the prolongation of this stem by means of a sleeve, E. This sleeve is provided with a collar which abuts against the arms of the fork when the valve opens and leaves the latter a play equal to X. The opposite end of the lever, C, is placed under the action of a flat spring, H, tending to force it into the position of maximum valve opening. It is also connected by means of a rod, I, and a spring, J, to a bell crank lever, K, which in turn connects with a rod, L, leading to the operating device convenient to the operator. The lever, C, is also provided with a projection, M, abutting against N and thus limiting the motion of the lever, C, and the



maximum opening of the valve. As stated, when the motor is in normal operation the projection, M, of the lever, C, rests on N, and the valve has its maximum opening, X. When the operator desires to decrease the speed of the motor he exerts a tension on the rod, L, which through the interposed mechanism raises the forked end of the lever, C, and thus reduces the lift of the valve. By setting the operating device in the extreme position the arms of the forked end of lever, C, are caused to bear against the collar on sleeve, E. The suction has then to open the valve against the combined retarding forces of the valve spring and spring J, and the opening is consequently small. This latter position of the operating device permits, it is claimed, the motor to be run at a slow speed without load, and to avoid the noise of the exhaust, vibration, and heating under such conditions.

MESSRS. F. WILKINSON AND CO., of Cornbrook Road, Manchester, inform us that they are the sole agents for Great Britain of the Steamobile Company, whose steam-car was described in last week's *Journal*.

COMPETITION REGULATIONS.

SO far as the speed trials and races under the auspices of the Automobile Club are concerned, the following classifications and regulations have been officially adopted.

TOURIST VEHICLES.

The decision as to whether a vehicle is qualified to run as a tourist car or not is left with the Races Committee. Passengers on such cars must be accommodated with seats conveniently placed. The vehicles must be fitted with mud guards and carry such tools as are necessary when on tour. The classifications are as follows:—

Class.	Weight of car.	Passengers.
A	25 cwt. or more	4
B	between 20 and 25 cwt.	4
C	less than 20 cwt.	4
"	" " 18 "	3
"	" " 16 "	2
D	" " 15 "	4
"	" " 13½ "	3
"	" " 12 "	2
E	" " 10 "	4
"	" " 9 "	3
"	" " 8 "	2
F	motor-cycles	—

SPEED TRIALS AND RACES.

With regard to vehicles entered for speed trials and races the following classification has been adopted:—

Special Class.—Vehicles weighing 1,000 kilogs. (equals 19 cwt. 2 qrs. 20 lbs.), or more.

Class A.—Vehicles (carriages) weighing 650 kilogs. (= 12 cwt. 3 qrs. 5 lbs.), or more, but less than 1,000 kilogs.

Class B.—Light carriages weighing 400 kilogs., that is 7 cwt. 3 qrs. 14 lbs., or more, but less than 650 kilogs.

Class C.—Voiturettes weighing 250 kilogs., that is 4 cwt. 3 qrs. 20 lbs., or more, but less than 400 kilogs.

Class D.—Motor cycles weighing less than 250 kilogs. (4 cwt. 3 qrs. 20 lbs.).

Not less than two passengers are to be carried except in Classes C and D, in which only one need be carried. The passengers to weigh on an average not less than 70 kilogs. (154 lbs.), and the average weight to be made up by ballast.

In weighing vehicles, fuel, water, tools, and accessories need not be taken into account, the weight of a car being defined as "its weight with body and cushions."

Among details which have been agreed to by the Trials Organisation Committee of the Club are the following:—Spark-plugs and tyres may be changed during the time allowed for cleaning and repairing. The changing of sprockets is not to be permitted. If tremblers are changed, notice of the fact is to be given. On the entry forms owners of cars are to give the bore and stroke and number of cylinders. For hill-climbing performances the following formula has been adopted:—

$$\frac{\text{horse power} \times 10,000}{\text{price.}}$$

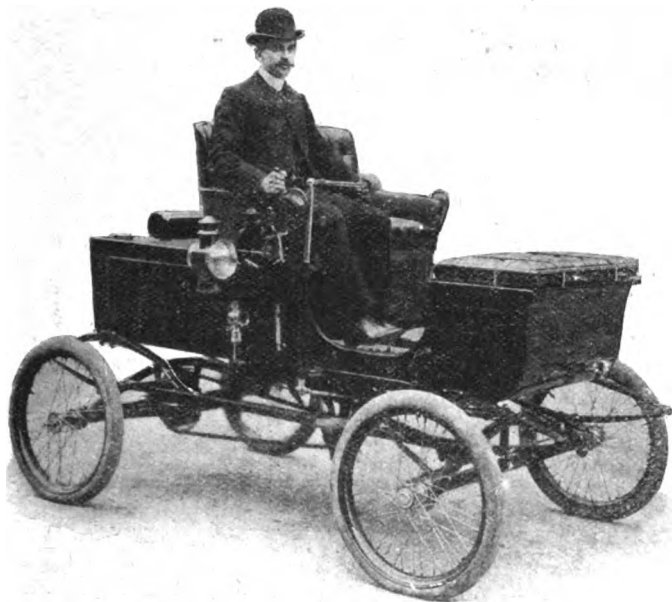
The horse-power is that shown by performance on the hills, and the price is that at which the car is entered. In speed trials the marks are to be allotted by a formula of speed in miles per hour multiplied by ten.

MESSRS. ROBERTSON, LESLIE, FERGUSON AND COMPANY, of Waterford, Ireland, are adopting a motor delivery van.

It having been reported that the Clipper Pneumatic Tyre Company's arrangements with Messrs. Michelin and Co. for the supply of Clipper-Michelin tyres had terminated, we are able to announce that such is not the case. The company is in a position to supply Clipper-Michelin tyres in all the current standard sizes, and will continue to do so as heretofore.

HERE AND THERE.

OUR illustration depicts the touring steam car, one of the latest productions of the Locomobile Company of America. The vehicle has a long wheel base with seating capacity for four persons. In addition to possessing all the features of the latest types of steam cars, provision has been made in the way of extra fuel and water capacity to enable it to be employed for long



MR. W. M. LETTS ON THE NEW LOCOMOBILE TOURING CAR.

runs. The water tank has a capacity of no less than forty-two gallons, while that of the fuel tank is twenty-four gallons.

On Tuesday, the 22nd, the third day of the Automobile Club's exhibition at the Agricultural Hall, a sale of motor-vehicles belonging to members of the Club will be held at Mr. Harrington Moore's City garage.

So many unfounded rumours have been circulated with regard to M. Santos Dumont's plans that little credence is now given to anything appearing in the press about the famous aeronaut. We are able to state, however, on reliable authority that he will make ascents in his air-ship from the Crystal Palace during the month of June.

THE Caledonian Motor-Car and Cycle Company, Limited, of Aberdeen, will in the course of a week or so remove its repairing depot to its new premises, the Caledonia Motor and Cycle Works, Rosebank Terrace, Ferryhill. The offices and showrooms of the company are also being removed to 339A, Union Street, five doors west of the present premises. The company has been appointed official repairer in Aberdeen and district to the Automobile Club.

THE Albion Motor-Car Company, of Glasgow, which is being converted into a limited liability company, and is building larger works to cope with the demand for its cars, has issued a new catalogue, from which we learn that Sir T. D. Gibson Carmichael and Mr. John Wilson, M.P., are owners of Albion cars. The catalogue is well got up, and gives illustrations of the company's sporting dogcart, tonneau car, and doctor's car, as well as a useful lengthy specification of the vehicles.

NATURALLY, the first edition of a directory cannot be expected to be wholly free from errors, and in the first edition of Porter's Directory of the Motor Trades of Great Britain and Ireland several slips occur which will find correction in the next issue. Particulars as to the Automobile Club committee, etc., might have been obtained later than October, 1901, and the names of the firms should have been read with greater care. Still, to use a hackneyed term, the Directory supplies a want, and will find a place on the office bookshelves of most motor-car firms throughout the country. It is published at 44, Castle Street, Liverpool.

THE London Motor Garage Company, Limited, has been registered with a capital of £20,000.

THE *Field* suggests that the representative organisation of automobilists should give serious attention to the provision of bath-rooms in hotels. Why not a committee on the subject?

IN order to increase the productive capacity of their works to eight Argyll cars per week, the Hozier Engineering Company, Limited, is increasing its plant.

THE action brought by the Automobile Association against Mr. Twigg for the alleged wrongful detention of a motor-car has been settled, a compromise having been arrived at.

AT the Shoreham Petty Sessions on Monday, A. F. Mortimer was fined £3 and 23s. costs for driving a motor-car at an improper speed.

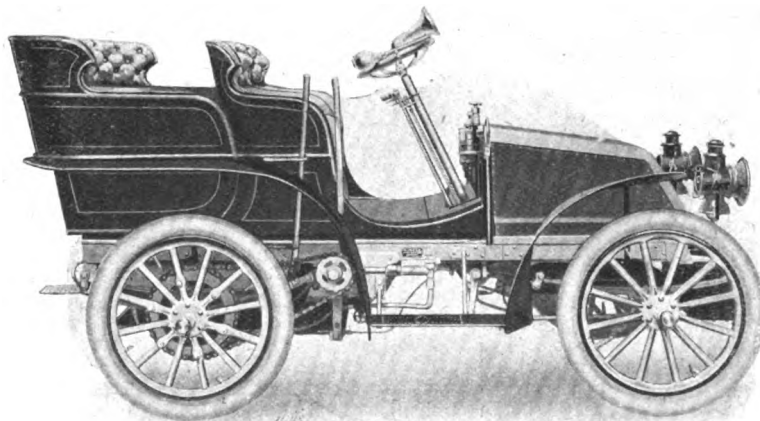
THE Automobile Components, Limited, has been registered to carry on the business of manufacturers of and dealers in cycles, motor-cars, etc.

THE Sunlight Motor and Cycle Company, Limited, has been registered with a capital of £1,000, to carry on business in cycles, motor-cars, etc. The registered office is at 30, Paradise Street, Coventry.

MESSRS. STROUD BROS., nurserymen, 182, Green Lanes, Finsbury Park, N., are arranging to have a selection of palms, ferns, etc., for the decoration of stands at the forthcoming Exhibition at the Agricultural Hall, and exhibitors are invited to communicate with them as early as possible.

WITH regard to the Rochet-Schneider light car described in our issue of March 29th, the F.M.I. Syndicate, of 67, Chancery Lane, London, W.C., who have been appointed British agents for the Rochet-Schneider Co., of Lyons, inform us that several improvements have been introduced in the 1902 models. The new type differs from the old one in that the motor is governed on the throttle and not on the exhaust, and that the coil radiator is superseded by a tubular ventilating tank through which air is drawn by a fan *a la* "Mercedes."

OUR illustration gives a general view of the new steam car which is being introduced into this country by the Miesse Steam Motor Syndicate, Ltd. The boiler, which is of the flash type, is placed under a bonnet forward of the dashboard. The burner, which consumes ordinary paraffin, is contained within an asbestos-lagged metal case enclosing the boiler tubes: it consists of two tubes about 2½ in. in diameter, joined together at right angles, and lying along two sides of the fire box. The engine is of the three-cylinder single-acting horizontal type, carried beneath



THE MIESSE STEAM CAR.

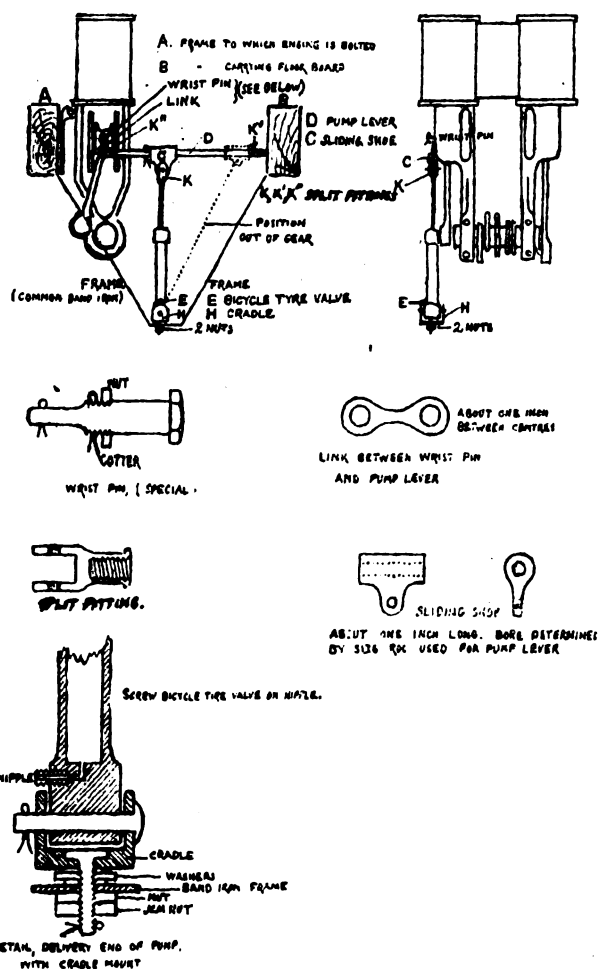
the footboard, having its mushroom inlet valves above, and its exhaust valves below the cylinders. The water pump is fitted with an automatic by-pass. A tier of condensers is set in front of the car, and a horizontal nest of plain tubes is carried beneath the floor of the car. We hope to publish a full description of the new car in an early issue.

CORRESPONDENCE.

A SIMPLE AIR PUMP FOR STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am just back from a sea voyage, and find in your issue of March 1st plans, etc., of the Westinghouse air pump, adapted to light steam vehicles by the Overman Company. These pumps are steam thieves. I designed and built one on my own lines two years ago, when motoring first took the States by storm. It was in use but a few months when I started to make the engine do the work at a very economical cost—so low a cost, in fact, that when running there is positively no appreciable difference in speed whether the pump be working or not, even on stiff grades. Therefore I send a sketch of the pump I am now using, the result of two years' experience. It is just a plain, matter-of-fact contrivance, that is always ready when wanted, with nothing to get out of order but the valve, which is no item nowadays. It is inexpensive to make (I prefer brass), and no doubt many men could make most of it themselves. I have a bit of a shop as a plaything, and do all the work without any trouble, wrist-pin and all. I regret I have no memorandums with me, so have had to guess at the few dimensions risked. These, however, would resolve themselves to a practical man, as they did to me.



The pump is similar to a bicycle hand pump, the bore being about $\frac{1}{2}$ in. The washer must be of heavier leather, however, and the edge pared experimentally to give suction as well as discharge before mounting. I have found it well to drill a few holes just below the cup at the end of the up stroke to ensure the full capacity of air. The frame of common band iron is bolted to the cross braces usual to this type of car as in use to-day. Material of, say, 1-16th by 1 inch should be used. A special wrist-pin must be made (chilled, not case-hardened), as seen in sketch. The pin, or finger, giving motion to the pump can be worked out from the head if nut is desired inside of engine frame. From this wrist-pin finger a link carries motion to the pump lever, its idle end being made fast to the brace carrying the floor board. The full stroke of the piston should by no means be used, as the valve cannot stand the rush of air at high speed. About two inches from the outer, or motion end of lever, a cotter is inserted. On the lever is a sliding shoe coupled direct to the pump. When the shoe is against the cotter-pin, the stroke is shortened and the pump in a much more convenient position than along the centre line of motion of the engine. The shoe should be held in position by taking a turn through or round this cotter-pin with a bit of wire. To throw out of gear push

the shoe to the idle end of the lever and fasten in any way desired. This means getting out of the car; but after two years' experimenting with different pump gears and lever control, this is as satisfactory a way as I have found—not that the others did not work, but because they would get out of order. The space is too confined. To be sure, the pump in my case is used but once a day, my car being fitted with large storage air tanks on the back of the vehicle (in place of usual type tank) under high pressure, with independent gauge, from which the fuel reservoirs are charged with air. For the air-discharge valve a type in common use in the bicycle trade may be used; when worn out it can then be replaced anywhere.

After the pump is set up on the frame and coupled up the engine should be brought to the limit of the outward stroke; the pump should then be shored up with washers, as shown, to a squeezing fit, to make sure of getting all the air possible on each stroke. It is a slow pump, and one must not be greedy for air. If the valves deteriorate too rapidly, shorten the stroke by moving cotter-pin on the lever back, and shore up the pump again. Leave the pump barrel extra long on account of the out-of-gear position. Run a line of small brass tubing from any place on the air pipe to very near the pump, and couple with rubber. On this pump line of pipe put a pin valve, which must be closed tight when pump is out to hold pressure.

The pump lever should be horizontal at mid-stroke of piston, but this goes without saying. However, the idle end of lever might come on this pump frame instead of the floor brace, this depending on how the engine is hung.—Yours truly,

WM. H. BRADFORD.

COST OF MAINTENANCE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have been very much interested in the correspondence "Cost of Maintenance." There has been no letter from a steam car owner, so I have pleasure in sending a summary of my expenditure:—

Two tyres (single tube), six bands, repairs, £15. Petrol, £10 10s. Lubricating oil, £1. Repairing burner, 40s. New spokes, 10s. Various small parts, including new chain, 30s. License, 42s. Total, £32 12s. In addition I have had fitted the following extras:—Emergency brake and sprag. Inberthy injector, lamp, spare "torch," lubricators for slides, etc.; total £17 8s.

The car has run in nine months about 3,000 miles, 2,500 miles being entirely in my professional work as a physician, the remainder in touring. I find the consumption of petrol in touring is about half that required in my professional work, e.g., I have frequently travelled 45 to 50 miles, and once 52 miles, on a tank of petrol ($3\frac{1}{2}$ gallons) when touring—usually 25 to 30 miles at home. Excepting a new composition washer in the auxiliary throttle-valve and two new cones in the engine crank bearing, the engine has had no repairs whatever. The boiler has never required any repairs, and my car has never been towed home.

The chief objection to a steam car is the tremendous exhaust on hills and on the level in cold weather, and I am anxious to hear of a satisfactory condenser. The steam car is satisfactory in ease of starting and stopping, absence of noise and vibration, facility of change of speed, and is comparatively easily understood by an amateur. Finally, it can be repaired by engineers where, as I am, there are no skilled motor repairers. I have had no collisions or accidents, and my expenses are what I consider a steam car may cost with the most careful driving.—Yours sincerely,

M. B.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have been much interested in the correspondence on this subject, and take the liberty of adding my own experience. My car, which is an English one, belt-driven, and of $3\frac{1}{2}$ h.p., was new last April, and up to December 31st last had been driven 2,800 miles. The following has been the total cost:—

	Per mile.
Repairs and renewals	£20 16 8 = 1.7857d.
Sundry expenses, including fares to works, licence, etc.	12 5 11 = 1.0539d.
Extras, such as driving-gloves, overalls, aprons, luggage-case	7 19 11 = .6817d.
Petrol and lubricating oil	12 15 5 = 1.0946d.
Repairs to tyres	9 19 8 = .8557d.
Depreciation	50 0 0 = 4.2857d.

It will thus be seen that total cost without depreciation has been approximately 54d. per mile, and with depreciation 93d. per mile.

I have done all possible repairs myself, and always drive myself. Furthermore, I have had the advantage of being able to "house" rent free. Now, I consider above to work out far in excess of what a small motor-car should cost. Of course, when I bought the car I was told that the cost of running would be about 1d. per mile. To include rent and wages will bring it nearer 1s. 6d. per mile.

Pneumatic tyres are also a fearful nuisance, and require money being spent on them continually.

The expense of keeping the motor-car has so drained my limited resources that it will be impossible for me to again invest in one for some time; but it will not deter me from trying my luck again later on, for there is nothing, in my opinion, so fascinating and exhilarating as motor driving.—Yours truly,

NIL DESPESANDUM.

THE ACCELERATOR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In heavy touring and racing cars of the petrol type, a device is frequently provided by means of which the driver of the vehicle may act on the governor, either entirely interrupting its action or shifting it to a higher speed. The idea or object of this device is to permit occasional bursts of vehicle speed in connection with a normal safe motor speed insured by the governor. A device of this kind is evidently a valuable adjunct in racing vehicles, for the motors of such vehicles are always designed so as to run at very high speeds when ungoverned, a governor being necessary to prevent dangerous speeds when the motor is momentarily running free, etc. But when the vehicle is once on its way in a contest the driver wants the highest speed attainable, practically without regard to the resulting wear and tear on the motor, and the governor must therefore be cut out.

The larger vehicles built in France are chiefly designed with a view to their use in races, and hence the provision of the accelerator is explicable. In this country the conditions are quite different. The question therefore arises in my mind, Is there any need or justification of the accelerator under such conditions? This question must be decided upon two counts—first, the convenience and practical value of such a device to the user, and, second, the effect of its use upon the life of the motor and other parts and the disadvantage of the added complication.

With the higher-powered cars now on the market there are few, if any, of the class in which accelerators are provided that cannot attain a speed "well up to the legal limit" with the motors under governor control. Both efficiency and durability are sacrificed by speeding up the motor, and from the standpoint of minimum cost per unit of distance travelled the use of the accelerator is, to my mind, certainly inadvisable. All points considered, I am led to the opinion that the practical usefulness of the accelerator is somewhat problematical. The opinions of some of our experts on the question would no doubt be of general interest.—Yours truly,

ANTI-ACCELERATOR.

EXHAUST BOXES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have often been troubled with the shunt pipe from the exhaust box to carburettor (Longuemare) breaking. The other day it broke, and I disconnected it from exhaust box (closing up the hole in same), and put the broken end of the shunt pipe near the exhaust box: it had broken off at the exhaust box end. The carburettor seemed to work just as well. It would be interesting to know if others have experienced this, as it seems unnecessary to have this shunt on to the exhaust box, as the carburettor appears to get sufficient heat if the end of the pipe lies near the exhaust box or pipe.—Yours truly,

AMATEUR.

THE AUTOMOBILE MUTUAL PROTECTION ASSOCIATION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I read with some surprise in the *Journal* of the 5th inst. a letter from Mr. Helmore, secretary of the Automobile Mutual Protection Association stating that no member of the trade had ever been refused membership of the Association after applying for same. This is not correct. A few months ago I applied to be elected, and had an interview with Mr. Helmore, when, on that gentleman's suggestion, I paid him two years' subscription. Later this money was returned to me, and Mr. Helmore led me to suppose that the Committee refused to elect me, as some of its members had an idea that my views were not in harmony with theirs.—Yours truly,

G. H. SMITH,

Manager of the United Motor Industries, Limited.

MR. S. F. EDGE also writes adhering to the statement he made at the meeting on March 20th, and adding, "I personally know a member of the trade who was refused admission."

THE EXHIBITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should be much obliged if any of your readers could advise me as to which would be the best day to go to the Motor-Car Exhibition, which is to be held at the Agricultural Hall from the 19th to the 26th of this month. Are there going to be any special features on any one day, or are the events of each day going to be alike?—Yours sincerely,

O. K.

[In reply to our correspondent, who writes from a distance from London, we would say that, so far as the cars are concerned, the proceedings on each day will be of equal interest. Similar arrangements will be made on each of the shilling days, so that there will not really be anything to choose between them. Wednesday, the 23rd, will be a half-crown day.—Ed. M.C. J.]

HOW TO SELECT A MOTOR-CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I read with interest your article "How to Select a Motor-Car," and as I am one of those who are anxious to buy a car, I shall be glad of a little further advice. I notice you say the motor is the most important part of the whole thing, and ought to be carefully examined, but what is the good of a novice examining a motor when he knows absolutely nothing about it? I am one of four in this neighbourhood (Devon) who have given up horses with the idea of purchasing cars, but who are met with doubts and difficulties on all sides. I myself have found the greatest difficulty in getting anyone connected with the trade to give me information about a car. Indeed, when last year in London I asked a well-known firm to give me a modest ten mile trial trip. They refused. Consequently I left without purchasing, being told no one in London would do such a thing. The question is, then, what are we to do? We have no experience, and apparently we are not going to have any until we decide to purchase and take everything that is told us as being correct.

The first question is, which is the most suitable car to meet my requirements? I live in South Devon, where hills are steep, long, and badly kept, gradients often one in six. I want a car to take the place of a good useful horse; that is to say, a car that I can run about town in, take a turn in the country (always hilly), or go on tour for a few weeks two or three times a year. I do not want to go flying about at twenty-five or forty miles an hour, or to run a hundred miles a day, but would be content with forty at most. As Mr. Estcourt remarked last week in the *Journal*, I want a car with as few complications as possible and thoroughly reliable, one that will take the hills without shedding its load, and with brake power that will stop and hold the car at all times. I think I have stated my wants fully. I may say that I am limited to about £250.

PERPLEXED.

THE CARE OF ROADS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to your article on "The Care of Roads," I think that it is just as important that something should be done to improve the by-lanes as well as the main roads. In the district of Harpenden, Herts, there are many lanes ruined by laying down large flints, where the traffic is so small that they never get ground down. Does the Automobile Club ever take action for getting gradients eased? There is a very bad hill between Redbourne and Harpenden, which a motor-tricycle can hardly surmount, and it is necessary to go a long way round north of Redbourne and Harpenden when I am coming home again. When is the Bill removing the speed limit expected to be read a first time? I hope that the motor-cycle tax will also be abolished by it. Why is this tax so little complained of?—Yours truly,

Cecil Jackson.

A BUSINESS MOTOR-CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—During the last six months I have been doing a great deal of my outdoor work on different motor-cars, and I send you my views as to what a really useful small car should be for the ordinary business man. The car would, of course, be quite useless for racing purposes.

Car to seat three or four.—Two facing front, inclined wheel steering, engine under bonnet; tubular frame, with four equal-sized, rather small wheels under long springs; artillery wheels, with large solid tyres; each wheel easily detachable, so that a spare wheel with chain wheel on it could be kept or even carried when going far from home. Body of varnished wood, with back and seat cushions to strap on, so that they could be cleaned and dried easily. Engine 4½ h.p., petrol, with one cylinder with plenty of water round it; cylinder fitted with two sparking plugs, so that the whole electrical apparatus could be in duplicate, with two cams and tremblers, and arranged so that either plug could be switched on, or both. The gearing extra heavy, sprocket wheels larger than usual, so as to reduce strain and friction on chains; every part standardised; nearly every part fixed with nuts and lock nuts, with ample spanner room, and only three sizes of nuts used. Such a little car, geared to be slow on the level and quick on the hills, with its duplicated sparking, solid tyres, and spare wheel, would be much more reliable and really useful than most, and I think could be sold at a good profit for £100, if every part were machine made and turned out by hundreds.—Yours truly,

ROAD SURVEYOR.

PROF. F. B. HUTTON, of Columbia University, New York, recently lectured before the Automobile Club of America on "Some Underlying Principles of Automobile Design," and after the lecture intimated that a highly revolutionary petrol engine was at present being tested in the Columbia laboratories, which gave promise of flexibility of power equal to that of a steam engine.

THE EXHIBITION.

On Saturday, April 19, the Automobile Club's exhibition at the Agricultural Hall, Islington, will open under the direction of Mr. Charles Cordingley, who organised the first motor-car show at the Agricultural Hall in 1896, and who has promoted every successful British exhibition of the kind since that date.

The exhibition will be open all day, and, as everyone knows, the Hall is accessible from all parts of the Metropolis. Admission will be one shilling on each day except Wednesday, the 23rd, when the charge will be half-a-crown, that day being known as Club day. The public will, however, be admitted.

Next week we shall give an outline of the leading features of the display, and the following issues of the *Journal* will contain a full and complete report of the Exhibition. Those who are unable to visit the Exhibition will therefore find our columns during the next few weeks of permanent interest.

The selection of British-made cars on view will illustrate the progress that has been made in the industry since the last Exhibition, while from the countries of the Continent and from the United States will come a varied and comprehensive display of cars of every type. For the purposes of the Exhibition an attractive poster has been prepared, only a few copies of which now remain. These we shall be pleased to send to any motor-car agent, applying by an early post or by telephone, who is willing to exhibit the same.

So far as the exhibitors are concerned, they are making every effort to ensure that the Exhibition shall be ready on the opening day—a point of value to them judging from the prominence which the Press is certain to give this year's Exhibition.

ALLEGED THEFT OF A MOTOR-CAR.

ADOLPH OTTO, of Ashurst, Levington Road, Anerley, has been charged at the Greenwich Police-court with stealing a bicycle. At the conclusion of the hearing Detective-inspector Fox asked for a remand, as a further charge would be preferred against prisoner concerning a motor-car. This was granted. On Tuesday the prisoner pleaded guilty to stealing a motor-car valued at £200. He obtained the vehicle from a Cambridge firm in April of last year on the hire system, paying £20 down, and agreeing to pay £12 a month afterwards. No further instalments, however, were paid, and the car was found to have been pawned for £25, the prisoner producing a false receipt. Otto was sentenced to three months' imprisonment.

ALLEGED OBSTRUCTION.

CHARLES GILES was summoned before the Hastings Borough Bench for having allowed a motor-car to stand longer than necessary on March 26th in Robertson Street. Defendant pleaded guilty. The Chief Constable stated that the Bexhill Motor-Car Company, for whom defendant was a driver, were running motor-cars. They were not entitled to go on the stage carriage stand. Defendant was fined 2s. 6d. and costs.

FURIOUS DRIVING CASES.

PETER McCALL, 26, Ebrington Street, Plymouth, pleaded not guilty at the Plymouth Police Court to driving a motor-car at a greater rate than twelve miles an hour on December 14th, 1901. The case had been frequently adjourned, the charge had been amended, and the defendant was allowed costs for previous amendment, together with one guinea in addition. Mr. Percy T. Pearce appeared for the defence. The Chief Constable (Mr. Sowerby) and several constables having given evidence, Mr. Pearce, in defence, pointed out that the motor-car might travel at twelve miles an hour, while the borough trams might not do more than eight miles. Therefore the mere fact that it had passed the tram had no weight as evidence. He complained that the police had not acted as fairly as usual in not stopping the man at once, so that he could call the passengers as witnesses. A motor-car could be stopped within four yards when at its fastest speed, yet the Chief Constable did not try to stop it as it passed. He selected a piece of road on a slope where the driver was liable to go a little faster than usual. Walter Turner Smith, manager and engineer of the Plymouth Motor-Car Company, said he had been connected with these cars in Lincolnshire for a period of nine months before. The highest speed possible was twelve miles an hour, since the engine was governed to 720 revolutions a minute. At any higher speed the car would be driving the engine, and not the engine the car. A car had to be driven down Friary Hill, since the gradient was too slight for it to run free. On being questioned by the Chief Constable, he said it was possible that the car might travel faster than twelve miles an hour if the engine were disconnected. He was an expert driver, but he could not drive it down Friary Hill at the speed of fourteen-and-a-half miles, which the Chief Constable had stated. Mr. Frank Barton, a member of the Motor-Car Company, said the car had been a bad one ever since it had been in use. He corroborated the previous expert evidence. The Bench said much of the evidence called in defence was theoretical, and in consideration of the police evidence ordered the defendant to pay £2 and costs or fourteen days' imprisonment. A second charge stood against the same defendant, but the Chief Constable said he did not press for punishment; he only required drivers to moderate

their speeds. He would like to withdraw the case, and permission was granted.

SIDNEY KNEEBONE, 36, Wyndham-square, Plymouth, motor-car driver, has been summoned at Plymouth for driving at a speed dangerous to the public in George-street, on February 12th. The Bench sentenced defendant to pay £2 and costs, or go to prison for fourteen days.

ROBERT M'GILLEN, 41, motor-car driver, 1, Thistle Place, Edinburgh, has been charged at Edinburgh with driving a motor-car in a reckless and careless manner in Coates Place, on the 20th ult., in consequence of which the car collided with a cable car going in the opposite direction. The accused, who had been previously convicted of a similar offence, pleaded guilty, and pathetically added that he had "given up motor-car driving now." The Sheriff said the fact that the accused had already been fined £3 for a similar offence debarred him from imposing a less penalty, and he would repeat that sentence, the option being ten days' imprisonment.

At Yarmouth Police-court, on Saturday, Thomas Self, of Marine Parade, was summoned for furiously riding a motor-bicycle. The case was dismissed on payment of costs.

CHARLES RICHARDS, of Dunkley Street, Wolverhampton, was charged at the local police-court with driving a motor-car at an unreasonable rate in Lichfield Street on March 27th. Police-constable Finney stated that the car was going at about fifteen miles an hour, and Police-constable Parsons put the speed down at which the vehicle was travelling at from sixteen to seventeen miles an hour. Defendant was fined 20s. and the costs.

FRED FLANDERS, a motor cycle manufacturer, has been summoned at Yarmouth for furious riding, and it was stated that he had a trailer car attached to his machine. The defence was that the speed did not exceed the twelve-mile limit, but the clerk ruled that, under the Light Locomotives Act, a self-propelled machine could not draw another vehicle through a town at a greater speed than six miles an hour. The defendant said that a motor-cycle could not be driven at this speed, and could be stopped in a very short distance. The Bench held that the pace was to the danger of the public, and inflicted a fine of 10s. and costs, with a reminder that he was liable to a £10 penalty.

At the Steyning Petty Sessions, Edward Manville, of London, was summoned for driving a light locomotive at an improper speed, at Lancing, on March 15th. This was an adjourned case, and Mr. J. H. Mitchell (Worthing), who appeared for defendant, asked for another adjournment, as the witnesses were not in England at present. P.C. Grinstead said defendant was driving a motor car along the lower road at the rate of at least twenty-five miles an hour. Mr. Mitchell proposed to postpone his cross examination until he could obtain his witnesses. The Chairman, however, decided that the case should be proceeded with. It was a matter which affected the safety of the public, he said, and they could not hold over the case for ever. A fine of £4 and £1 8s. costs was imposed. Mr. Mitchell asked to be allowed to communicate the result to his client ere paying the money. In reply to the magistrates, he intimated that he could not promise payment without seeing his client. He was sure the money would be all right, however. Eventually, time for payment was allowed.

WALTER L. CREYKE, of Abingdon, whose case had been repeatedly adjourned, has been summoned at Lewes Court for driving a motor-car furiously at Rottingdean on January 23rd. Sergeant Seal, in proving the case, said that the defendant's motor-car was going at a speed equal to 26 miles 3 furlongs 68 yards an hour. Mr. J. J. Lines estimated defendant's speed at about 20 miles an hour. Mr. H. J. Vinal represented the defendant, who did not appear, and pointed out that the defendant had pulled up when spoken to by the policeman. Superintendent Stevens mentioned that he had had complaints regarding the defendant from other parts of the county, and asked for a substantial penalty. Defendant was fined £7 10s.

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THE Motor-Car Journal.

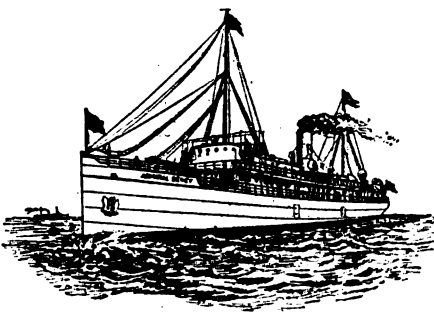
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COMMENTS.



THE Board of Trade returns for March have just been issued, and we hasten to publish the figures relating to the imports and exports of motor-cars and cycles. To deal first with the exports of automobiles of home manufacture, the shipments during the past month amounted to only fifteen vehicles, of a value of £4,478. Of parts, the exports attained a value of £1,098, making a combined total for March of £5,576, as compared with £6,569 in February last. As regards the imports of foreign cars and cycles, these of course show larger figures. In all, 255 cars and cycles were imported into this country last month, the value of the same being returned at £60,873. The value of the "parts thereof" is given as £9,640, so that we get a combined total of £70,513, as compared with £52,682 in February last. Some of these imports were only of a temporary character, being re-shipped to foreign destinations. Thus last month the re-shipments comprised nine vehicles, amounting in value to £2,493, and £429 of parts, bringing down the net imports in March to £67,591. During the first three months of the current year imports of foreign automobiles in Great Britain have reached a total of, roundly, £157,000, while the exports of British-built cars and parts during the same period have amounted to £23,137.

An Earl's Busy Day.

THE Earl of Shrewsbury and Talbot is not only a lover of horses, but also a motorist who regards the sport with enthusiasm. Last year he made several long runs on his 12-h.p. Panhard, notably one from London to York in a day, reaching Berwick-on-Tweed on the following day. As demonstrating what facilities for enjoyment are obtainable by means of the automobile, we may mention that on Thursday of last week his lordship set off from home before noon on his Panhard and had a non-stop run to Rugby—about sixty miles. After lunching and participating in a good afternoon's polo, he left shortly after five for London, arriving there—a distance of between eighty and ninety miles—in good time. Unfortunately a punctured tyre necessitated a short stoppage, but seeing that the tyre had journeyed about 2,000 miles without having before punctured, the Earl of Shrewsbury must be congratulated on combining sport and recreation at such distant places within a few hours.

In Parliament.

MOTOR-CARS and the speed with which they are driven formed the subject of a little conversation in the House of Commons on Monday. In reply to Captain Donelan, Mr. Ritchie said that the Local Government Board was the authority to regulate the speed of motor-cars in London. The maximum speed permitted was twelve miles an hour or such greater pace as was reasonable and proper, having regard to the safety of

human life. Captain Donelan asked, amid a chorus of "Hear, hear," "Are drivers of motor-cars registered or licensed, or do they require to pass any test of efficiency?" Mr. Ritchie replied that they were not—an answer which brought forward Mr. Cathcart Wason to ask that some means should be afforded the police to enable them to identify motor-cars. Mr. Flynn wanted to know "Is it not a fact that motor-cars frequently go over twenty miles an hour?"—a question that concluded the chat.

Lecture at Birmingham.

BEFORE the members of the Birmingham Association of Mechanical Engineers, Mr. E. A. Edwards read an interesting paper on Saturday last on "Mechanical Road Traction," and we regret that pressure on our space does not allow us to give a summary of the useful points emphasized by Mr. Edwards. On the table he had placed several parts of motor-vehicles, which were subsequently critically examined by his fellow members of the Association. These included a Clarkson radiator, a Simms-Bosch magneto machine, a Locomobile boiler, Wolseley engine, Clipper and Collier tyres, Century carburettor, Singer motor-cycle, and a Renold chain.

An Object Lesson.

AN object lesson to British motorists is being given by Mr. Alfred Harmsworth, who has purchased the 40-h.p. Mercedes car which ran third in the recent La Turbie Hill Climbing contest, and which was second in the mile contest at Nice on Sunday, being beaten only by one-fifth second by a car of similar make and horse power. Mr. Harmsworth has purchased the vehicle with the view of using it on the Continent; but, in order that English automobilists may have a chance of examining it in London, it will be exhibited at the Agricultural Hall next week. Although the motor gives 40-h.p., the car weighs only slightly over 19 cwt. It will probably be run on Whit Monday on the track at Bexhill which is now being specially constructed by Lord de la Warr.

The Exhibition Catalogue.

COMPREHENSIVE and nearly exhaustive of the firms engaged in the automobile industry in this country, the catalogue of the Exhibition has a permanent value beyond the average worth of such publications. Of course visitors to the great show will secure their copies at the Agricultural Hall; but there are hundreds of motorists in all parts of England who would like to possess a copy of the work. It is published at 6d., and will be sent for 9d. post free from the office of the *Journal* provided early applications are made.

Portsmouth Automobilists' Opening Run.

THE Portsmouth Automobile Club has been making rapid progress since its inauguration a few weeks ago, and already the committee can boast of over forty members, whilst a number of other gentlemen who are negotiating the purchase of cars have promised to join their ranks upon the completion of their orders. Amongst the former is Earl Russell, who has consented to accept the vice-presidency of the Club. On

D

Saturday last the members had their opening run, and a fairly good muster of cars of all descriptions left the headquarters—the historic old George Hotel, Portsmouth—for a cruise round the country. The first stop was made at Chichester, where high tea was served at the Dolphin Hotel, and after a stroll round the city the journey was continued through Midhurst and Petersfield, returning home, after a most enjoyable afternoon, about 10.30. On the outward journey a little friendly rivalry prevailed amongst the motorists for the honour of being the first arrival at Chichester, a position which was easily secured by Mr. J. Shervell's powerful car, Major Dawson arriving second in his 5½-h.p. Wolsley, and Mr. G. H. Cox's 6-h.p. M.M.C.'s car being third. Earl Russell had promised to be present, but was unfortunately prevented by a serious attack of ignition troubles and running out of accumulators.

The French Record.

As we went to press last week, news came that the Hon. C. S. Rolls had beaten the French automobile record for the kilometre, and we were able to briefly announce that he attained a speed of sixty-five miles an hour on a 28-h.p. Mors car. We may now add that the record was made without any preparation to the car. It had only been run once since the Paris-Berlin race, and the valves had not even been ground. The road at Achères was so bumpy that Mr. Rolls was only on his seat at intervals, while the approach was uphill and on a curve. Had it not been for the patches of stones on the road an even better speed might have been attained. In fact, since the foregoing was written Mr. Rolls has not only again beaten the French record, but has knocked another two-fifths of a second off his own.



OFF TO THE SHOW.

The Badminton Volume.

THE Badminton volume on Motoring has been published this week by Longmans, Green, and Co., and will be on sale at the *Motor-Car Journal* Stand in the Exhibition. This book has been made so well known that many motorists will doubtless take advantage of the opportunity to obtain copies at the Exhibition. Its contributors are all experts in the motor world, and it will certainly find a place on the bookshelves of many owners of motor-vehicles.

On the Riviera.

THE Riviera has been in the throes of what the correspondent of the *Pall Mall Gazette* calls a plague of automobiles. "For some days cars have been constantly arriving, until the streets teem with them. A fit of 'motor-mania' seems to have seized on the Niçois, and on every side nothing else but automobile gossip is heard. If perchance you go into a café you will be surprised to find the staidest villager earnestly discussing the merits of a Panhard-Levassor or extolling the prowess of the local champion. The

Concours d'Élégance at Monte Carlo was a great success. About fifty cars were entered, and they circulated round the grounds for over an hour. M. Jouran's triple phaeton was greatly admired, as were also the petrol-electric cars. Last week the cars were on exhibition in the Boulevard Gambetta, where crowds of people flocked to see them. The Automobile Flower Fête, which was held in the Jardins Publics, was very pretty. There were several very daintily decorated cars, the handsomest being Mr. Reiss' voiturette, which carried in front of it a lyre worked in marguerites and cornflowers. The body of the car was one mass of marguerites."

Another Use for Automobiles.

SOCIETY has so long taken to the motor-car as a means of pleasure that its extension to become a means of safety will be regarded as somewhat of a novelty in many quarters. Last week the Duchess of Sutherland was thrown from a horse while hunting with the North Staffordshire Hounds, and sprained her foot. It was then that she had recourse to a motor-car, in order to get to her residence at Lillieshall. An even more exciting adventure befell the King of the Belgians, himself an ardent motorist, when he was the other evening met at the railway station, on his return from France, by a crowd of excited subjects, who cheered for visionary ideas as well as for himself; but thanks to a motor-car which had been sent to await his arrival, he was able to avoid the more demonstrative section of his people. This is a new aspect of automobilism, which should commend itself to other crowned heads, and in fact to some which are not crowned as well.

The Nottingham Automobile Club.

THE opening run of the Nottingham and District Automobile Club for the season took place on Thursday last week, the destination being Newark. The members left Nottingham soon after two o'clock, and by 4.30 the spacious yard of the Ram Hotel, Newark, was full to overflowing with practically every type of the modern motor-car. The company sitting down for tea included Mr. R. Millington Knowles, J.P., president of the Club; Messrs. G. H. Kirk, G. Cowen (vice-presidents), M. Ross Browne, R. Harbidge, T. Sharp, B. W. Winter, H. Rimington, A. R. Atkey (hon. secretary), B. Blackburn, J. Burton, F. E. Burton, W. J. Dexter, A. F. Houfton, Dr. Houfton, C. L. Schwind, F. J. Smith, R. M. Wright, C. H. Guest, J. G. Stafford, W. Hugh Warburton, and C. S. Hardy. In addition, the company included a large number of ladies and visitors. Considerable interest was manifested on all hands at the very fine display of cars, and the marked advance which had taken place in the carriages owned by members of the Club since the opening run of 1901 was a matter of general surprise and comment. The return journey was commenced about six o'clock, after a most enjoyable gathering.

Incidents at the Exhibition.

MANY little incidents of general interest always occur at such an Exhibition as that now in progress, which, although worthy of publication, often escape notice. Attendants at the stands, as well as visitors to the display, are invited to favour us with short accounts of any interesting experiences which may occur to them during the week at the Agricultural Hall.

To Advertisers.

IN consequence of the pressure of the Exhibition and other matters, it will be necessary to have all displayed advertisements for the issue of the 26th inst. to hand at the offices, 39-40, Shoe Lane, E.C., not later than the afternoon of Tuesday next, the 22nd inst. Small advertisements cannot be inserted if received after the first post on Wednesday, the 23rd inst. Advertisers requiring additional space in next week's issue

should make their requirements known as early as possible to the advertisement manager. It would also be of considerable service to us if all who have occasion to send us blocks for illustration purposes would mark their names on the back of the same. We are continually receiving blocks with no indications as to the senders.

The London Motor-Bus.

So many unfounded rumours have been in circulation with regard to the absence of the new motor-bus on the Hammersmith to Oxford Circus route that we are pleased to be able to assure the public, on the authority of Mr. Duff, the courteous manager of the London Road Car Company, that the vehicle has given satisfaction. To quote his own words:—"We have had no reason to be dissatisfied with the performance of the car so far." But accidents will happen, and even tramcars will prove wayward. An electric tramcar collided with the steam-bus, with the result that some of the machinery of the latter became deranged. Consequently the bus had to be withdrawn for repair, but it will probably be on the road again by the time these lines are in print.

The Reading Club's Whitsun Tour.

FOR the Whitsuntide holidays the Reading Automobile Club has arranged a pleasant tour, which will doubtless be enjoyed by the participants. Mr. J. Paxton Petty, the hon. secretary, has drawn up an admirable timetable for the tour, to which we are much indebted for the particulars given on another page of the present issue. Porlock is well known to motorists. In August, 1900, Mr. S. F. Edge created some sensation by ascending that noted hill on his 16-h.p. Napier. The three miles' climb is equal to a lift of more than 1,300 feet, and comprises gradients as steep as one in six. With three persons up, Mr. Edge's car took the worst slopes at a steady rate of seven miles per hour, covering the distance from the village to the road junction in 17 min. 35 sec. A few weeks later Mr. Hickley, of Taunton—to whom reference was made in the article on "A Run to Cornwall," last week—ascended the hill on a Benz Ideal Victoria, travelling at the rate of about five miles an hour, and only stopping once in the ascent.

In Cornwall.

THESE tours undoubtedly have a splendid influence in popularising the automobile. When we spent an autumn in Cornwall and Devon two years ago, practically the only automobiles we met were those of strangers touring in the district. At Helston, the motor-car was then a novelty; now it is frequently seen in that locality, and during the last few days we have heard of several cars passing through Helston on the way to the Lizard and to Penzance. Mr. March, of Cadgwith, and Mr. H. A. L. Rowe, of Helston, are among the latest residents to become motorists, the latter having just driven home from London on a car which he intends to use for business purposes.

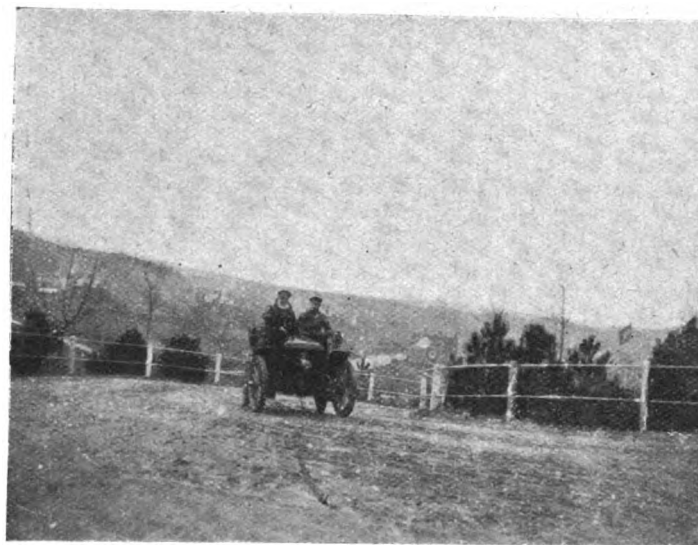
London to Helston.

MR. ROWE's trip was interesting and satisfactory, the whole journey from London—about 350 miles—being run without the slightest hitch. It was on a Belle car, which will be fitted with a van top for light delivery purposes in and around the town. Mr. E. J. Coles has favoured us with an account of the trip, from which we learn that on a recent Saturday, at about 5 p.m., a start was made from Pall Mall, and proceeding via Hammersmith and Bagshot the party reached Camberley in such a heavy rain that further progress was delayed till the morning. On the Sunday the journey was resumed, luncheon being taken at Salisbury, and Honiton being reached at the end

of the day—a distance of 124 miles. On the Monday a start was made for Exeter, from whence the departure took place at 11.30 a.m. with four passengers. The worst hill on the route was encountered about three miles out of the city on the Plymouth road. But the car took the whole load up without a stop. Plymouth was reached at 5 p.m. The next morning, after crossing the ferry to Devonport, a splendid run over Cornish hills and along picturesque valleys to the ancient town of Bodmin was enjoyed. After lunch the trip was concluded at Helston, where a great crowd awaited the arrival of the first resident motorist of that town.

A Case Dismissed.

So seldom is a case of alleged furious driving against motorists dismissed that we may be excused for calling attention to the case heard at Nottingham, which we fully report in another column. The Nottingham Automobile Club defended one of its members against a prosecution which ought not to have been taken, and, in the end, the Bench declared themselves satisfied that excessive speed had not been indulged in. The Club, the defendant, and the Bench are to be congratulated on the result, which should do much to cause law and justice to be respected in Nottinghamshire.



A SNAPSHOT AT CROMER.

Motor-Cars and Elections.

MOTOR-CARS are destined to play an important part in the elections of the future, and, without going so far as to say that victory will rest with those who have the largest stud of fleetest motor-cars, we are inclined to think that the possession of several cars will give a decided advantage. This was evident at the last General Election in this country, and the fact has been recognised so completely in France that a motor-car, of which we give an illustration elsewhere in the present issue, has been constructed specially for electioneering purposes. Its utility is not confined to the day of the poll. Candidates will find such a vehicle useful throughout their campaigns, enabling them to easily get to otherwise inaccessible districts and thus reach hundreds of electors in villages and small hamlets who have hitherto been neglected owing to their location. "The Motor-car as a Political Force" is a subject worthy of discussion by the Primrose League or the Liberal Federation. The use of caravans for propagandist purposes is familiar enough in rural districts, but the adoption of the motor-car would be a distinct advance.

The Motor Cycling Club.

THE first motor-cycling run ever held took place to Brighton on Saturday last, the promoters being the recently-formed Motor Cycling Club. Unfortunately the weather turned out to be very unfavourable, frequent showers rendering the roads treacherously greasy. At four o'clock at Purley corner there must have been some twenty or twenty-five quadricycles, tricycles, and bicycles, the latter predominating. The first stop was at Crawley, and then Brighton was made without a halt, where a dinner, at which about twenty sat down, was held in the evening at the Gloucester Hotel. Very few troubles were experienced, but several sideslips occurred, luckily none causing any serious damage to either rider or machine. The return journey on Sunday was accomplished in the most perfect weather, and, so far as we have been able to learn, without the slightest mishap. Quite a number of motor-cyclists are asking whether the Motor Cycling Club is the same body as that formed under the same title at the meeting held last year at the Frascati's Restaurant. Several who were at the meeting, and undertook offices in the Club then formed, seem themselves very doubtful on the point, so that some definite information from the new secretary on the subject would be interesting.

DURING the past week a motor-car, bearing the identification *plaque* which is compulsory in Paris, has been making daily trips about London.

THE death is announced from Aix-la-Chapelle, at the early age of 39 years, of Herr Franz Kupper, the first president of the West German Automobile Club.

THE Right Hon. Sir J. H. A. Macdonald, the Lord Justice Clerk of Scotland (whose chapter is one of the most interesting in the Badminton book), was announced to lecture on Motor-cars at the Royal Institution on the evening of Friday, the 18th inst.

AMONG the farewell visits of the Prince and Princess of Wales at Copenhagen was one to the Automobile Exhibition there. Next week they will further testify their interest in motor-cars by visiting them at the Agricultural Hall, London.

MR. SHELLEY, of the Hyde, Luton, husband of Lady Margaret Shelley, was thrown from his motor-cycle in Gustard Wood, near Kimpton, Herts, on Monday. His condition is said to be extremely critical.

REGARDING the new Milwaukee steam cars with the boiler under a bonnet in the fore part of the frame, reference to which was made in our last issue, Messrs. Shippey Bros. inform us that they are to be made in three sizes, of, respectively, 8 h.p., 12 h.p., and 26 h.p.

WITH regard to the motor-cycle trial at the Crystal Palace, on the 5th inst., the Secretary of the A.C.G.B.I. informs us that there was a clerical error in the time given by the time-keepers for the second ascent of the "Singer" motor-tricycle, ridden by Mr. E. Perks. The actual time was 1 min. 46 sec. (not 2 min. 46 sec.), equal to 15.43 miles per hour. This brings Mr. Perks' mean time for the three ascents to 1 min. 38.25 secs. Pedals were not used in ascending the hill by the following, viz:—No. 5, Mr. E. Perks, on "Singer" motor-tricycle, did not use his pedals during any of the three ascents. No. 7, Mr. B. Yates, on Humber motor-bicycle, did not use his pedals during the third ascent. No. 6, Mr. F. Birch, on "Singer" motor-bicycle, did not use his pedals during the third ascent. No. 9, Mr. H. Martin, on Excelsior motor-bicycle, did not use his pedals during the third ascent. The Singer Cycle Company, have sent us a long letter on the performance of their machines at the recent trials, pointing out the error in the hill-climbing test, which is officially corrected above. The Company are naturally proud of the fact that their motor bicycle and tricycle mounted the trial hill without pedal assistance and that the consumption of petrol on the bicycle was the smallest of any of the competing machines, showing that they contain the essential points for touring and general roadwork.

GLASGOW TO LONDON.

NINE entries were received for the Glasgow to London non-stop trial organised by the Western Section of the Scottish Automobile Club. Of these eight, shown in the table below, duly started on their long journey on Wednesday morning, the day's destination being York, a distance of 258½ miles, for which a maximum time of 22 hours 50 min. was allowed.

LIST OF STARTERS

8 h.p. De Dion Phaeton	...	De Dion Bouton, Ltd.
8 h.p. Motor Tandem	...	Eagle Engineering and Motor Co.
4½ h.p. Motor Tandem	...	Eagle Engineering and Motor Co.
24 h.p. Napier Car	...	S. F. Edge.
8 h.p. Argyll Light Car	...	Hozier Engineering Co.
8 h.p. M.M.C. Wagonette	...	Motor Manufacturing Co., Ltd.
20 h.p. Wolseley Tonneau	...	Wolseley Tool and Motor Car Co., Ltd.
12 h.p. Stirling Public Service Car	...	Stirling Motor-Carriages, Ltd.

Mr. Edge was the first to make an appearance at York, arriving at 4.35 in the afternoon, having made the journey in 16h. 28min. The roads were heavy, the morning was foggy, some false turns were taken in the cross-country roads, and difficulty was found with a flock of sheep, but, beyond a stoppage owing to a puncture, the car ran through without a hitch. The M.M.C. car driven by Mr. G. Iden arrived at 5.13 p.m., having been detained eleven minutes with a slight adjustment. This car had also trouble with the sheep. A minute later Mr. Stocks appeared with the De Dion car. Up to midnight these were the only three to arrive. The Wolseley car was eight hours behind time at Peebles through tyre troubles, and was not expected at York that night. The Argyll broke down when forty miles from Glasgow, and withdrew. Nothing had been heard of the two Eagle motor tandems; while as to the Stirling public service car, which was making a continuous journey to London under modified regulations, at an average of ten miles an hour, about seven o'clock a telegram was received from the driver stating that he could not come on from Morpeth owing to over-heating, and that he had wired to his company for instructions.

From York the cars were to proceed on Thursday, *via* Tadcaster, Ferrybridge, Westbridge, Doncaster, Newark, Stamford, Norman's Cross, Biggleswade, and Hitchin to London, 209½ miles from York. The maximum time allowed for the second stage was 18 hours 20 minutes, or a total time of 41 hours 10 minutes for 468½ miles. Particulars of the termination of the run will be given in our next issue.

THE question of motor-cycle racing is to be considered by a joint committee of the National Cyclists' Union and the Automobile Club.

UP to the present motor-cars have been but little seen at social functions. Probably the first time they have conveyed a society wedding party to church was the occasion of Sir Leslie Falkiner's wedding to Miss Kathleen Orde-Powlett on Wednesday, when the wedding guests arrived at the Brompton Oratory in motor-cars.

A MOTOR race for M. de Cater's cup took place on Monday. The course was uphill on the Corniche Road for a distance of a kilometre (five-eighths of a mile), with a standing start. The race was won by M. Serpollet in 59.15 sec.; Baras, on a Darracq, was second, with 1 min 3.45 sec., and Degrais, on a Mercedes, third, with 1 min. 5.45 sec.

MR. J. VAN HOYDONK returned to London last week from a successful motor-bicycle trip extending from Dieppe to Nice. He had accompanied Mr. J. Pennell as far as Nice, whence that enthusiastic motor-cyclist intended to continue to Florence, making the journey one of over 1,000 miles. The ride of 801 miles to Nice occupied exactly a week, the start being made from Dieppe on March 31st.

A RUN INTO CORNWALL.

(Concluded from page 99.)

THE following day the party wistfully scanned the skies to forecast the weather. It was very cold, and rain had evidently fallen in the night. It was decided to make a little break in the run, to call on some friends at Yeolmbridge, a little village about four miles from Launceston. The roads were in execrable condition, and here the heaviest running of the whole journey was experienced. A fully-loaded car, with four average weight adults, and quite 2 cwt. of luggage, is no light thing to



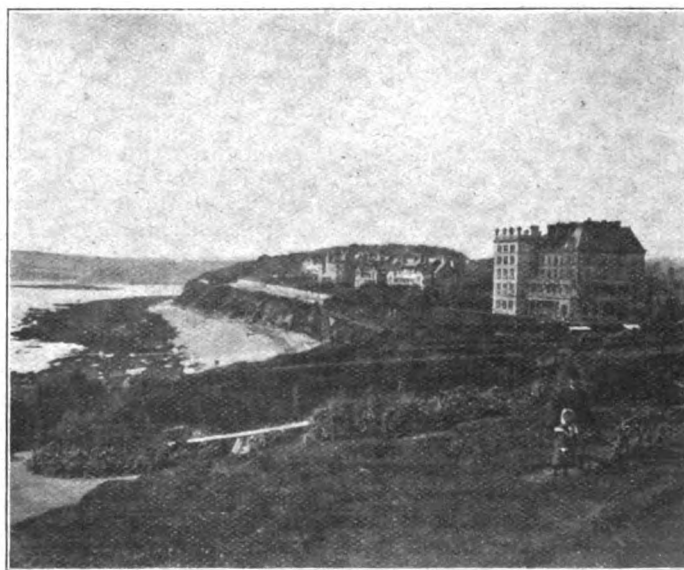
MR. EDMUNDS AND PARTY LEAVE FALMOUTH FOR THE SOUTH COAST OF CORNWALL.

propel up hills with bad surfaces and grades of one in eight, and it would have surprised no one if, under such conditions, passengers should have been shed and the car suitably lightened, but this was not necessary, and with two sets of double sprags we were enabled to face hills that otherwise it would have been foolhardy to attempt; but "Antrona's" engines never faltered, plodding away for miles on No. 1 speed up fearful grades, with such a load—certainly a great tribute to the reliability of a well-made Daimler car. It was within three miles of Launceston that a hill was encountered of over a mile in length, where the water for cooling the engine actually boiled, rapidly producing steam, which was the only time it happened on the run, but without any deterrent effect. Stopping at a well at the top of the hill, a pint of water replaced the loss, and the party sped on again towards Davidstowe, leaving St. Stephen's, Launceston, at 10.40. The cold experienced was easily accounted for on viewing the magnificent distant Dartmoor hills, covered with snow: it looked more like an Alpine scene than sunny Devonshire. The roads now, though narrow, were extremely good, and with excellent surface. At one place, ascending a stiff hill in a narrowing road, the party were aware in time of the approach of a huge traction engine with three wagons; there was only just room to pass. Had they met a few minutes earlier it would have been impossible to pass. A stiff grade of about one in twelve, a narrow lane, and a traction engine, presented peculiar conditions to the motorists, and a question was raised as to what should have been done if they could not have passed, and where it was impossible to turn round and dangerous to run backwards. It was suggested that a rope tied from the front of the motor-car to the front of the traction engine might meet the difficulty; under such conditions the car could be run backwards safely to a suitable place for passing.

In a journey of this length it is difficult to do justice to, and almost impossible to describe, all the lovely scenery we passed through, but Cornwall seems like a county

distinct and apart from the rest of England, and the scenery very different to the sister county of Devonshire. Long bleak stretches of moorland, curious quaint stone crosses passed on the roadside, the old disused workings of some tin or copper mines, present entirely new features to the traveller's view, and it was difficult to realise that we were nearly 300 miles away from London, and that the whole journey, with its varying conditions of road and grade, had been accomplished without mishap or interruption, and that the only propelling power was a little sniff of petrol vapour, accompanied by the longer breath of the fresh air through which the vehicle was travelling. Rushing quickly through Davidstow, thence on a lovely road, Camelford was reached, the approach to which requires great caution, as there is a sharp bend in the road, and old Camelford itself was indeed a surprise, with its long narrow street, which appeared as though built on the side of a roof. Sprags were instantly lowered, the horns tooted to clear the way, for there was a fair amount of traffic, and it was doubtful, if once stopped, whether "Antrona" could be got under way again without assistance, but, fortunately, no stoppage occurred, and it was with feelings of relief the party found themselves safely at the top of the stiffest hill they met with in Cornwall. Wadebridge was reached at one o'clock, and a lunch of cold beef and pickles was much appreciated. Leaving at two o'clock by another stiff hill, through lovely country, with a distant view of the sea on the west, St. Columb and Fraddon were passed through; and then one of the best runs of the journey was made over an ideal road, splendidly engineered easy down grade, by the side of the river Tresillian, on to Truro, arriving there at 3.50. "Antrona" picked up a pilot in the shape of a small boy, who guided the party to River Street, where a supply of petrol was obtained. Hurrying on, they climbed up the long hill from Truro, and down the steep run towards Penryn, then on to Falmouth, where they arrived at five o'clock.

In conclusion, it is interesting to note that the total mileage run, including several detours, made up some 330 miles from London, comprehending almost all possible conditions of road—miles of dry and dusty, miles of wet and slimy, with precipitous grades, testing both the hill-climbing and brake-restraining qualities of the car, including several miles of rough stone surface, in some cases six inches deep, and the tyres at the end of the journey, while showing signs of rough usage, and several deep



A BIT OF FALMOUTH.

cuts, appeared as firm and as fully inflated as at the start. These were not new tyres for the run, the mileage indicator on March 24th showing a total of over 3,000 miles continuous running. They have only once been pumped up since they were fitted on

November 16th last, having run almost daily throughout the winter months under the most trying conditions, the gross weight carried probably never less than 30 cwt., and often as much as 35 cwt., and with an average speed with the larger sprockets of eighteen to twenty miles, and of about fifteen miles with the smaller sprockets. On this last run electrical ignition at six volts, not four, was solely used, without a single interruption or miss-fire of any kind. Peto and Radford's batteries were used the whole time without re-charging. The plugs were ordinary De Dion, platinum wires; the induction valves, with a special form of spring devised by Messrs. Pidgeon and Bradley, obviating the use of the nut on the spindle, which, in the old type, is often apt to strip, worked admirably. The small amount of lubricating oil already referred to, being less than one quart for the whole journey, seems almost phenomenal, and probably the total quantity of water used did not exceed a gallon, and this on account of slight leakage when the engine was at rest and the tube packings had contracted. The consumption of petrol was exactly eighteen gallons, and of carbide of calcium for the Bleriot lamp about 1 lb., and though the brakes had very severe work, they were not burnt, and appeared as good and reliable as when the car left London. For some readers it may be interesting to call attention to the special form of double sprag, consisting of two rods pivoted from the same centre, the rear one being slightly longer, and attached to the front one by a chain; such a sprag is indispensable with a car of this weight, travelling up the grades and inclines found in Cornwall, and whenever first speed was resorted to the sprags were always let down, and though, fortunately, never wanted through the engines stopping or chains breaking, yet were a great comfort when having to stop for horses or sudden interruptions while going up a steep grade. It is not sufficient to rely on a good back-acting brake, because there is a moment when, working without sprag, as to whether gravity or engines get the first pull.

A journey of this kind conclusively proves the reliability of a good English-made car. The "Antrona" is a Daimler—a heavy, comfortable touring vehicle, capable of carrying five adults with full complement of luggage.

THE CALVERT BELT FASTENER.

AN improved belt-fastener for the twisted hide belts used in motor-bicycles has been introduced by Mr. G. Calvert, of Mildmay Park, N. Referring to the illustration, the fastener will be seen to consist of two steel stampings, both identical in size, the only difference being that one has an eye on end, and the other a hook. The ends which engage in the belt are of



END VIEW.

anchor form. The fastener is placed in the central core or hole running through all twisted wide belts, the two anchor prongs engaging on opposite sides of the same, thus giving hold on the full thickness of the leather available. There being a central pull only between the belt and the fastener, it is claimed that there is no possibility of the fastener opening, the strains being equally balanced. Moreover, the fastener is sheltered from any contact with the belt pulleys, thus preventing any clicking noise as the fastener passes over the same.

THE Charing Cross Syndicate, Limited, has been registered, with a capital of £10,000, to construct locomotives, motor-cars, etc.

CONTINENTAL NOTES.

BY AUTOMAN.

A FEW years ago it was quite a privilege and an adventure to have a ride in a motor-car. Since then, as automobilism has become more generalised, it has been a pleasant recreation for the rich and for the holiday-maker to take a ride in a motor-car. A certain proportion of vehicles have doubtless been used for strictly utilitarian affairs, but the vulgarisation of the motor-car has become such an actuality that it is almost without surprise that one reads of the prison van of Nuremburg being a self-propelled vehicle. Even the criminals and malefactors of Nuremburg will have the advantage of making acquaintance with self-propelled traffic.

THE Nice fortnight has been a failure from almost every point of view, misfortune after misfortune having dogged its footsteps. In the first place, there came the suppression of the Nice-Abbazia race, and then fog covered La Turbie hill when the climbing contest took place, making the contest dangerous and reducing the speed. On the Tuesday and Wednesday, when there was no racing, there was lovely sunny weather, but on Thursday, the day which had been set out for the mile race, wind and rain made it impossible to proceed, and a shocking side-slip of Page's Decauville put an end to the day's proceedings, which were put off till the morrow. But the bad luck still held on, and it was not until Sunday that it was possible to hold the contest. It may be said that the only redeeming feature of the week was a splendid performance of M. Leon Serpollet on his new 20 h.p. car, on which he lowered the world's record and won the Rothschild cup by doing the kilometre with a flying start in 29½ seconds, at a speed of over 120 kilometres an hour—that is to say, more than seventy-five miles an hour. In the mile race the following were the winners of the different classes:—

Motor-bicycles, Williams, on a Clement, 1 min. 12½ sec.
Motor-tricycles, Osmont, on a De Dion and Bouton, 57½ sec.
Voiturettes, Guillaume, on a Darracq, 1 min. 27½ sec.
Light Cars, Baras on a Darracq, 1 min. 10½ sec.
Cars, Degrais, on a Mercedes, 1 min. 9½ sec.

The following were the record makers of the day for the kilometre with the flying start:—

Serpollet, 29½ sec.

Osmont, 33 sec., exactly equal to Rigal's best time.

The honours of the meeting rest, therefore, with Serpollet and Osmont; whilst amongst the big cars the new 40 h.p. Mercedes carried off the hill-climbing trial, in which, however, Panhard and Levassor did not compete.

THE new Mercedes is certainly a very fine car, and it is greatly to be regretted that Panhard and Levassor, disgusted with the abandonment of the Nice-Abbazia race, went home without competing at La Turbie. The Mercedes is, of course, a four-cylinder car designed by Maybach, with a motor which runs at a speed varied between 150 and 1,200 revolutions a minute. I say this advisedly, as the regulation is so perfect that the speed can be reduced to 150 turns a minute by simply turning a handle which actuates a choked valve on the admission. The ignition is by magneto with a make and break spark; the admission and the exhaust are regulated together, and therefore work in unison; and the motor weighs between eight and nine pounds per h.p. developed. The radiator is similar to that which has always been employed on Mercedes cars, with this difference, that instead of there being a fan the flywheel of the motor supplies the current of air when the car is standing. Only one gallon and a half of water is used, and this evaporates so little that in the whole day's run the loss is inappreciable. Both the change of speed gear and the friction clutch are new, and all the bearings and the wheels run on balls. Chains are still used.

HISTORY repeats itself in automobile as in other worlds, and again Serpollet and Mercedes have been practically the only ones to benefit by the races on the Littoral. No one will begrudge M. Serpollet the success that he has worked so hard to achieve; indeed, his record was hardly made before a banquet was arranged to commemorate the event, and to this the principal automobilists have readily subscribed.

THE Association Générale d'Automobiles has just issued a manifesto, in which it is said that "the Association does not propose to interfere with the A.C.F., which is its founder; it addresses itself particularly to the great masses; it is general, as its title implies, and accessible to anyone. Its utility is incontestable for amateurs, for thinkers, for technicians, inventors and workers; each will find their place in it. The amateur and the thinker will find indications helpful and interesting, and will contribute to the general good by formulating their plans, which will be duly registered and put before the most suitable persons, having all the authority and competence of such a multiple association. The inventor will find in the Association publicity for his ideas, and from the tribune he will be heard by the technician and the capitalist. Our Association will take in hand things of general interest which single-handed would lie idle. It will be a link between the employer and the employed, between the seller and the buyer, grouped together under the same flag and with the same purpose. This flag, a sign of union, will be for us what the Touring Club's flag is to the tourist. We shall work hand in hand with the Touring Club, trying to do for the automobile what it has done for the cycle."

AN automobile fête is to be held at Eisenach, Germany, from the 23rd to the 30th July next. On the first day the start will take place, at Leipsig, of a trial of heavy motor-vehicles, between that town and Eisenach, the cars reaching the latter place on the 24th. On the 25th the competing cars will be on exhibition. A congress of motorists and a run to the Wartburg will be held on the 26th, while on Sunday, July 27th, there will be a race to Meiningen and back, followed by a pleasure run to Reinhartsbrunn, where a concert will be held. The fête will be brought to a conclusion by a three days' tour in the Thuringian Forest, leaving Eisenach on July 28th.

A STEAM road transport service is being established by the military authorities in South Africa, and experienced traction engine drivers are now being appointed.

Two motor-car drivers' licences have just been granted by the Folkestone Town Council to employees of the Folkestone Motors, Ltd.

MR. SHRAPNELL SMITH, of Liverpool, has lately borne witness, on his face, of a nasty sideslip in which he indulged while motor-bicycling.

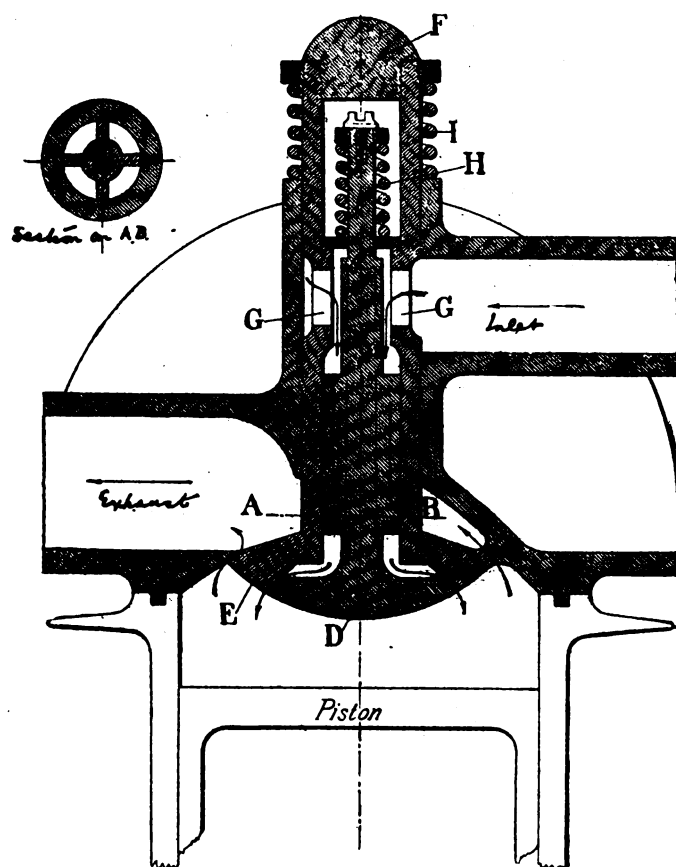
MR. F. GUY LEWIN, who, last year, went from Land's End to within fifty miles of John o' Groat's on a motor-car, intends to make a trip from end to end of Ireland on a 7 h.p. voiturette during the coming summer.

BETWEEN Bournemouth and Southampton is Milford-on-Sea, through which many motorists pass during the season. Messrs. Fred Keeping and Co. have every convenience for supplying their wants.

MR. R. J. MECREDY has written a useful little pamphlet on the mechanism and management of the Excelsior motor-bicycle. It extends to about sixty pages, and in a preliminary chapter on the internal combustion engine the author refers to the various parts of the Excelsior engine. Chapter III. deals with driving, and the fourth with the care and management of the engine and bicycle. Thirteen pages are devoted to roadside troubles, and the only suggestion we would make is that future editions should be supplied with an index.

THE D'EQUEVILLY VALVE ARRANGEMENT FOR PETROL MOTORS.

AS every motorist knows, the exhaust valve suffers greatly from the heated draughts expelled through it; even where a water jacket is used, the effect of cooling cannot readily transmit itself to the valve, as it does not form an integral part of the jacket, but merely lies in contact with the same. It is equally well known that the mixture of vapour and air admitted through the induction valve is extremely cold—owing to the continued evaporation of the spirit, so much so that a by-pass from the exhaust is usually run through the carburettor, or other means are adopted to raise the temperature of the latter, or at least part of it or its connections. The latter fact is cleverly utilised in the valve under notice so as to neutralise the former, the description of which is taken from *La Locomotion Automobile*. The illustration represents an air-cooled cylinder head,



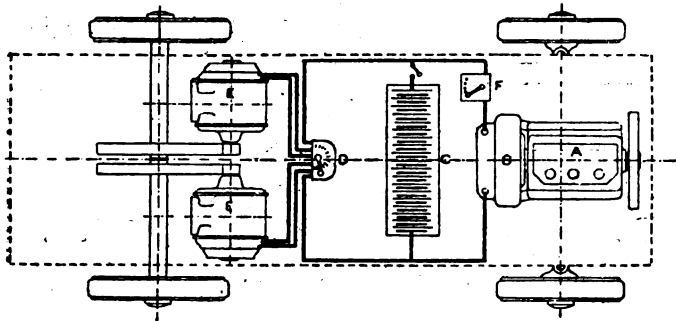
pierced along its centre by a very large exhaust valve E, the cap F of which is connected with the two-to-one motion shaft by rods not shown. A strong spring, I, draws the valve back. The head and stem of this same valve are, however, recessed and bored out to receive the induction valve D, which is in communication with the carburettor of the inlet pipe by means of holes in the centre part of the stem E. The stem of the valve D is fluted as shewn in the section across the line AB, forming four channels for the charge to pass through to the head of the valve. A light spring H on the upper end of the stem is provided to close the port. By these means the inrush of cold vapour passing actually through the stem and head of the exhaust valve is enabled to cool the latter in a much more effectual manner than could be done by any water jacket. One result of the relative situations of the valves and their springs is particularly noticeable: the spring of the exhaust valve is of course much stronger than that of the inlet valve, and closes its port with such rapidity that the shock of the valve head so reacts on the induction valve, which is seated inside it, that it is bounced just at the moment when suction is begun, and the latter is, open

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of course, materially aided. In actual test, a 4 h.p. motor, of 90 mm. bore and 110 mm. stroke, and cooled by radiators only, has been found to run in an enclosed workshop for several consecutive hours at a speed of 1,800 revolutions a minute, without the valves ever rising to a heat at which they could not be well touched by the bare hand. The valve is made by M. R. d'Equeville, of Avenue de Wagram, Paris.

THE FISCHER COMBINATION PETROL-ELECTRIC CAR.

THE question of designing a successful combination petrol-electric car appears to be exercising the minds of automobile constructors in different parts of the world. Mr. Jenatzy's record-breaking vehicle is already fairly well known, while more recently the Lohner-Porsche car, described in a recent issue, has been attracting attention. We are now able to give a brief description of a combination vehicle recently turned out by the Fischer Motor Vehicle Company, of Hoboken, N.J., U.S.A. The system consists of a combined petrol engine and dynamo, one electric motor for each (rear) driving wheel, a small storage battery and controller. It will be noticed from the illustrations that there is no mechanical connection between the engine shaft and the road driving wheels. The dynamo, therefore, is free to run at a practically even speed, producing a constant supply of electricity. The electric circuit is so arranged that when running the vehicle under normal conditions (loaded on the level) the current goes directly from the dynamo through the controller to the motors; but when descending inclines, slowing up, or in general when less power is



needed than that furnished by the engine, the current is automatically taken up by the battery, which is connected to the wiring at a point between the dynamo and the controller. Again, when extra power is needed, as in ascending steep grades or starting heavy loads, the battery promptly furnishes the deficiency. This action, carrying the peak of the load, does not have to be watched by the driver, being entirely automatic. As the output of the engine does not vary, no governor is required, and the gas and air mixtures can be set permanently for perfect combustion, so ensuing economy in fuel. Another important and convenient feature is the starting of the engine, which is accomplished by simply throwing in a switch controlled by the driver.

The front portion of the frame carries the petrol engine, dynamo, controller, and steering gear. The front axle is trussed somewhat on the principle of a bridge, and carries extra long and flexible platform springs bolted to the brackets on the frame. The rear axle, with the wheels, springs, two motors and reduction gears, forms a complete driving unit. All parts subject to wear are entirely encased so as to be properly lubricated and at the same time protected from dust and moisture.

The power equipment consists of a 10-h.p. three-cylinder petrol engine, running at a speed of 600 revolutions per minute. Directly on the engine shaft is placed the armature of a 5-kilowatt, 110-volt dynamo. The motors are of a special "twin" type (built together) of 5 h.p. each. The controller is of the series parallel type, giving five forward speeds from $2\frac{1}{2}$ to ten miles per hour, and two reverse speeds, all controlled by one lever. The batteries consist of fifty cells of ninety ampere-

hour capacity. It is reported that the London Road Car Company are in negotiation with the Fischer Company with regard to trying an omnibus built on this system in London.

THE READING CLUB'S WHITSUN TOUR.

AT Whitsuntide the Reading Automobile Club will have a tour to Porlock, Reading being left on the morning of Saturday, the 17th prox., about 6 a.m. Via the Bath road, the party will journey to Hungerford, where breakfast will be taken, and then on to Westbury and Frome. Dinner will be taken at the Star Hotel, Wells, and on resumption the way will be continued through Glastonbury and Taunton to the Red Lion Hotel, at Dulverton. Dulverton is a most attractive village, twenty-five miles from Porlock. On Whit-Sunday morning the journey to Porlock Weir will be resumed, and there the party will find much of interest until Tuesday morning, when the return journey of 140 miles will be made via Bridgwater, Wells, Bath, Calne, and Hungerford.

Some remarks as to contour, etc., will be of general interest. The main Bath road from Reading as far as Hungerford is well known. Just before entering Froxfield the road to Westbury lies over the northern fringe of Salisbury Plain, and is undulating in character, and of excellent surface. Many pretty villages are passed through, notably Pewsey, Easterton, Market Lavington, and Earlstoke. There is a considerable rise out of Westbury towards Frome, but the surface is good. The first hill of any consequence is met with in Frome itself, where the gradient, for a short distance, is one in nine. There are several short hills between Frome and Wells, especially in and near Shepton Mallet, and there is a sharp descent into Wells.

From Wells to Taunton (thirty miles) the road is almost flat, and is inclined to be rather loose over Sedgemoor. From Taunton to Milverton the surface is excellent and the gradients easy, but between Wiveliscombe and Venn Cross Station (four miles) there is a fair amount of stiff climbing. Between Venn Cross and Bampton the road is much easier, but for the following two miles to Exebridge it is again stiff. The remaining two miles to Dulverton are easily negotiated.

The village of Dulverton will speak for itself. The road thence to Dunster is one of extreme beauty, and the surface is excellent. From Exton (five miles from Dulverton) the gradient becomes somewhat trying until the top of the moor is reached (1,000 feet) at Wheddon Cross ("Rest and be Thankful" inn). Thence the road descends through Timberscombe to Dunster in an almost unbroken descent of seven miles. Dunster is an exceedingly quaint and charming place, and the road onwards to Minehead still descends slightly. The Porlock road hardly enters Minehead, but bears to the left at the entrance to the town, and proceeds in easy undulations for the remaining six miles, with beautiful views all the way to Porlock, and ends at Porlock Weir, at the Anchor Hotel, which stands on the beach in full view of the Bristol Channel.

MR. E. S. HYDE has a garage and stocks petrol at the Square, Stow-on-the-Wold.

THE Hungarian postal authorities are about to make some experiments with motor-vehicles, the order for which has been placed with Messrs. Cudell and Co., of Aix-la-Chapelle.

MR. ALEXANDER WINTON, of Cleveland, U.S.A., is building a new and powerful racing machine with which he intends to make an attempt on the world's record.

A DISPUTE has arisen between M. A. Wydt and M. P. Gans de Fabrice, both of Paris, as to who owns the patent rights in the "electro-catalytique" ignition method for petrol motors.

A CORRESPONDENT writes:—"The report in the daily press that a Warsaw innkeeper keeps a motor-car in which his customers are driven home free of charge between the hours of 10 p.m. and 2 a.m., is too good to be true."

THE EXHIBITION AT THE AGRICULTURAL HALL.

IN 1896 the first of the series of annual motor-car Exhibitions at the Royal Agricultural Hall, Islington, was held, Mr. Charles Cordingley thus providing the British public with an early opportunity of appreciating the vehicles that are now playing an important part in the industry and the pastimes of the country. On that occasion many crude efforts at mechanical traction on the roads were exhibited, many of them being of such a rudimentary character that they can now only be regarded as curiosities.

Then in each succeeding year one display of automobiles followed another until the Exhibition attained very large and

advantage of the publicity and prestige that accrued from association with the representative Exhibition while the proprietary interests remained as before.

Under such a scheme the sixth annual Exhibition took place in April, 1901, and great was the interest created, the display attracting a large number of foreign as well as all the leading British manufacturers. Every exhibitor was well satisfied with the business done, and in June a resolution was agreed to by the manufacturers as to having the next Exhibition in March or April, which encouraged Mr. Cordingley to make a contract to take the Agricultural Hall, London, for 1902 and 1903—in April in the present, and in March in the next year.

Thus we arrive at the date of the Exhibition to be opened to-day (Saturday), which will, we venture to assert, testify to the organisation and experience which have been utilised in bringing together more than 250 firms engaged in the motor industry.



"LE PASSE-PARTOUT," ON WHICH DR. LEHWESS AND PARTY WILL TOUR THE WORLD.—THE CAR BEING PREPARED FOR THE EXHIBITION AT THE AGRICULTURAL HALL.

important proportions. Its work of educating the public was being manifested, not only in an increased attendance, but also in the growing number of exhibitors. In fact, there were some who thought an Exhibition further from the centre of London would be welcome, and, consequently, a show was organised by the Automobile Club at Richmond Park, which did not, however, prove attractive to the general public, and actually involved the promoters in a loss of more than sixteen hundred pounds.

Arrangements were then made between the Automobile Club, on the one part, and the proprietor and organiser of the Agricultural Hall display on the other, for an amalgamation of forces for the Exhibition of 1901. To help the Club to meet the deficit they had sustained in their promotion of an Exhibition Mr. Cordingley agreed to pay £200 a year, while the Club agreed that their name should appear in connection with the venture, thus having the

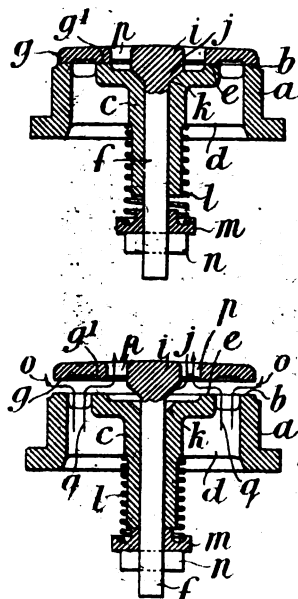
The display will be an International one—France, Belgium, Holland, the United States, and Germany being represented as well as the United Kingdom. Petrol, steam, and electrical vehicles of the latest types will be shown, and, in addition to novelties in design, several interesting cars will be on view, including a steam car that has done duty in connection with the war in South Africa. The new 22-h.p. Daimler car built for the King and the racing Mercedes car, bought by Mr. A. Harmsworth, which attained a phenomenal speed at Nice last week, will be shown, and also the 20-h.p. Panhard car upon which Dr. Lehweß is to tour the world, the start being made from the Agricultural Hall on Wednesday, the 23rd inst. An illustration of this interesting vehicle is given above.

In addition to light pleasure cars the Exhibition will contain a great variety of heavy industrial vehicles, so that the utilitarian aspect will by no means be ignored.

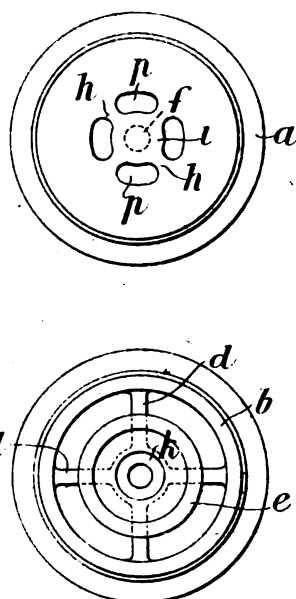
THE NAPIER ANNULAR INLET VALVE.

AMONG the small detail improvements in the latest type of Napier cars is an improved form of inlet valve, of which sectional illustrations are given herewith, Figs. 1 and 2 being sections of a valve; Fig. 3 a plan of the valve; and Fig. 4 plan of the seating. The valve consists of a hollow casing, cylindrical in shape, the casing being adapted to be fixed to the engine, and having an annular seating formed upon its inner end. Centrally within the casing there is secured, by means of radial ribs, a bearing for the valve spindle, the inner end of the bearing being formed as a seating. The valve proper is annular in shape, is connected by means of the radial ribs with a central boss carrying the spindle which passes through the bearing, and has arranged in connection with it a spring to normally hold the valve upon its seat.

Referring to the illustrations, *a* is the hollow casing and *b* is the annular seating which is formed upon its inner end;



FIGS. 1 AND 2.



FIGS. 3 AND 4.

c is the bearing which is arranged centrally within the casing *a*, being secured thereto by means of the radial ribs, *d, d*; the inner end of this bearing is also formed as an annular seating *e*. The valve spindle *f* is supported in the bearing *c* and carries the valve proper. The latter comprises the annular parts *g, g'* which make contact with the annular seatings *b* and *e* respectively, and is connected with the arms *h, h* with the central boss *i*, to which the spindle *f* is secured; the underside of the boss *i* is made conical in shape as shown at *j*, the conical portion fitting, when the valve is closed, into a conical recess *k* upon the central bearing *c*. A spiral spring *l* is coiled around the bearing *c*, and abuts at one end against a shoulder upon the bearing and at its other end against a collar *m* which is held upon the spindle *f* by the key or cotter *n*. As above stated, Fig. 1 shows the position of the valve when closed; when, however, the valve *g, g'* is withdrawn from its seat by the suction action of the engine, the explosive mixture which is to be supplied through the valve has a supply passage of a larger cross sectional area than is the case with an ordinary valve of the same lift, as it can flow not only through the annular inlet as indicated by the arrows *o, o*, Fig. 2, but also through the spaces *p, p*, left between the radial ribs *h, h*, as indicated by the arrows *q, q*, so that a considerably greater inlet area is provided than with an ordinary valve having the same lift.

The advantages claimed by the Motor Power Company, Limited, for the new valve, which has been patented, in comparison with the ordinary inlet valve of the same size, are as follows:—The ordinary inlet valve with a lift of three thirty-seconds of an inch has an area opening of '47 square inch. The Napier valve has an area opening of '72 square inch. If, however, a

comparison is made between an ordinary single-port valve, the old Napier three-port valve, and the new annular valve, the areas are as follows:—Single-port valve, '625 square inch; three-port valve, '79 square inch; new annular valve, '875 square inch. The advantages in a fast-running engine and gain of power for a given size of valve will be obvious from these figures.

PROGRESS IN STEAM CARRIAGE CONSTRUCTION.

OPINIONS differ among steam-carriage builders as to what extent the accessories and refinements of modern stationary steam plants are adaptable to automobile practice. Signs are, however, not wanting that the trend of the times, at least among the more progressive manufacturers, is toward a number of features which are characteristics of modern steam engineering in large plants. If the movement in this direction continues, the steam-carriage will lose some of its primitive simplicity, but it is to be expected that the gain in all round efficiency will far outweigh this loss. The objects aimed at by the improvers of the steam-carriage are the following: To make the carriage a long-distance vehicle by providing means to make one supply of water last at least seventy-five miles; to reduce the fuel consumption and thus the running expense; to provide greater safety from fire in the hands of inexperienced users, and to minimise the attention required by the power equipment while running and the manual labour of pumping.

Both the range or mileage of the vehicle (which is limited by the water carried) and the fuel economy are dependent upon the steam economy of the engine, and one would therefore expect the engine to be a promising subject of improvement. Considerable work has actually been done to improve the steam economy of automobile engines, although the majority of builders still stick to the simple engine with two double-acting cylinders, using saturated or slightly wet steam. Compound engines are used by several of builders who use saturated or only slightly superheated steam, while others employ highly superheated steam, and thus secure an even higher steam economy. With steam superheated to such a degree that some superheat remains even in the exhaust as it leaves the engine, apparently nothing can be gained by compounding, since the chief object of compounding is to reduce cylinder condensation—which does not occur here. The only possible gain would seem to be in the direction of a greater ratio of expansion.

One of the chief objects of experimenters with paraffin burners seems to be to eliminate the risk of fire in steam-carriages. A good paraffin burner has, however, also other advantages, since paraffin has a greater heating value and is cheaper than petrol.

Automatic feeders which dispense with the necessity of watching a gauge-glass, and of alternately closing and opening the by-pass have been invented in large numbers, and quite a few carriages are now supplied with them. The use of a power pump for the air pressure of the fuel tank is becoming general, and independent steam-pumps for water are also being used in increasing numbers. In future, therefore, there will be less occasion for manual exertion on the part of users of steam-cars than there has been in the past.

A MOTOR-BICYCLE wedding is the latest matrimonial venture brought to our notice, two Leyton residents having gone to the altar, or as far as the church doors, mounted on motor-bicycles. Appropriately enough, they left the church mounted on a tandem.

As Dr. A. F. L. Dorin, the well-known police divisional surgeon of Clapham, was driving his motor-car along South Lambeth Road, the other afternoon, an escape of petrol occurred, which unfortunately came in contact with the boiler and the lighted jet, with the result that all became ignited and burst into flames. The car was very considerably damaged, and was conveyed to Dr. Dorin's residence minus a good deal of its spick-and-span brightness and smart appearance.

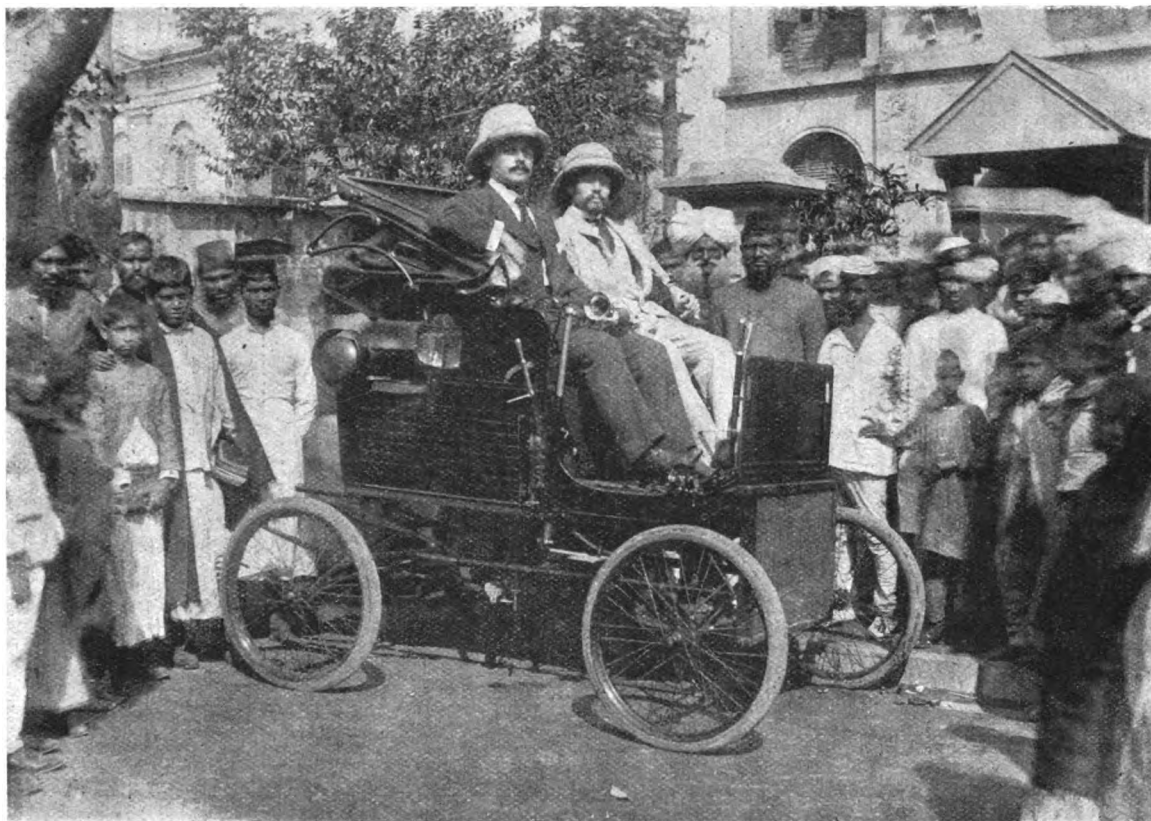
THE ELECTRIC IGNITION OF COMBUSTIBLE GAS-MIXTURES.

AT a recent meeting of the Reading Automobile Club a paper on the above subject was read by Mr. A. Phillips, of which an abstract is given herewith:—

The most vital part of an internal-combustion motor lies within its combustion chamber. The explosion of the gases here constitutes its very heart-beat; for, should this fail, then its circulation fails also, not the least important being the circulation of the fly-wheel. In order to ignite the explosive gas-mixture present under compression in the cylinder of the motor, heat must be applied at a given moment. The means most commonly employed for this purpose is to introduce through the walls of the cylinder an insulating porcelain tube, carrying the wires which form part of the secondary circuit of an induction coil. The ends of these wires are brought near together at their extremities, leaving a small gap in the circuit across which is transmitted the

the current. The battery employed in a motor-car usually consists of two elements, or cells, which are incapable in themselves of developing a high pressure or electro-motive force, and are therefore unable to maintain a current against resistance. The resistance of the air-gap being very high, it is necessary to considerably increase the low-tension battery current; to effect this is the function of the induction coil, which transforms the primary current of low tension, but comparatively large amperage, or quantity, into a secondary current of high electro-motive tension with a relatively diminished current. Thus the total energy remains the same, although the component volts and amperes may vary.

When, by means of a "trembler," or contact-breaker, the battery current comprising the primary wire of the induction coil is closed, the electro-magnetism of the core induces a current in a direction opposed to that of the primary current, and tends to retard its instantaneous passage. Again, when the primary current is broken, an induced current is generated in the circuit



A LOCOMOBILE IN CALCUTTA.

rush of sparks from the induction coil. The temperature of these sparks is considerable, and proportionate to the current passing the points. Properly speaking, the heat of the discharge is due to the resistance of the air, or other gases, through which the current passes; while its visibility is due to the ignition of the gas molecules in its path, and also of particles of metal torn off the platinum points by the discharge. Possessing these qualities, the electric spark is admirably adapted to effect combustion of explosive gas-mixtures and to insure the chemical combination of their constituent atoms. There is a variety of methods of electrical spark ignition, each possessing some distinctive feature of interest. The high-tension system, which consists essentially of a primary or secondary battery, induction coil, contact-breaker, etc., is adapted by the manufacturers of the De Dion and Benz type of motor-car; while the low-tension system is represented by Simms-Bosch, Moss, and Lanchester. In the latter system advantage is taken of an induced current, termed the "extra current," a dynamo usually replacing the accumulators to supply

in the same direction as the battery current, and produces what is generally referred to as the extra current, which takes the form of a bright spark at the point of interruption; the high tension of this current making it possible for it to leap over the separating points of the break. The effect of this extra current on that directly induced in the secondary coil is to lessen very materially its tension. In order to obviate this prejudicial effect a condenser is usually employed in conjunction with the induction coil, and this tends to absorb or suppress the extra current. It follows, then, that the device used as a "trembler," or contact-breaker, should be as rapid as possible in its action.

In order to be able to gauge the amount of energy given out by the explosion of various gas-mixtures, I have constructed a special apparatus, consisting of a metal cylinder about 10 inches long, closed at both ends and fitted with a piston and piston-rod. The latter carries a projection which engages with and actuates a movable pointer over a graduated scale. A sparking plug is placed in a suitable position below the piston, while tubes inserted

into this space serve to convey the gas-mixtures to be exploded. The action of the apparatus is as follows:—

When the gas-mixture, which in every experiment is of equal volume, is fired by the electric spark, the piston is driven up by the explosion and compresses the air in the upper chamber the amount of compression and consequently the energy exerted by the expansion of the gases is registered by the pointer, which remains in position after the return piston stroke.

Too feeble a spark causes imperfect combustion and consequent soot deposit. This proves, of course, that without a good spark the engine does not develop full power. The spark-gap should always be placed where it is surrounded by combustible mixture uncontaminated by burnt exhaust residue. I found that the most powerful results were obtained by using a mixture of 5 per cent. of gas. It has been suggested, I believe with great reason, that a "fat" spark, having a necessarily greater surface than a "thin" one, will ignite simultaneously a correspondingly larger amount of gaseous molecules surrounding it; and that these ignited molecules, transferring their ignition to others in their immediate neighbourhood, would thereby give a more instantaneous explosion.

This is an important consideration, for such an explosion will create more heat, and therefore give more force than a slower one, and the combustion will be of a higher form than under reverse conditions. Owing to a peculiar property belonging to gases which have a mutual affinity, their volume is decreased by chemical combination. Petrol is a hydrocarbon having a high percentage of hydrogen, and when combination or oxidation takes place in the cylinder this condensation will naturally tend to diminish the pressure by lessening the volume of the gas, and so oppose the effect of the elevated temperature, which increases the pressure by increasing the volume in the ratio of 1 : 273 of its volume for every accession of one degree centigrade. This fact, then, would well account for the highest efficiency of an internal combustion motor being at its highest speed; for if the piston travelled slowly after an explosion there is necessarily more time both for this condensation and for the temperature to become lower.

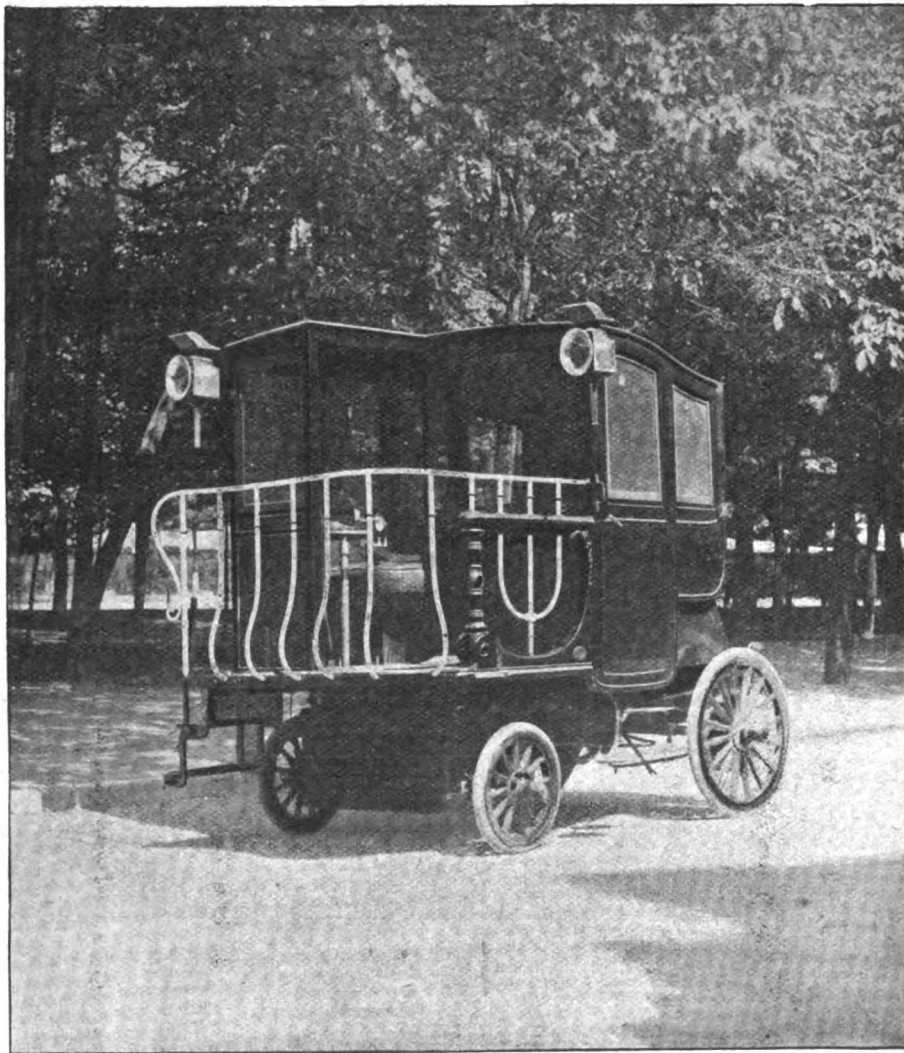
This feature of condensation is well represented by a piece of apparatus termed an eudiometer. It consists of a stout glass tube closed at one end, having an internal diameter of half an inch, and bent into the form of a U. Two pieces of platinum wire fused into the glass at the closed extremity serve to convey the passage

of an electrical spark. This closed limb is graduated to about half its length. The tube is filled with mercury, and the gases to be examined are passed into the closed end of the tube, thereby displacing the mercury, which indicates by its level on the scale the volume of the gases. A spark is then passed across the platinum points and the explosion ensues. The diminution of the volume of gases caused by condensation or combination is then read off the scale and compared with the original volume.

We have now to consider what effect the compression of the explosive gases has upon the high-tension spark. This can be conveniently shown by an instrument consisting of a spherical glass vessel with an open neck above and below. A brass fitting at the upper end has an air-tight stuffing box, through which an electrode can be moved to regulate the sparking distance of

the points within the globe. The lower neck of the vessel is fitted with a stop-cock, pressure gauge, and an attachment for a pump. As the pressure rises by pumping in air the sparking distance rapidly decreases. The density of these gases largely influences the sparking distance, and not only the density but also the chemical composition.

I was led by some observations in these experiments to try to discover the rate of explosion of gaseous mixtures. This I was able to accomplish fairly approximately by a very delicate apparatus, comprising a stout glass tube 10 feet long and $\frac{3}{4}$ -inch diameter, at one end of which is a sparking-plug. Electric contact-makers of peculiar construction are placed at intervals of 12 inches along the tube and are connected in parallel to a circuit comprising a battery and an electro-magnet. To the latter is attached an armature carrying a light stylus, or pen, the whole



AN AUTOMOBILE ELECTIONEERING PLATFORM. (See page 113.)
La France Automobile.

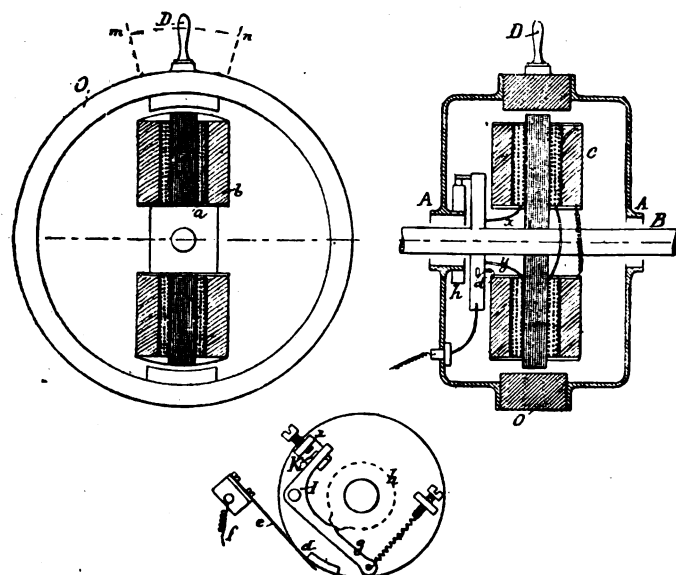
being mounted over a rapidly revolving drum moving with great regularity and covered with smooth paper. After the gas-mixture to be examined has been introduced into the tube, it is fired by a discharge from a Leyden jar, having a special timing device which ensures a galvanic current passing simultaneously through the electro-magnet already alluded to. The action is then as follows:—The explosive wave having reached the first contact-maker in the tube, it closes by its action the battery circuit, and a current passes through the electro-magnet. The armature is immediately attracted, bringing the marking stylus in contact with the paper on the revolving drum and registering on this a line or dot. The explosive wave passing along the tube reaches the second contact-maker, and the same cycle of operation is repeated. When the explosion has travelled the whole length

of the tube, the stylus will have registered ten dots on the paper. It is then a matter of simple calculation, knowing the circumferential speed of the revolving drum, to compute the relative velocity of the explosion, or, more correctly speaking, of the propagation of the explosive wave of various gas-mixtures.

Several items of interest relative to the working conditions of an internal-combustion motor were deduced from these experiments. These are as follows:—The rate of explosion is independent of the diameter of the tube above a certain limit. With rise of temperature the rate falls. With rise of pressure the rate increases. While experimenting with this tube I was struck by the fact that, although using the same mixtures and working apparently under the same conditions, the rate of the explosive wave gradually decreased from the first experiment. It was some time before I discovered the reason of this, which was very simple. The chemical combination of the two gases had gradually caused an accumulation of water on the walls of the tube, and it was this moisture which had such a marked effect on the rate. The wave is propagated by the movement of burnt molecules and also by those heated and unburnt. When the products are perfect gases the explosive wave travels at a velocity which agrees approximately with that of sound, viz., 1,140 feet per second.

THE "CROISSANT" IGNITION SYSTEM.

QUITE a number of new ignition devices made their appearance at the recent automobile exhibition in Paris. We have already referred to M. Wydt's "Allumeur Electro-Catalytique," and now are able to give a brief description of another system—the "Croissant"—introduced by M. Allain, of Anet (Eure-et-Loir), France, in which the use of dry batteries or accumulators is dispensed with. The arrangement, which was shown fitted to a tricycle, as indicated in Fig. 4, consists of a high-tension induction coil and current generator combined in one. The inventor conceived the idea of driving an induction coil at a uniform speed of rotation within a permanent magnet and to collect the current therefrom at the required moment. This, owing to the mutual induction between the two windings, is not



FIGS. 1, 2, AND 3.

directly practicable, but the difficulties have been overcome in the following manner:—A permanent magnet, O (Fig. 2), of circular form is provided with two end bearing plates, A A, in the bearings of which turns the shaft B, which supports the induction coil C. This coil rotates within the circular magnet, the shaft B being driven from the engine. The coil has two windings, the extremities, *x*, *y*, of one of which, *a*, composed of heavy wire, are connected to the interrupter I (Fig. 3); the other, *b*, of fine wire, has one of its terminals earthed and the other one connected to a contact,

d, carried by an insulating plate. The current induced at each revolution in the winding *a* is interrupted at K by the raising of arm *g* by cam *h*. The interruption of this current induces in the secondary circuit a momentary current, which from contact *d* flows through brush *e* and the wire connection *f* to the sparking plug, jumps across the gap between the plug terminals, and returns through the engine frame, to which, as stated, the other extremity of the coil is earthed. Provision is made for advancing and retarding the sparking, this being effected by means of the handle D, which moves the stationary part of the spark generator in relation to the

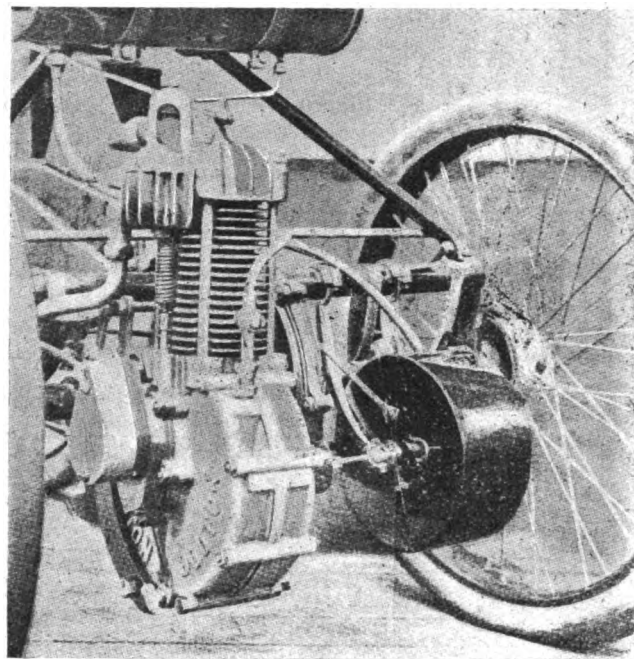


FIG. 4.

rotating coil through a certain angle. The generator may be driven directly from the engine shaft, as shown in Fig. 1, or may be actuated from it by any convenient positive transmission device. It is claimed for the apparatus that it is less bulky and weighty than the usual arrangement of accumulators and induction coil. The only external piece that needs attention is the conductor connecting the apparatus with the sparking plug, so that the chance of ignition troubles due to short circuits or faults in the wires is greatly reduced.

WE are informed that a commercial traveller has run over 6,000 miles during the last two years on a 5-h.p. "Knight of the Road" car without having to make repairs of any kind.

THE Athletic Sporting Association, Limited, has been registered, with a capital of £507 in £1 shares, to adopt an agreement with Mr. E. M. Chennell, and to carry on the business of cycle makers, motor-car builders, etc.

LOOKING back over the last year, it is astonishing to see the great number of improvements that have been made in motor-vehicles, and it is safe to say that no other branch of engineering has ever seen an equally rapid advance within a corresponding period.

M. ANDRE A. GODIN has removed to 9, Little James Street, Gray's Inn Road, W.C., where he will carry on the sole agencies for this country of E. Selaverand's valves, pumps, etc., H. Hommen's coils, and G. Ducellier's lamps. The latter is a special feature, and at the Exhibition he will have a good collection on view.

THE East London Rubber Company, of 211, Shoreditch, E.C., who have lately established a motor department, have just issued a most complete catalogue of motor parts and accessories. Everything from a sparking plug to a complete car is comprised in the list, which should prove useful to all motor agents in the country.

The Martini Petrol Lorry.



A SWISS firm, Messrs. F. Martini et Cie, of Frauenfeld, have lately taken up the construction of heavy petrol vehicles. Figs. 1 to 3 show a lorry built by this firm; it is fitted with a 12-h.p. four-cylinder motor situated in the fore part of the frame. To economise space the cylinders are arranged in pairs opposite each other, and are inclined V shape, so that the piston-rods work on one shaft with two cranks. The cylinders have a bore of 95mm., and the piston stroke is

for three forward speeds of three, seven, and eleven kilometres an hour and a reverse motion. The advantage of the two trains of gear wheels is that the gear can be changed from the lowest to the highest speed without passing through the intermediate one. The two trains are operated by one lever at the side of the driver.

An original feature of the lorry is the design of the secondary, or "false" frame, which carries the motor and transmission

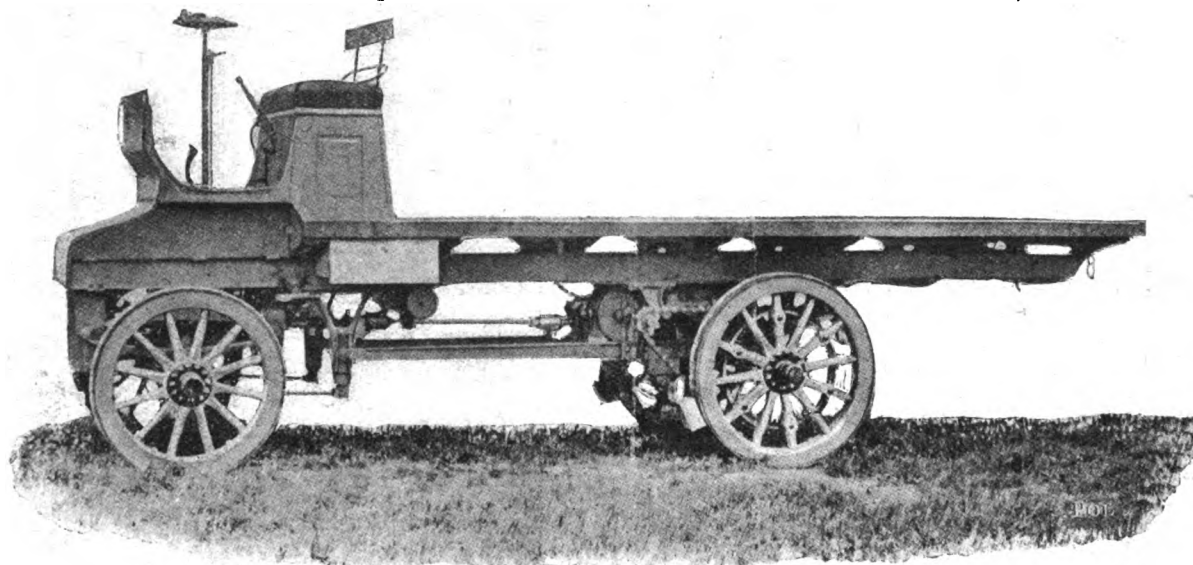


FIG. 1.—GENERAL VIEW.

130mm., the normal speed being 750 revolutions per minute. Contrary to the usual practice in this type of engine, the combustion chambers are horizontal, so as to give a vertical movement to the exhaust valve rods. Ignition is effected by the Simms-Bosch magneto device. The motor is regulated by a hit-or-miss governor actuating a special form of sliding valve, and

mechanism. The main frame is composed of large channel sections, and is suspended on laminated springs. The secondary frame is made of two smaller members of channel sections, the ends resting on the rear axle, while the opposite ends terminate in forks just behind the front wheels. Hanging brackets bolted under the main frame contain spiral springs, between which are

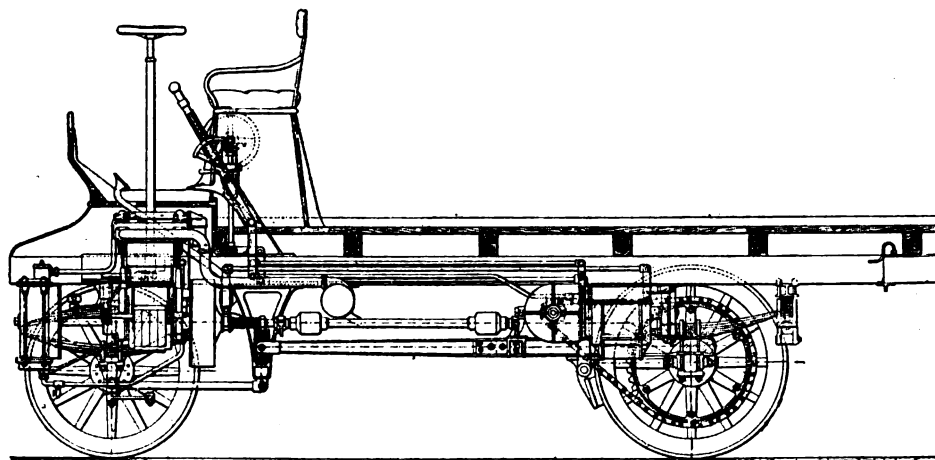


FIG. 2.—SIDE ELEVATION.

it can also be operated independently by hand to vary the speed as required. The engine is carried on a bed bolted to the lower flanges of the channel sections forming the side members of the lorry. A universal-jointed shaft transmits the power from the motor, through the medium of a friction clutch, to the change-speed gear, which is placed near the rear axle. The gear consists of two separate trains of fixed and sliding wheels arranged

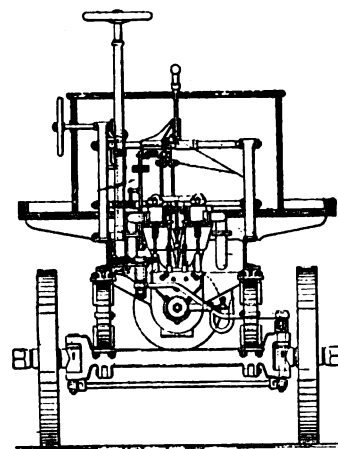


FIG. 3.—END ELEVATION.

the pins passing through the forked ends. By this arrangement any vertical movement of the front part of the vehicle is taken up by the spiral springs, and prevents strains being communicated to the driving gear.

There is no water tank, this being replaced by a new form of radiator in front of the vehicle, consisting of a large number of flattened tubes, between which air is driven by a fan on the

crank shaft. Owing to the large radiating surface it is claimed that when the lorry is running at low speed under a full load the temperature of the water never rises above 65 deg. Cent., and there is consequently no danger of heating when ascending long gradients. The quantity of water carried is twelve litres, and it is said that there is practically no consumption. The circulation is maintained by a gear-driven pump. The cold water is drawn from the bottom of the radiator, the heated water returning at the top.

The road wheels are of the artillery type with broad iron tyres, the front wheels having a diameter of 2ft. 11in., and the driving wheels 3ft. 3in. The distance between the axles is 11ft. 6in., and the width of track is 4ft. 6in. Steering is controlled by a horizontal wheel on a vertical pillar, around which are grouped the levers for advancing and retarding ignition. Besides the foot brake acting on the differential, there is a lever for operating powerful tyre brakes on the rear wheels. The weight of the lorry is 2½ metric tons, and it can carry a load of 3½ to 4 tons.

MOTOR UTILITY.

ALTHOUGH the value of the motor-vehicle is naturally most appreciated in connection with the conveyance of passengers and the transportation of goods, there are adaptations of which it is capable which should—when fully understood—increase its popularity with manufacturing and commercial firms. So, at least, says the *American Motor World*, which points out that in every motor-vehicle we have a portable engine, whose power can be utilised for a large variety of work by simply providing a short length of flexible shafting which can be connected up to the engine shaft, or to one of the counter-shafts. Take the case of a builder or contractor engaged in the erection of a large building, and using a motor-truck for the transport of his materials. The truck might be fitted with a winding drum, and after it had been placed into a suitable position, a rope or chain from the lifting tackle might be led to the drum through a snatch block, and the power of the motor utilised not only to discharge the load, but also to hoist it up to the necessary elevation at once. For girders and other heavy goods the low speed would be used, and for quick, light lifts one of the higher gears. When not required for transport purposes, the motor, by means of a flexible shaft, might operate a circular saw on the site of the building, and thus save a large amount of hand labour.

Similar conditions obtain in many other cases. The farmer, for instance, frequently has to engage a portable engine for his work. The heavy motor-wagon would not only enable him to transport his produce to markets which were formerly inaccessible, but the motor itself could also be used for operating the various machines which are often worked by hand, or in a clumsy fashion by horses.

Turning now to pleasure vehicles, the well-equipped country house of the future will have its motor-vehicle for station work, and it is quite easy to conceive that a vehicle of the Daimler type, provided with a length of flexible shafting, might extend its field of usefulness very widely under such conditions. It might be used for pumping water from a well to an overhead tank for supplying the house, and also for operating a churn, chaff-cutter, and other similar machines. These few instances will serve to indicate some of the directions in which the usefulness of the motor-vehicle can be increased, and by a little careful thought the list might be largely amplified, and manufacturers will see that by the addition of simple attachments, the cost of which would be comparatively small, they might largely increase the selling power of their vehicles.

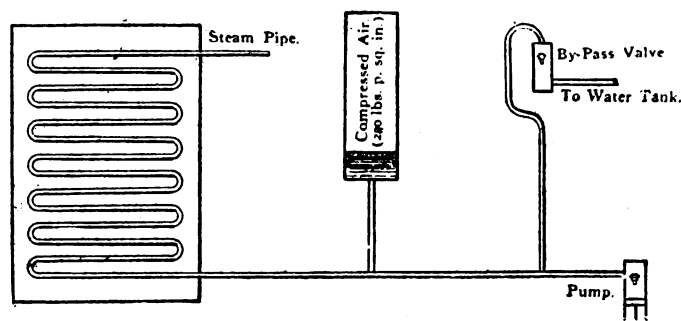
THE proposal to throw a bridge over the Medway at Snodland has been revived. The Kent County Council, the Rochester Bridge wardens and other authorities, are considering a scheme which would involve a cost of £15,000.

THE SERPOLLET SELF-STARTER.

REFERENCE has already been made in these columns to the improvements lately introduced by M. Serpollet in his well-known steam vehicles. One of the features of the system is that the feed-pump supplies water to the boiler in strict proportion to the work being done; the boiler only containing at any one time but a small quantity of water. Moreover, the safety automatic by-pass valve on the discharge pipe of the pump allows the water contained in the generator or feed pipe, and what may be pumped if the pump continues to operate, to return to the water tank whenever the consumption of steam is suddenly reduced or stopped altogether (a very frequent occurrence in the operation of an automobile), in order to prevent the generation of more steam than is needed.

The system has already been developed to work satisfactorily under this condition; but there were still these two objections, that when starting up again the hand pump has to be used to supply the boiler with sufficient water to get it into action, and that the automatic pump worked under maximum pressure when the water from it returned to the tank without producing any useful effect.

The new self-starting arrangement, illustrated diagrammatically herewith, does away with these objectionable features. It consists of a hollow cylinder containing a piston, one end of the cylinder communicating by a pipe with the feed-pipe of the boiler. This end of the cylinder is filled with water, and the opposite end with air compressed to a pressure corresponding to the boiler pressure (280 lbs. per square inch for example) when the piston is at its lowest point.



If now the work required of the engine (and consequently the feed) is reduced, the pressure in the boiler naturally rises, and as soon as it exceeds 280 lbs. per square inch it further compresses the air in the cylinder of the self-starter by forcing the piston back, and the space in the lower part of the cylinder moved through by the piston fills with water. This compression of the air in the upper part of the cylinder continues until its pressure becomes that to which the automatic by-pass valve is set (say 560 lbs. per square inch), which then operates as usual.

A volume of water nearly equal to one-half the capacity of the cylinder is thus stored up under a pressure of over 500 lbs. per square inch, and the moment the engine throttle is opened and the boiler pressure thus reduced, this water is forced into the boiler by the air pressure in the cylinder.

The latter is situated in such a position that is not affected by the boiler fire, and when the vehicle is stopped there is no increase of steam pressure. If the cylinder of the self-starter is made of sufficient capacity that a compression of the air to the limit above given admits to it practically all the water ordinarily contained in the boiler, then the automatic by-pass valve operates only rarely, since the boiler contains only a small amount of steam, which is superheated, without any serious increase in pressure. To restart after a stoppage, a small valve wheel on the dashboard is given a half-turn which allows the air pressure above the piston in the cylinder to force water into the boiler.

SIR HENRY THOMPSON, BART., has written a new book on the use and management of motor-cars.

THE MARIENFELDE 20-H.P. CAR.



OUR illustrations (Figs. 1 and 2) present respectively an elevation and plan of the *chassis* of the latest 20 h.p. petrol-car turned out from the works of the Motor-fabrzeug und Motorenfabrik Gesellschaft, of Marienfelde, Berlin. The motive power is supplied by a four-cylinder engine located in the fore part of the frame under a bonnet. The motor, which at its normal speed develops 20 h.p., can be run at 1,400 revolu-

tion wheels by chain gearing. Inclined wheel steering is fitted, while there is a pedal-operated band brake on the differential shaft and band brakes on drums connected with the hubs of the rear road wheels, the latter being put in action by means of a hand lever. The motor is fitted with a governor which acts on the admission and ignition simultaneously, there being also a hand accelerator fitted in connection therewith. The frame, which is constructed of wood and steel, is adapted to receive any type of carriage body. The road wheels are all the same size, while the noticeable feature of the car is its relatively long wheel base and

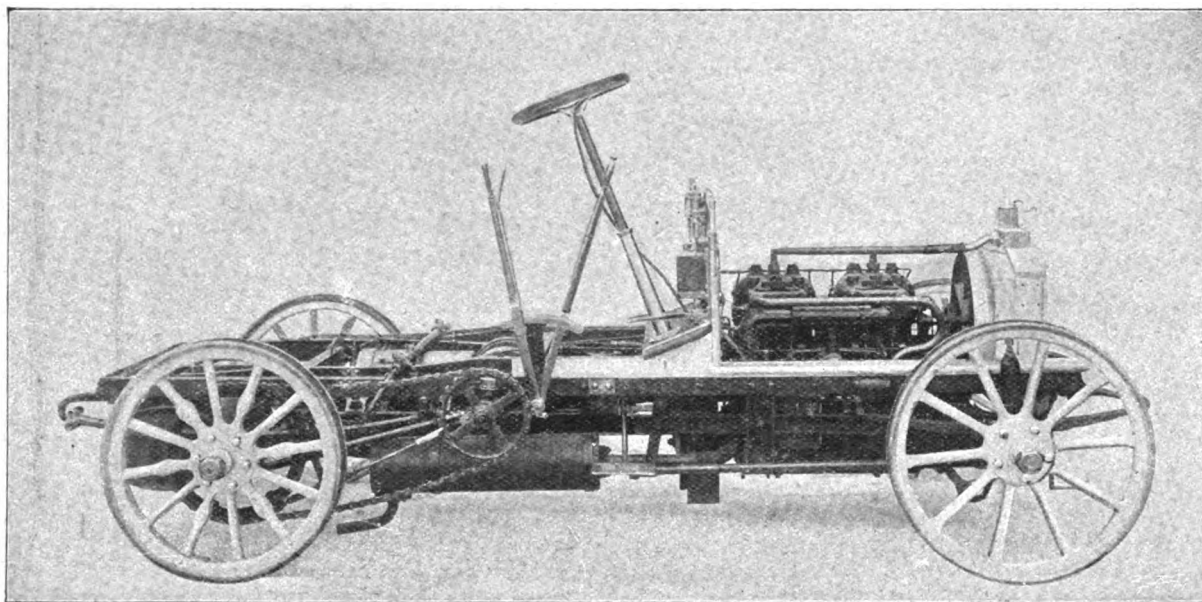


FIG. 1.—ELEVATION OF THE MARIENFELDE 20-H.P. CAR.

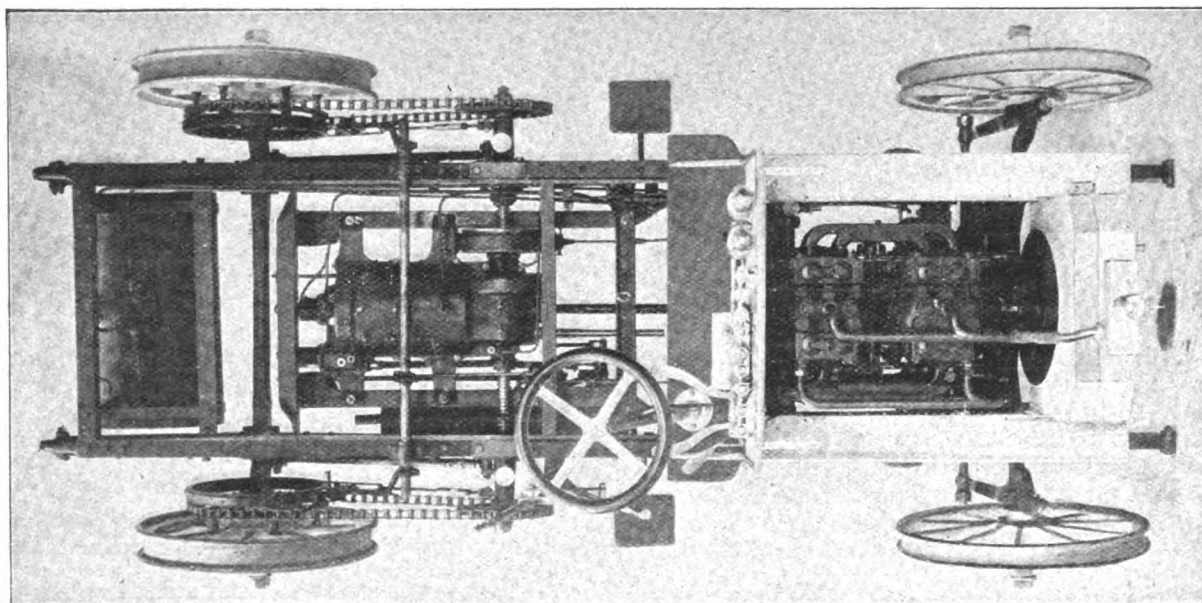


FIG. 2.—PLAN OF MARIENFELDE 20-H.P. CAR.

tions per minute, when it is said to give off 30-h.p. It is fitted with magneto-electric ignition. The Cannstatt-Daimler type of combined water-tank and cooler is adopted. The tank, which is fixed in the forward end of the frame, is pierced by a large number of small tubes, through which currents of air are induced by means of a fan driven by the engine.

Four speeds forward and a reverse motion are provided, these being controlled by a single lever at the side of the driver. The power of the engine is conveyed through a pedal-actuated friction clutch to the gear-box, which contains a train of sliding gears. The gear-box is connected by bevel pinions to the differential cross shaft, which in turn transmits the power to the rear

low centre of gravity. The complete *chassis* is stated to weigh just under 16cwt.

MOTOR-CARS and cycles will be included in a great Fair and Exhibition to be held at Leipsic from October 18th to the 27th of the present year.

It is reported that the German Daimler Motor Company at Cannstatt are making some experiments in connection with steam cars.

THE projected automobile tour of Holland has been abandoned, owing to the authorities forbidding a speed in excess of 20 kilometres (12½ miles) per hour.

HERE AND THERE.

MESSRS. CUDELL AND CO., of Aix-la-Chapelle, Germany, have lately completed a 35-h.p. racing car.

THE Automobile Garage, Limited, has been formed at Toronto, Ont., to open a motor-car *garage* in that city.

MESSRS. MARTIN AND CO., of Frauenfeld, Switzerland, have decided to establish large new works at St. Blaise (Canton of Neunburg), for the manufacture of heavy motor-vehicles.

MR. STEAD, the leading motorist in the Nice-La Turbie hill-climbing contest last week, averaged a speed of thirty-five miles an hour—and this in a dense fog!

THE annual subscription to the Irish Motor Cycling Union is £1 for members residing within twenty-five miles of Dublin, and 10s. for country members. No entrance fee will be charged for members joining before December 31st next.

THE Prime Minister of Annam, who is at present in Paris at the head of a mission from Indo-China, has become a convert to automobilism, and during a visit to the Clement works at Levallois last week ordered an 8-h.p. motor-car.

THE German Ministry of the Interior has approved the proposal of the Nuremburg district authorities to use a motor prison van to carry prisoners to and from the prison and railway station at Nuremburg. The vehicle is being built by the Union Motorfahrzeugfabrik of that city.

MR. ALEXANDER WINTON, the head of the Winton Motor-carriage Company, of Cleveland, U.S.A., is a great believer in automobile races. Apart from the advertisement the vehicle obtains, Mr. Winton considers that a man learns by racing his vehicle many useful points he can obtain in no other way.

MR. JOHN MALTBY, of High Street, Sandgate, is catering for the requirements of motorists in his district in a thorough manner. Not only is a stock of petrol, oils, and greases kept on hand, but he has a *garage* for about a dozen cars. He also undertakes repairs to cars of all types, and has lately added a body building and painting department.

A REPAIRING outfit that contains a plentiful supply of substantial materials necessary for the worst form of puncture or gash in motor cycles is that made by the Dunlop Tyre Company. It includes eight bevelled-edged patches, a tin of strong solution, a tin of French chalk, large rolls of prepared canvas, a rasp "file card," and substantial set of wooden tyre levers for refractory tyres.

PENDING the erection of their new *garage* in Wardour Street, W., the London Motor Garage Company, Limited, have taken the premises, 81, Page Street, Westminster, lately occupied by the Locomobile Company of America, and have opened them as a *garage* and repairing depot. Covering an area of 5,000 superficial feet, these extensive premises are well adapted for the storage of motor-cars; they have also the advantage of being on the ground floor, with a wide entrance leading into a large private courtyard in front of the main building. The managing director of the concern is Mr. Frank Atherley.

AT the last monthly meeting of the Aeronautical Institute and Club papers were read by Dr. Barton, of Beckenham, and Mr. P. L. Seneca. Dr. Barton said the prominent features of his new balloon were the three sets of triple aeroplanes. He explained that these would obviate the loss of gas and ballast; 970lb. lifting or depressing force could be exerted at will. The propelling arrangements consisted of six sets of double-bladed screws (the blades being further tripled one behind the other, venetian blind fashion), arranged three on each side in different planes. They are to be driven by three "Buchet" motors, each of 45 h.p., which it is estimated will drive the airship 25 miles per hour in a calm. Petrol will be carried for a 48 hours' run, and the balloon will be manned by a crew of five. The length of balloon will be 180ft., and the car 104ft. The latter is to be fitted with an automatic balancing device actuated by a pendulum.

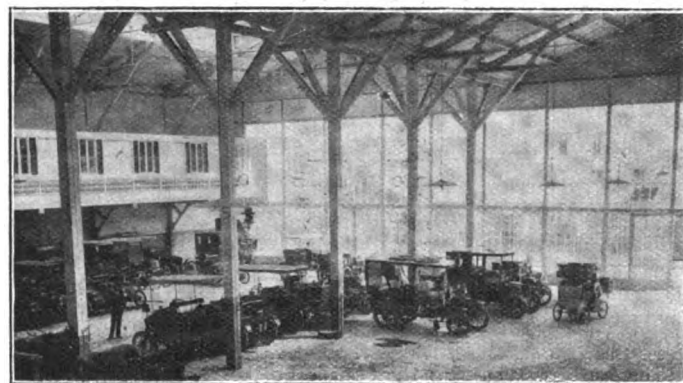
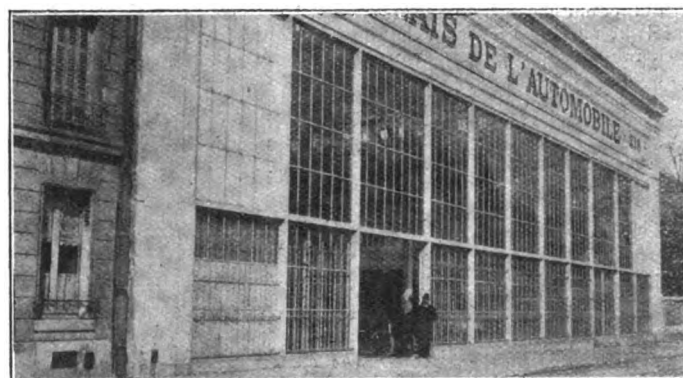
THE Speedwell Motor and Engineering Company, of Reading, has now a London address at 50, Albert Gate, S.W.

THE South Wales Motor Company, 35, Westgate Street, Cardiff, have been appointed sole agents for "Argyll" cars for Glamorganshire and Monmouthshire. They have also been appointed official repairers to the Automobile Club.

MESSRS. STEINER AND CO., of 142, Houndsditch, E.C., have sent us a copy of their new catalogue, in which a number of pages are devoted to lamps, horns, and other motor-car and cycle accessories.

A NEW stand for motor-bicycles has just been put on the market by the Devonshire Cycle and Motor Company, of Brookhill, Sheffield. The stand is light, and, when not in use, can be folded into a very small compass.

REFERENCE was made in a recent issue to the large *garage* establishments that have sprung up in recent years in Paris and other parts of France. By the kindness of Mr. C. Friswell in furnishing us with the photographs, we are able to give herewith two illustrations showing the exterior and interior of one of these immense emporiums, viz., that of the Palais de l'Automobile et du Cycle at 218, Boulevard-Pereire, Paris. The *garage* is kept



open day and night, so that private motor-cars can be taken in and out at any time. Needless to say every provision is made for the cleaning and repair of cars and refilling with petrol and water, etc.

A NEW list of Pratt's motor spirit agents has been issued. This spirit can now be obtained at 1,410 places in London and the provinces, and it is indispensable to all motorists, who should write to the Anglo American Oil Company for the book. A copy of the Government regulations as to the storing of motor spirit is included.

A NUMBER of motor-cars will be seen on the cycle track at the "Gigas" Bazaar in Dublin on the 13th prox., and the three following days. Several large cars have been placed at the disposal of the committee, and the track will provide a suitable place for manoeuvres. Mr. W. R. D'Alton will have charge of the parades—a similar position to that he filled at the Dublin Spring Show of 1901. Although motor-cars have been shown this week at the Spring Show, there have been no parades, owing to the objections of exhibiting horse owners.

CORRESPONDENCE.

L'ALLUMEUR ELECTRO-CATALYTIQUE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I was much interested in your account of the above, in your issue of March 22nd. I have a motor with lamp ignition which is awkward in a wind, and I do not wish to go to the expense of electric ignition; so it struck me that M. Wydt's ignition block would do what I wanted. Where can one be procured?

I think I have seen a gas lighter on this principle. The lighter consisted of a brass handle and what I took to be a coil of fine platinum wire. The gas tap was turned on and the coil, being held over the burner, became incandescent, so igniting the gas.—Yours truly,

CHAIN.

HOW TO SELECT A MOTOR-CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to "Perplexed's" letter, in the *Journal* of the 12th inst., enquiring about a car suitable for the hilly country of South Devon, I should like to call his attention to a car built by Messrs. J. Parr and Company, of Leicester, which I fancy would meet his requirements in every way. I have watched the construction of this vehicle from beginning to finish, and can say, with perfect truthfulness, that it is thoroughly well and strongly made under the supervision of a competent engineer. It is very simple and very easily managed, and is, in my opinion, absolutely fool-proof. There are two forward speeds and one reverse. The drive is obtained by two chains from engine to counter-shaft, the change speed by means of expanding clutches which engage with either the low or high speed chain wheels by moving a lever on the right of the driver. When the lever is in a central position the engine runs free; the reversing gear is actuated by a pedal and is a very ingenious friction arrangement. It will be seen that there are no cogwheels, thus no broken teeth. The speed can be arranged to meet the requirements of the district. I have driven this car and find its running very smooth and noiseless. It has a long wheel base (5ft. 10 $\frac{1}{2}$ in.) and a roomy tonneau, and the price is well within that mentioned by "Perplexed." I may say the engine develops full 8-h.p. at 1,400 revolutions. I have no interest in this firm whatever, beyond the fact that I have had several jobs carried out at their works most satisfactorily, but being an enthusiast in the pastime I take every opportunity of gaining information in reference to the details of construction of motor-vehicles with particular regard to strength and reliability.—Yours faithfully,

L. L. POWELL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—If "Perplexed" will let me know his address, I will tell him of a large English firm who will be most pleased to give him a ten mile run or even more. The car is fitted with a good engine, as I know from experience, three speeds forward and reverse, the arrangement is on Panhard lines in every particular, and the price is exactly the one named by "Perplexed." The car will, I should think, accomplish all "Perplexed" requires.—Yours truly,

SLATTER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The letter of "Perplexed" is just one of those that are so difficult to answer definitely, because there are so many limiting conditions; but, knowing Devonshire, and having done a certain amount of motoring in it, I am aware of some of the conditions referred to. At the price named only light vehicles of the "Voiturette" class need be considered, and I do not myself think that for Devonshire any of those are sufficiently strongly built to withstand the strains to which the steep, and often rough, roads subject their frames and machinery.

There are cars, such as those made by the Daimler Company, the "Gladiator," etc., which would get up such hills as "Perplexed" refers to, and I suppose even a small powered "Benz" would do the same if fitted with Crypto gear, and with the belt thoroughly tight. But all these would come under the designation of "Voiturettes," or lightly-constructed cars. To struggle up and down the hills (and the getting down is no easy matter sometimes), a good strong engine in a good strong frame is really needed, and that means about twice the price named as the limit. For the same nominal h.p., too, the two-cylinder engines appear more effective than the single-cylinder ones, but their cost is higher.—Yours truly,

HILL CLIMBER.

A WARNING FROM ESSEX.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—For the information of motorists using the main Eastern Counties road, I may here state that at Romford, Brentwood, Ingatestone, and Widford by Chelmsford, the police and telephone work in sympathy, and woe betide any driver using his top speed. The stages are as nearly as possible six miles apart, so if half an hour is allowed for each stage it will give the occupants of the car time to view some of the best landscapes in Essex, and possibly save the owner's pocket considerably. Beyond Chelmsford, and right away for 100 miles, there are no telephones, and police are very scarce.

In conversation with several of the county constabulary, who appear to be an intelligent body of men and mostly good sportsmen, they tell me they have no animosity towards motor-cars or their drivers, and the duty of trapping is loathsome to them; but they are "acting under orders," and these orders never would have been given but for the reckless driving of some, and the total disregard by many of the hand held up by magistrates and their friends of the landed gentry, who, when driving, were frequently more nervous than their animals.—Yours truly,

EDWIN S. CHEEL.

SPRING CLEANING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Allow me a few remarks re your "Spring Cleaning" article. Admitting that some or all of the therein-mentioned faults are to be repaired (or perhaps only investigation may be required), then, how and by whom are they to be done? My experience of the regular people in this line is such that I prefer not to trouble them again, since for the repair of a small leakage in my petrol-tank I have had to pay 25s., and in another instance was refused a man to help me because I was not a customer. I prefer very much to get the workpeople home in my own stable, but where are they to be found? If we could get to know of one or more handy and willing young men who understood their work and would help owners at a reasonable charge to overhaul their cars and to do repairs, I am sure many owners, who are not millionaires, would be very thankful.—Yours truly,

E. L. S.

MOTOR BICYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—My first experience with a motor-bicycle was not at all satisfactory, the machine I purchased turning out to be absolutely worthless. The workmanship was very poor, the noise unendurable, and the parts were assembled in a very primitive way. Later on I bought another make, which is perhaps as perfect a machine as can be made at the present time, the workmanship, material, and adjustments being all first-class. I have not used it in my practice for the reason that the distances between calls are so short that it is more trouble than a bicycle. I use the machine for pleasure riding only. I have never had an accident with it beyond an ordinary puncture of the tyre; I have never fallen from it or run into anything, and never was injured nor injured anyone else. The machine steers easier than an ordinary bicycle, and one experiences a feeling of solidity, due to the extra weight, which is not noticed on the bicycle. After riding the motor-bicycle for a while and then riding the bicycle you feel as though you are getting on a very flimsy and frail machine, and if it were not for past experience you might even hesitate to ride it.

One serious drawback to a motor-cycle is that one cannot wear good clothing while riding it. In spite of the best care and attention the motor will spill oil, and you will get covered with dust. When I go out I put on my motoring-suit, and then look as greasy as an engine attendant, and when I get back I have quite a job cleaning off the dust both from clothing and machine.

I have not had many sparking troubles, and what few I did have were always easily located. All you have to do is to follow the wiring; if it is intact, test your battery; if the battery is strong enough, clean the contact points; and if all these parts are in perfect condition and you still get no spark, unscrew the sparking plug and clean off the carbon. Having done that, you must get results. As to skidding or side-slipping, I do not find the motor-bicycles any worse than ordinary cycles; in fact, if anything, I think they are rather the more sure-footed of the two. Still, you cannot go round a street corner at a twenty-mile rate, the motor-bicycle requiring as much care and consideration on slippery tramway rails or in rounding corners as a bicycle.—Yours truly,

DOCTOR.

COST OF MAINTENANCE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I think "M. B." must have made some mistake in his estimate as regards the amount put down for petrol, viz., £10 10s. for 3,000 miles. I have driven a steam car since October for commercial travelling. Having run 2,500 miles, I find the consumption of petrol is exactly 1 $\frac{1}{2}$ d. per mile. Of course "M. B." may purchase his spirit at a special rate. I have to get mine as I go on my journeys, and pay anything between 11d. and 1s. 6d. per gallon. Otherwise, I think his estimates fairly correct. I can certainly endorse his last remarks upon the satisfactory running of steam cars and also upon their simplicity. I am no mechanic, but after three hours' instruction my car was handed over to me and I have had sole control since and had no trouble. I have just had the engine thoroughly overhauled for the first time, for which I was charged 20s. This included two new slides. A local man did it.—Yours sincerely,

NOSILLA.

MECHANICAL FLIGHT UP-TO-DATE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Will Mr. Sydney Hollands please oblige by giving a description of the variable stroke pump for boiler feed mentioned by him in the *Journal* a few weeks ago? How is it automatically worked, and is there any patent connected with it?—Yours truly,

NEW READER.

THE AUTOMOBILE MUTUAL PROTECTION ASSOCIATION.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to Mr. G. H. Smith's letter in last week's issue of the *Motor-Car Journal*, I have only to state that Mr. Smith is the only person who has ever been refused admission to this Association.—Yours truly,

GEO. R. HELMORE,
Secretary.

The Automobile Mutual Protection Association, Limited.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—I enclose for publication copy of a letter, dated April 3rd, received by me from the secretary of the Automobile Club, together with copy of my reply on behalf of this Association.—Yours faithfully,

GEO. R. HELMORE, Secretary.

[COPY.]

The Automobile Club, 4, Whitehall Court,
London, S.W., April 3rd, 1902.

Dear Sir,—I beg to enclose herewith a copy of the current issue of "Notes and Notices," and to draw your attention to the paragraph headed "Automobile Mutual Protection Association," which appears on page 111. I am directed to express the hope that you may see your way to call a fully representative meeting of the Association to consider the resolutions of your Association, which are set out on page 106 of the same issue of "Notes and Notices," and that the Club may be afforded some explanation of the meaning of the assertions contained in the resolution—"That the Club has acted in the interests of a few, and its proposal to form an exhibition association is inimical to the interests of the industry."—Yours faithfully,

—(Signed) C. JOHNSON, Secretary.

G. R. Helmore, Esq.

[COPY.]

The Automobile Mutual Protection Association, Limited,
Jessel Chambers, 88, Chancery Lane, London, W.C.

April 15th, 1902.

Dear Sir,—In your letter of the 3rd inst., you ask that the Club may be afforded some explanation of the following resolution passed at a meeting of the Committee of this Association on March 18th last, namely:—

"That the action of the Automobile Club in handling trade questions, often in the interests of a few, and in its proposal to form an exhibition association, is inimical to the interests of the industry as a whole and to the aims and objects of this Association which is the recognised Trade Protection Society."

I would state at the outset that this Association has been desirous throughout its existence of maintaining friendly relations with the Automobile Club, and believes that it is in the interests of the industry that the two bodies should work in harmony. The suggestion which has been made in certain quarters that the Association is hostile to the Club is as unfair as it is unfounded in fact. That the Club has permitted on occasions a section of its members engaged in the industry to handle trade questions in the interests of a few is the firm conviction of the Committee of this Association, and one instance will suffice to support the assertion. On June 11th, 1901, the following resolutions in regard to the exhibition question were passed:—

"That there shall be only one exhibition per annum; that it shall be under the same management as the recent exhibition; that it shall be at the Agricultural Hall at the same time approximately as the recent exhibition, and under the control of the Automobile Club."

"That a circular letter be issued by the Automobile Club to manufacturers and agents, enclosing a printed letter to be signed by each individual firm or agent, declaring that they will not exhibit at any exhibition in London or within twenty miles of Charing Cross which is not recognised by the Automobile Club. This agreement to hold good until the end of 1903. The exhibition space of the Automobile Club Exhibition to be open only to those who sign the agreement above named."

"That the Automobile Club of Great Britain and Ireland shall have the right to refuse space at their exhibition to all who have exhibited automobiles or their parts at any exhibition within twenty miles of Charing Cross which is not recognised by the Automobile Club."

The large majority of the members of this Association was loyal to the provisions of these resolutions, and it was a matter of astonishment and regret to them that those who were disloyal and had exhibited at the show held at the Crystal Palace were allowed to attend and vote at a subsequent meeting of manufacturers and agents, convened by the Club to deal with the question of the date on which the annual exhibition should be held, when resolutions were passed, which were put forward by those to whose presence exception is taken, which over-ruled the decisions come to at the earlier meeting. When it is remembered that this state of things was brought about by those who comprise, to a great extent, the members of a group which all along has been in opposition to this Association, chiefly in respect of the claim which they set up to a monopoly of the Maybach carburettor, which, but for the action taken by this Association, at very great expense to its members, would have practically strangled the motor industry in this country, it will be appreciated that the members of this Association had a very real cause of grievance in the matter.

Passing to another subject, my Committee consider it was unfriendly on the part of those responsible for the drafting of the circular letter of

March 12th, 1902, issued and sent by the Club to the members of this Association, to suggest the formation of a rival association to deal with a question which comes within the scope of the objects for which this particular Association was formed.

In conclusion, I am instructed to express the regret of the Committee that the Chairman of the Automobile Club—who was chairman of the meeting of manufacturers and sellers, held at the Club on March 20th—when referring to the resolution passed by this Association above referred to professed ignorance of this Association and of its Committee. The fact is the more extraordinary, seeing that the gentleman in question was chairman of the meeting held at the Automobile Club when the formation of this Association was decided upon, and that he acted as counsel in the action, the British Motor Traction Company, Limited, v. Friwell, which he well knew was being supported by and defended at the expense of this Association. The Association has been in existence little longer than twelve months, but during that time has, without any flourish of trumpets, done a large amount of solid work in the interests of the trade, and has borne the expense of grappling with and crushing the greatest danger the trade has ever been confronted with. With the exception of the group of persons who were in opposition to it in respect of the Maybach carburettor action, the name of practically every well-known manufacturer and agent throughout the country is on the register of members of this Association.

Yours faithfully,

(Signed) GEO. R. HELMORE, Secretary.

P.S.—I am sending a copy of the correspondence between us to the trade journals.—G. R. H.

C. Johnson, Esq., The Automobile Club,
4, Whitehall Court, S.W.

FURIOUS DRIVING CASES.

At the Shire Hall, Nottingham, Robert Cripps, cycle maker, of Nottingham, was charged with driving a motor-car above twelve miles an hour, and at a greater speed than was reasonable, on March 23rd. Mr. A. Barlow prosecuted on behalf of the police, and Mr. C. E. W. Lucas, who defended, pleaded not guilty. Mr. Barlow said the police were bound to bring the facts to the knowledge of the Bench, and when they heard the rate of speed at which this car was driven he thought they would agree that the defendant was guilty of a serious offence. Mr. Cripps was, on March 23rd, driving his motor-car through the village of Gotham, about twelve o'clock, and at a speed of from sixteen to eighteen miles. At that time the people were coming out of church, and they were scattered in all directions. The next that was seen of the car was on the Ridgeway hill, going towards East Leake. Four cyclists were going down this hill as the defendant's car came down, and they would say that the car came towards them at a great rate of speed, swaying about from side to side. The cyclists got as far towards the left side of the road as possible, and the car passed them all safely except the last, whose cycle wheels were in a rut. Unfortunately for him, just as the car passed, his front wheel skidded and caused it to turn in towards the roadway, which at that point was 16 feet wide. The car came full smash into the front wheel of the cycle, and they could imagine what happened. The cyclist was knocked off to a distance of three or four yards, and his arm was rather badly hurt. Directly the impact took place the car turned on to its side and then went over, the occupants being thrown out. Henry Talbot, a miner, of Gotham, deposed to seeing a motor-car proceed through that village about 12 o'clock on the Sunday morning named, at a rate of sixteen or eighteen miles an hour. Edward Meakin, of Gotham, who corroborated, put the pace at from sixteen to twenty miles an hour. William Powdrill, miner, gave similar evidence. James Bowley, of Nottingham, stated that he was cycling from East Leake to Gotham, with three friends. Witness bore out Mr. Barlow's statement as to the car colliding with his machine and knocking him off, and identified Mr. Cripps as the person who was driving the car. There were four others in the car. Witness admitted that defendant asked him for his name and address immediately after the accident. E. A. Simpson added that the rate of speed of the car when coming down the hill was sixteen miles an hour.

After much evidence for the prosecution, Mr. Lucas, for the defence, observed that, appearing as he did for the Nottingham Automobile Club, he would say at once that they were obliged to the police for the consideration which they extended to automobilists. There was, to a certain extent, a prejudice against automobilists, just as there used to be against cyclists, and it was customary to assume that in the case of any accident the fault was due to the automobilist. In this case the accident was entirely the fault of the cyclist, who was riding in a careless and negligent manner. When the defendant got to the top of the hill he stopped there and took some photographs. While there six cyclists (who would be called to give evidence) passed him going in the same direction, at the rate of eight or nine miles an hour. Immediately after the cyclists had passed, defendant started again. From the top of the hill to where the accident happened was a distance of 400 yards, and had the defendant been riding at the pace stated he must have overtaken the cyclists at once, whereas they had gone 200 yards past the on-coming cyclists before the collision took place. One of the six cyclists, who were all strangers to Mr. Cripps, noticed Bowley (the cyclist) wobbling about the road, and had to use the greatest caution to get past him. When the car approached, Bowley got his wheel into a

rut, and this bringing the other wheel round in front of the car, the latter toppled over. The other party of cyclists returned, and agreed that the "near" side of the car was as close to the grass as it was possible to be. Mr. Lucas pointed out that the car had cost Mr. Cripps £350, and the damage caused by the accident amounted to £15. Defendant, who was a careful and experienced driver, had never had any similar complaint made against him. Defendant went into the witness-box, and substantiated his solicitor's statement. He denied that he was travelling at more than eight miles an hour, and put the fault of the accident on Bowley. In answer to Mr. Barlow, defendant asserted that it was impossible for this car to go more than fifteen or sixteen miles an hour. If Mr. Barlow could get more than that out of it, he would give it to him. The six cyclists having given evidence, the Bench were of opinion that the speed of the car was not excessive, and dismissed the case. The hearing occupied 3½ hours.

GEORFREY CHESTON, London, was summoned at Brighton last week for driving a light locomotive at a greater speed than was necessary on the Marine Parade, on March 23rd. Police-constable William E. Smith said that on Sunday afternoon, March 23rd, he saw defendant driving a motor-car eastward. It was travelling at fourteen or sixteen miles an hour, and, having regard to the traffic on the Marine Parade at the time, the pace was a dangerous one. Fined 40s. and costs.

AT Brownhills, Birmingham, Ashley Brown, chemist, Chasetown, has been fined £1 12s. 6d. for driving a motor-cycle at more than twelve miles an hour at Burntwood on Good Friday. It was stated that at a dangerous spot he covered 600 yards in sixty-eight seconds—at a rate of over eighteen miles an hour. The defendant asserted that the officer was a bad judge, as he was not exceeding the limit.

JAMES HENRY WICKENS, Finborough Road, Kensington, was charged before Mr. Rose, at the West London Police-court, with furiously driving a motor-car. The attention of several constables was called to the prisoner, who was seen driving the car in Redcliffe Gardens at a terrific pace. According to the evidence of one officer, he had never seen a car driven at such a speed. Another officer stated that the speed was at the rate of fifteen to twenty miles an hour. The prisoner said the car could not go at a greater speed than fifteen miles an hour. Mr. Rose: That is rather fast in the streets of London. The constable in the case said the prisoner's employer told him that the car could travel twenty miles an hour, if not faster. Mr. Rose said a motor-car was a dangerous vehicle to be driven at that speed, and imposed a penalty of 20s.

LAST week we briefly recorded a case in which A. F. Mortimer, of Worthing, was fined at the Shoreham Petty Sessions for driving a car at an improper speed. The police evidence was to the effect that the car was travelling at the rate of seventeen or twenty miles an hour. The defendant said he had driven motor-cars for three and a half years and had never been stopped before. The passengers on the car said the speed of the car was not more than ten miles an hour, but that did not prevent a fine of £3 and 23s. costs.

HENRY LAVAGET was summoned at the Hull Police-court for furiously driving his motor-car in George Street on the 22nd March. The magistrate said there had been a technical breach of the Act, and, as there were certain points in the defendant's favour, judgment would be respite on payment of costs.

FRANK DENNIS, of Kirton, was summoned at the North Holland Petty Sessions for driving a motor-car at Sutterton at a greater rate of speed than 14 miles an hour on March 31st. A "publican and cottager" gave evidence that he saw Dennis driving his motor-car at the rate of twenty-five miles an hour. For the defence it was stated that the car was a voiturette, the top speed of which was eighteen miles an hour. On the previous Saturday it had been taken to a firm at Boston to be overhauled, and when he called for it on the day of the alleged offence all the necessary repairs had not been executed, and the batteries had not been recharged and replaced by others. Consequently, it was impossible for it to run more than twelve miles an hour. After corroborative expert evidence, the case was dismissed.

MAX CRANDEN has been summoned at the Croydon Police-court for driving a motor-car to the common danger of the public in Brighton Road. Fined 10s. and 5s. 6d. costs.

At the King's House, Lyndhurst, Harold Rolls, of Holdenhurst Road, Bournemouth, has been fined 5s. and 12s. costs, for driving a motor-car in the highway at more than fourteen miles an hour.

On Saturday, at the Bettws-y-Coed Police-court, Mr. E. W. Rowcliffe, 37, Cross Street, Manchester, president of the Manchester Automobile Club, was summoned for furiously driving a motor-vehicle between Trefriw and Conway on March 12th. Defendant was represented by Mr. David Jones, Llanrwst, and pleaded not guilty. Superintendent Rees, of Conway, called three witnesses, and it was alleged that the defendant drove the motor from twenty to twenty-five miles an hour. Defendant, who gave evidence, said he had always taken particular care in regard to speed, and he gave it as his undoubted opinion that he never exceeded ten or eleven miles an hour. Mr. Percy Higson, accountant, Spring Gardens, Manchester, who rode with the defendant, gave corroborative evidence. After a hearing of nearly two hours' duration the bench imposed a fine of £2 and costs.

WALTER JAMES CANN has been fined £3, with 16s. costs, at Folkestone for driving a motor-car down Sandgate Hill at the rate of twelve or fourteen miles an hour.

A WELL-KNOWN motorist named William A. Booth, of Walkden, was summoned for riding a motor-tricycle on the footpath at Little Hulton near Bolton on March 26th. When stopped he said that it was on account

of the road being rough that he was on the footpath. A fine of 10s. was imposed.

EDWARD MANVILLE has appeared at the Worthing Petty Sessions, to a summons charging him with having driven a motor-car above the regulation speed of twelve miles an hour, at Broadwater, on Sunday, the 16th ult. P.C. Payne said the defendant covered a measured quarter of a mile along Broadwater Green in 38 sec., or at a speed of twenty-three miles an hour. A fine of 20s. including costs was imposed.

At the Northampton Borough Petty Sessions, James Cason, motor engineer, Redfield, Winslow, was summoned for driving a light locomotive along Bridge Street at a greater speed than was reasonable and proper, on Thursday, the 27th ult. Defendant, on oath, stated that he had driven motor-cars for five and a-half years, and for the last twelve months he had driven for Captain Lambton, of the Coldstream Guards, whose car he was driving in Bridge Street. The magistrates did not regard the case as serious, and inflicted a fine of £1 including costs.

THE Hon. John Scott-Montagu, M.P., was summoned at Winchester, on Saturday, for having driven his motor-car at a greater speed than twelve miles an hour. On Good Friday afternoon Mr. Scott-Montagu was driving his car from London to his residence at Beaulieu, in the New Forest. Two constables in plain clothes had been instructed to spend Good Friday on that particular spot for the purpose of stopping motor-cars which they suspected of going more than twelve miles an hour. They marked off 400 yards on the road, and then, standing together at the end of the measured stretch, they watched for motorists coming from London. They had no one to signal to them when a car entered on the measured stretch, nearly a quarter of a mile away, but trusted to their eyesight. Then one of them timed the car with an ordinary watch with a second hand. Constable Deason testified that Mr. Scott-Montagu covered the 400 yards in 23 sec. Mr. Scott-Montagu, giving evidence on his own behalf, said that, knowing that road particularly well, he had the brake on, because he was aware that it was dangerous to go through the village at a high speed. He thought the constable's estimate of twenty-five miles an hour was very excessive. He had the car under perfect control, and had purposely slowed up before the constable held up his hand. Mr. Staplee Firth pointed out that there was no suggestion that Mr. Montagu had driven furiously or endangered life. It was merely said that he had gone more than twelve miles an hour. The chairman said while the law remained what it was they were bound to convict, and inflicted a fine of £5 and costs.

A THIRD TRIAL.

At Marylebone County Court on Monday, before Judge Stonor and a jury, Mr. Emmanuel George Holt, cab driver, 22, Munroe Mews, Golborn Road, North Kensington, brought an action against Mr. F. Frentzel, 20, Prince of Wales Road, Battersea, S.W., and also against Dr. E. Lehweß, 66, Holland Park Avenue, Notting Hill, W., the claim being for £50, in respect of personal injuries said to have been caused through the negligent and unskillful driving of a motor-car by the defendants or their servants. There had been two previous trials of the case. On the first occasion the jury were unable to agree to a verdict, and at a new trial which followed the jury returned a verdict in favour of the plaintiff against Dr. Lehweß, considering that he was driving the motor-car at the time of the accident in question. The Judge described this as "a very bad verdict," and at once gave another new trial. Mr. S. W. Lambert now appeared for the plaintiff, and Mr. Staplee Firth represented both of the defendants. After a long hearing the jury found (1) that the driver of the motor-car was guilty of negligence causing the accident; (2) that the car was driven by Mr. Frentzel, and they assessed the damages in the plaintiff's favour at £25. His Honour gave judgment in favour of the plaintiff against the defendant Frentzel, and in favour of the defendant Lehweß against the plaintiff, with costs accordingly. Solicitor for the defendant asked that the order might be for the money to be paid into Court within twenty-one days, so as to allow an opportunity for lodging an appeal on the ground that there was no affirmative evidence of negligence against Frentzel to go to the jury.

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COMMENTS.



THIS week we commence our report of the great Exhibition at the Agricultural Hall, London, which closes to-day (Saturday). It is our intention to deal exhaustively with the many new features which have been introduced into automobiles and also the novelties which are shown for the first time. The next few issues of the *Journal* will therefore constitute a complete survey of the present position of the industry, and

will serve as a permanent record of an Exhibition which has given a prestige and importance to the motor-car trade which cannot fail to act beneficially to all interested in its progress. The first instalment of our report contains full illustrative descriptions of several steam vehicles which are shown, as well as of a petrol car, which proves that Scotland is taking its place in the industry. The series of detail drawings of new cars will be continued next week.

Scotland v. France.

DR. LEHWISS will not be alone in his tour round the world, for the Chairman of the Hozier Engineering Company has expressed his willingness to run an 8-h.p. Argyll car against "Le Passe Partout"—a challenge which has been accepted.

The final arrangements were completed on Wednesday afternoon at the Agricultural Hall, and considerable interest will be felt with the result of this unique competition. The French vehicle is of 20 h.p., so that the challenge on behalf of the 8 h.p. Scotch car is all the more noteworthy. This will be the first time there has been a contest of this international and severe character, and British makers will wish success to the Hozier Company in their gallant effort to demonstrate the progress that has been made in the automobile industry in this country.

The King in Norfolk.

WHILE the King's new car, an illustration of which is given on page 156, is attracting the attention of the Press and the public at the Exhibition at the Agricultural Hall, His Majesty has been enjoying the delights of motoring at his Norfolk home. On the opening day of the Exhibition he took a long run in his motor-car, travelling as far as Cromer, where Princess Victoria has been staying since the recent speed trials at Gunton Park. Thus the King is experiencing the social delights of automobilism, by which it is possible for people in the country to maintain a round of social visits while enjoying the pleasures of the open air and learning more of the beauties and delights of the English landscape. The King's day in

Norfolk last Saturday is one example; the busy round of pleasure indulged in by the Earl of Shewsbury, which we chronicled last week, is another.

A Lecture on Motor-Cars.

THE motor-car was the subject of the Friday evening discourse at the Royal Institution last week, when the Rt. Hon. Sir John H. A. Macdonald was the lecturer. The Duke of Northumberland was in the chair, and introduced the Lord Justice Clerk of Scotland. In the course of his lecture Sir John reminded his audience that motor-driving on roads was no new thing, but such vehicles were opposed by various persons, and ultimately crushed out of existence, except so far as traction-engines were concerned. The lecturer told how a change in this state of affairs had been compelled by the invention of the spirit-driven engine, and he went on to explain the working of that engine and the mechanism by which it was applied to propel a vehicle along a road. He then gave a glowing account of the advantages to be derived from motor-cars by various members of the community—the business man would have inaccessible country districts opened out for residence, the farmer would be able to bring his goods to market irrespective of the middleman and the railway companies, the tradesman's range of delivery would be trebled, the innkeepers would no longer be a faded and decayed race when traffic was restored to the roads, the doctor's capacity for making his rounds would be increased, congestion in the streets of our towns would be lessened, and pollution by deleterious matter avoided. Finally, he besought his audience not to refuse to realise that the advent of motor-traction was to be looked on in a broad and unbiased spirit. It might have its drawbacks, like everything else, but the advantages it promised were so much greater that it was the duty of every good citizen to give it a fair and free field.

Lincolnshire Automobile Club.

A SUCCESSFUL run was held by the members of the Lincolnshire Club on Saturday to Folkingham. Thirteen cars took part in the spin, and their arrival at the Greyhound Hotel was witnessed by an interested gathering of spectators. The weather was fine, and the roads in splendid condition. The following took part in the outing:—Mr. Geo. Godson, Asgarby (Daimler); Mr. C. W. Pennell, Lincoln (Panhard); Dr. Gilpin, Bourne (Peugeot); Mr. W. B. Jevons, Market Rasen (De Dion); Mr. A. Padley, Market Rasen (De Dion); Captain Cole, Roxholm (Daimler); Dr. Cragg, Billingborough (Benz); Dr. Nicholl, Billinghway (Wolseley); Mr. W. R. Pennell, Lincoln (De Dion quad.); Mr. C. Nelson, Lincoln (De Dion); Mr. C. J. Parker, Grantham (De Dion); and Dr. Hancock-Steil, Colsterworth (Wolseley). The next run will be to Brigg on May 24th.

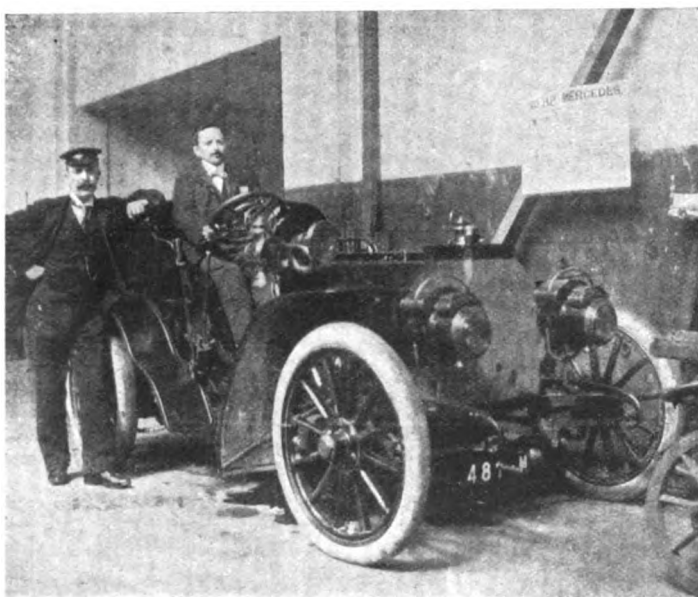
Trial Trips.

REFERENCES have lately been made by several correspondents to the refusal of trial trips by makers and agents. As Sir Roger de Coverley observed, "There is much to be said on both sides."

We know one member of the trade who recently took a military man for an afternoon's "trial trip" to the Crystal Palace, spending much time in negotiating hills and turning corners in the Sydenham and Penge district. The intending buyer then wrote and said he did not intend to become a motorist this season, but possibly might own a car next year. If such cases of "trials" were isolated the matter might cause a smile, but they are fairly common, and while sellers should give every facility for the investigation of the qualities of cars, they should be protected from the vagaries of the numerous class of persons who like free rides, with, if possible, a cup of tea thrown in.

A Suggested Remedy.

OF course each firm will get over the difficulty in its own way, but one suggestion which occurs to us in connection with this matter is that agents and sellers should make a charge for trial trips, just sufficient to cover running cost, driver's time, etc., such sum to be deducted from the account if the passenger purchases a car. In this way no injustice would be done either party; while the waste of time that now results from the overwhelming impudence of people who profess to be on the look-out for a good car, when all they want is a free ride, would be checked. Some people make a practice of visiting all the London firms in turn, asking for trial trips; on the other hand, there are scores of people interested in the subject who hardly care to ask a maker to allow them a trip, as they regard it as an obligation to purchase. By making a small charge for trial trips, and adhering to such a custom, the trade would probably save time and gain customers. Possibly some will think the matter of sufficient importance for further ventilation in our columns, and we shall be glad to hear from such readers—after the Exhibition is over.



MR. ALFRED HARMSWORTH'S 40 H.P. MERCEDES SIMPLEX CAR AT THE EXHIBITION.

Garages.

THE present year has seen the establishment of many garages in various parts of the country, and many others are in contemplation. Certainly there is room in every large town and at every seaside and holiday resort for one or two such places where cars can be suitably housed and cleaned. It is not merely enough to have premises to protect the car from bad

weather, but the establishment should have a good floor surface, while the proprietor should have a skilled mechanic or two to do any necessary repairs, and also efficient men to clean the car before it is taken out again. Of course, popular garages should be on the main road or in good and accessible positions. On Tuesday Sir E. Jenkinson formally opened the City garage in London, the Earl of Norbury being also present. An auction sale of cars followed, excellent prices being realised.

The Chicago Show.

SEVERAL leading makers of automobiles in the United States have been expressing themselves with regard to the results of the recent exhibition at Chicago. Mr. D. E. Rianard, of the Overman Automobile Company, says that a spring show is preferable to one in the winter or autumn, and regards April as the best month for such a display. Mr. Elwood Haynes declares that a spring show generally results in better sales than one held later in the year. There is no doubt that many buyers reserve their purchases till late in the spring, so as to be ready for the summer. They do not care to buy a car in the winter or in a season of variable bad weather; hence the popularity of the months of March and April for motor-car exhibitions, as the Agricultural Hall display has proved, and as has been so recently demonstrated in America.

Bexhill at Whitsun.

BEXHILL is evidently preparing to give the Automobile Club a grand reception on the occasion of its Whitsuntide visit. Earl De la Warr is taking a keen personal interest in the arrangements, and is making every endeavour to secure a successful series of speed trials. These will start from the top of Galley Hill, and will finish somewhere near the gates at the bottom of Sea Road. There will not only be a large attendance of British automobilists, but several French, Belgian, and German visitors have already booked rooms, so keen is the desire to see the performances of English and other cars. The list of presentation cups which will be competed for is steadily growing, and further particulars will be given in a later issue. Among the supplementary attractions at Bexhill during Whitsun, Earl De la Warr promises a grand Automobile Pink Domino Ball, at the Kursaal. Arrangements are being made for local visitors to see the motor-car sports, and altogether a large attendance of the public, as well as of motorists, is expected.

The Lanchester Car.

To celebrate the introduction of the Lanchester car to the public, the makers arranged for a run of nine of its vehicles from London to Worthing on Saturday last. The start was made from the Carlton Hotel, and after passing through Epsom and Dorking, tea was taken at Horsham. Shortly after leaving that quiet old town a downpour of rain occurred, and the successful journey was terminated at Warne's Hotel, at Worthing. Altogether the procession of cars made a notable sight, which attracted considerable attention along the line of route. Of the particular features of the Lanchester car there is no need to speak here, as they are being fully detailed in our report of the Exhibition now in progress at the Agricultural Hall.

Motor-Cars in Forfarshire.

AT the last meeting of the Forfar County Road Board Mr. Smith moved that the speed of motor-cars be considered. He said he had had a great many complaints of the speed at which motor-cars were run in the district. These were from the inhabitants of the county (four districts), from policemen, and others. One difficult matter was that they could hardly pass any restriction on the speed run on wide roads. At the same time, to run at a high rate of speed on narrow roads was ridiculous. At the last meeting of the County Council a representative from the Lochlee district complained of the treatment received on the Glenesk roads, which are very narrow and

dangerous. That gentleman had told the Council that the public had practically to disperse on the approach of a motor. The great difficulty was to identify the offending parties. He spoke of a case where a motor-car driver went from Forfar to Brechin in the space of thirty minutes. Reports were read from the four districts in regard to the matter, and it was unanimously agreed to report to the County Councils Association in favour of the registration of motor-cars.

Suffolk Roads.

MOTORISTS who have lately toured in Suffolk tell us that the representations which have made been during the past few years as to the wretched state of the roads there seem to have had little effect, and the surfaces of many of the main highways in that county are mediæval in their character. Why cannot the county authorities recognise their duty in the matter and see that the roads are well maintained? In Norfolk and the Fen country are some admirable roads, with the result that automobilists find pleasure in journeying through those districts, but the roads of Suffolk frighten motorists away, just as the police of Surrey have driven many whilom frequenters of the county to seek new pleasure ways.

Speed Estimates.

THE New Jersey Automobile Club has been holding a series of speed-guessing contests, the results of which have been quite as variable as the police evidence in a London police-court. Automobiles were driven at different speeds along a certain roadway, and keen observers attempted to gauge the rate. No one estimated the speed accurately—all were over the mark by from six to twelve miles—and not a single one under-estimated. As we have observed before, "Comment is needless."

Agriculturists and Motor-Cars.

We recently reported that an agricultural syndicate in France had offered a gold medal in a proposed competition for motor-vehicles in which alcohol provided the motive power. The enthusiasm of French agriculturists for motor-vehicles has now extended to England, and the Mid-Kent Agricultural Association proposes to offer a medal for the motor-vehicle best suited for the conveyance of agricultural produce, especially fruit. This will be regarded as satisfactory proof of the more enlightened attitude that agriculturists are taking in motor-vehicles, and we hope that the example of this Kentish association will be widely adopted. In fact, it might well be considered by the Royal Agricultural Society, whose possession of a permanent showyard may give them splendid opportunities for the necessary tests and trials.

Developments in the Bus Service.

THE suggestion was made by a northern correspondent a few weeks ago that something should be done to utilise the old tramcar and omnibus bodies belonging to municipalities that have abandoned horse traction in favour of electrical tramways. There is more in the idea than seems at first apparent, and we now learn that one of the great London bus companies is about to experiment with four-wheeled Tractors upon which the bodies of some of the existing buses will be placed, thus providing a self-propelled vehicle. The tractor, which will form the fore carriage of the vehicle, will be substituted for the two ordinary front wheels, so that the self-propelling bus will altogether have six wheels. There is no doubt we are on the eve of important developments with regard to the traffic of our large towns, and that the automobile in its various forms will play a powerful part in the changes that are imminent.

Economy and Prodigality.

It is to be feared that the progress of motoring as a fashionable pastime may have some incidental results not for the ultimate good of the industry, at least if its plutocratic votaries rush into print about their expenses. Were horses a novelty, the publication of the outlays on them by wealthy sportsmen would be quite enough to deter the professional man, say, of moderate means, from indulging in such a costly luxury. The idea that automobiles are necessarily costly is quite enough to frighten the lay public. The other day we heard the owner of two carriages and several horses lament that a car would be beyond his means, and found he was quite surprised on hearing the probable actual cost of a small car, which was all he aspired to. Needless to say the information left him a probable convert. It cannot be too often repeated that the cost of motoring is just what the motorist likes to make it. If it is worth his while to economise, he can run his car cheaper than any horse—if it is a good one; while if he is on speed intent, and likes to hand over all his troubles to a *mécanicien*, he can spend anything he likes. But it is the experiences of the former class that are most interesting and instructive, and which we invite in our columns.



THE FIRST RUN OF THE PORTSMOUTH CLUB—THE CARS AT CHICHESTER.

Furious Driving.

WE notice that two or three drivers of motor-cars have lately made a second or even third appearance in various courts, and have been fined for alleged furious driving. At a time when the representative associations connected with automobilism are striving to influence Parliament to remove the present vexatious regulations, it seems a pity that motorists do not ease their speed, or at least do something which may not thwart the movement now going on. There is no doubt that the feeling of members of the House of Commons is gradually veering round to the views frequently expressed in these columns by automobilists. Hence the necessity for drivers of motor-cars to be extremely careful, and do nothing that is calculated to prejudice public opinion against them.

Motoring in Switzerland.

BRITISH motorists touring in Switzerland will be interested in some information received by Mr. O. Herndorf from the secretary of the Swiss Automobile Club, 22, Rue de Hesse, Geneva. On passing the Swiss Customs a declaration of the gross weight of the car is necessary, and a tax of twenty francs per 100 kilogrammes has to be paid thereon. This, however, is returned on leaving Switzerland by any of the main

roads where there is a Customs station. No numbers are necessary for cars belonging to foreign motorists who are only passing through Switzerland, and, so far as certificates of driving efficiency are concerned, a photograph attached to the membership card of the A.C.G.B.I. will probably be found sufficient. The speed limit in Switzerland is thirty kilometres per hour in the country, and twelve kilometres in villages and towns. A useful pamphlet giving particulars of hotels and places where petrol may be obtained is issued by the Swiss Automobile Club.

An Automobile Congress.

AN automobile congress is to be held at Dijon, France, on June 6th, 7th, and 8th next. It is being organised by the Bourguignon Automobile Club, and already the support of the A.C.F. and all the leading French provincial clubs has been promised. Among the many papers to be read at the congress are the following:—"The Maintenance of Roads," by M. Forestier; "Railway Transport Rates for Motor-Cars," by M. Jeantaud; "Hotels," by Dr. Leon Petit; "Automobile Legislation," by M. Du Laurens de la Barre; "Motor-Car Mechanics," by M. Mirand-Devos; "Carriage Work of Touring Motor-Cars," by M. Auscher; and "Motor-Car Insurance," by M. H. Cottureau. In connection with the Congress a *fete* and a number of interesting excursions are being organised.

Cost of Maintenance.

THE correspondence in our columns on the cost of maintenance has attracted considerable attention, and we notice that motorists throughout the country have written to local journals quoting therefrom in advocacy of the claims of the motor-car. Mr. A. L. Creyke, of Oxford, has been in communication with the *Oxford Times* on the subject, and, besides securing extended publicity for motorists' experience, has added an interesting item of his own. He has a $3\frac{1}{2}$ -h.p. Renault car with which he can travel from twenty-five to thirty miles on one gallon of petrol, while half a gallon of lubricating oil lasts him 100 miles. He calculates the cost of running 100 miles to be about 5s. We shall be glad to have similar estimates—based on actual experience from other readers.

An Unnecessary Danger.

PERHAPS one of the first things that strikes the motorist on returning from the roads of northern France is the amount of unnecessary risk caused by the hedges bordering most of our English roads. Vehicles approaching a turning are almost invariably concealed from each other by these hedges. In this damp climate, roads are by no means benefited, except from a picturesque point of view, by a screening of high hedges; but though their total abolition would be regrettable, little difficulty would attend their partial removal or reduction at turnings where passing carriages would be otherwise hidden from view. To propose that all vehicles should carry a horn or other alarm, to be used when approaching corners, would be too common-sense a precaution ever to be adopted; but the interests of that rapid road traffic which will eventually prevail will have to be considered, sooner or later, in some such way as is here suggested.

Ordnance Survey Maps.

FROM the Board of Agriculture we learn that the Ordnance Survey have recently published a folding pocket map of Cromer and the surrounding district on the scale of one inch to the mile. The map is printed in colours on sheets 18 inches by 22 inches, mounted on canvas, in a neat cover, and is published at a moderate price. It is in outline with contours, the hill features

being printed in brown. Particularly useful for general topographical purposes, it should also prove serviceable to motorists, since it shows the roads, indicating their character and whether metalled or not, footpaths, hills, rivers, towns, villages, railway stations, and local boundaries. A similar map of London and the surrounding district on the scale of four miles to the inch has also been published by the Ordnance Survey. This is printed in black and white, the main roads being coloured. In issuing maps of counties and towns in this convenient form, useful service is being rendered to all who use the roads.

The Labourer and his Hire.

THE question of repairs and repairs is apt to be a somewhat vexed one, more especially with the increasing use of motor cars among those unversed in technical knowledge. Many of these have very little idea of the cost of good engineering work, and are (the more so, perhaps, from fearing consequent imposition) inclined to cavil at perfectly reasonable charges, from their former experience of the saddler and smith. On the other hand, the incompetent motor dealer may put in days of unnecessary work over locating a fault, and, even if the quality of the work done is unexceptionable, may charge a disproportionate sum in consequence. Some bad cases of this kind have recently come to our notice. A suggestion that has met with approval among some repairers is that they should agree to submit any case disputed by a car-owner to some unbiased and expert tribunal, and if such a suggestion was adopted by a representative body, it would no doubt be welcomed by both parties concerned. Hitherto, the owner has been pretty well able to take care of himself, but with the rapid multiplication of cars among all classes, this hardly continues to be the case, and some such arrangement, giving security against both the inefficient repairer and the unreasonable owner, could hardly fail to be beneficial.

One more enthusiast
Covered with dust,
Rushing impetuously
Onward he must.
Deal with him carefully,
Take not his name;
Had you a motor-car
You'd do the same.

Automobilism and Health.

RECENT references in the *Journal* as to the effect of motoring on health have occasioned much comment in other newspapers, and the subject is one on which motorists should be willing to enlighten the public. In the *Revue* of the Touring Club de France several members of that club give their experiences, and the letters from physicians are particularly interesting. One states that he has anticipated the benefits of automobilism by subjecting such patients as suffer from consumption, asthma, and bronchitis, and so forth, to a strong current of air, such as would be experienced in driving a car at the rate of 120 kilometres an hour. The patient first sits at some distance from the point of entrance of the hurricane, and gradually approaches till he can endure its full blast, much as one gradually acclimatises oneself to the successive temperatures in the rooms of a Turkish bath. By these means the physician claims to secure all the advantages of swift automobilism without the disadvantages of nervous strain (which he considers to undo much of the good otherwise attained) of policemen, and, no doubt, of dust and exposure to the chances of weather. The benefit experienced he attributes to the general stimulation of the organism by the oxygen thus forcibly inhaled, and to the expansion of the lungs necessitated by the violence of the air-current.

THE Motor-Car Exhibition at the Agricultural Hall.



Photo by]

A VIEW OF THE GREAT HALL FROM THE GALLERY.

[Argent Archer.

ENGLAND has, at last, been able to hold a great motor-car Exhibition fully worthy of the new industry, and one which will take high rank even among the chief Continental displays of automobiles. Since 1896 the motor-car exhibitions at the Agricultural Hall have been growing in size and importance, until from a meagre collection of horseless vehicles the display has grown to one of great dimensions, the exhibits overflowing from the ground floor of the spacious hall to the Minor Hall and into the Gallery—in each of which sections of the Exhibition are staged exhibits of interest and importance to all who are following the progress of the industry.

The Exhibition has been the "talk of the trade" for some weeks, and although none had prognosticated a falling-off of interest, few—unacquainted with the organisation—had ventured to credit such an advance as was revealed to those who sought admission early on Saturday morning. Quietly and without any formal declaration or preliminary ceremonial the Exhibition was opened to the public, and all day a steady stream of visitors testified to the general popularity of this annual event. During the week the attendance has been greater than at any previous display, and not only have the numbers been large, but the interest taken by the public has been in the direction of intelligent appreciation rather than the idle curiosity which was characteristic of many who were attracted to the earlier shows. The abolition of the arena, though detracting from the attendance of those who were drawn by mere curiosity, has been an advantage in reducing the number of those whose quest for free rides almost amounted to a nuisance last year. Trial trips have served their purpose in connection with exhibitions. At the Agricultural Hall they have done something in the past to popularise motoring; when held in the chilly days of the winter in the open air they serve to frighten intending

motorists by introducing novices to a pastime which at that season of the year is only keenly enjoyed by those of experience.

Consequently exhibitors have reason to be satisfied with the character of the people attending. Lords and ladies have been as critical of the "points" of cars as more commercial inquirers, and rarely has any Exhibition in any line of trade proved so remunerative to the occupants of stands. Already, as we write with two or three days for the Exhibition yet to run, the sales have amounted in the aggregate to many scores of thousands of pounds. On the opening day one firm sold five cars at an average price of £300 each, and another booked two orders totalling nearly £1,500. These two facts are sufficient to demonstrate the money value of the present display. It would be interesting to obtain some idea of the value of the orders booked at the Exhibition, and we shall be glad to hear from exhibitors who have formed estimates or can give us some idea from their own experience. Certain it is that the money value to exhibitors of the seventh show at the Agricultural Hall has far exceeded that of any of its predecessors.

Immediately on passing the turnstile the visitor is face to face with three rows of exhibits, which extend the whole length of the Arcade. On either side are accessories, etc., while the centre row is sufficiently varied to cause many to linger ere venturing into the Great Hall. There the display of bunting is kaleidoscopic in its effect, flags of all nations—including, of course, the countries most associated with automobilism, and not forgetting Italy—being suspended from the roof and presenting a gay and brilliant effect. But the brightness is not all aloft; an artistic intelligence has been infused into the decorations of the stands, and the view as seen by the visitor is striking indeed. Evidently the motor-car industry has gone safely beyond the period in which it was ridiculed. It

has risen above the ordinary commonplace trades of the country, and is one of the new hopes of those who wish to see the commercial and manufacturing pre-eminence of Great Britain maintained and increased.

Passing around the hall there is no lack of interest—the splendid carriage work and upholstery delighting the eye of the ordinary observer, while those interested in mechanical matters will appreciate the growing tendency to show *chassis* and the various working parts—a scheme of education which will

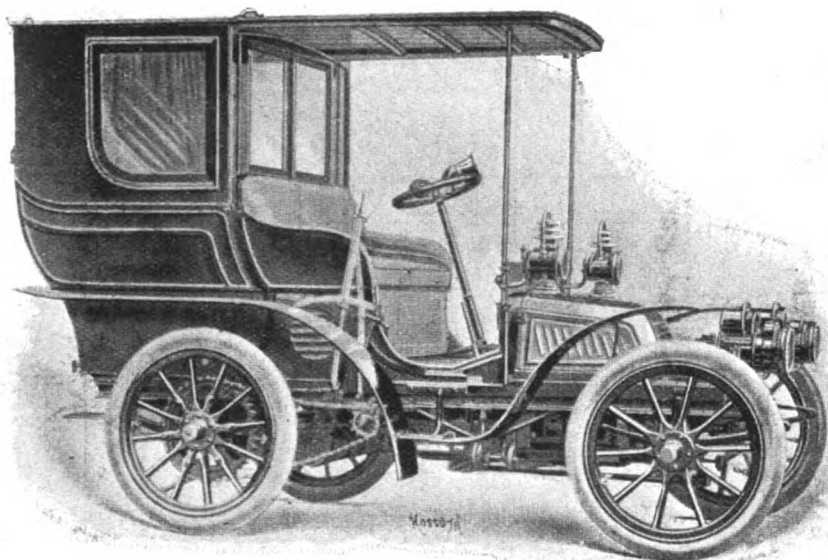


FIG. 1.—THE BARDON 12-H.P. LIMOUSINE.

probably be developed with each successive Exhibition. As already mentioned, the Great Hall does not include all the interesting exhibits. More than a score of exhibitors—principally the makers of heavy vehicles for the conveyance of goods and for municipal work—are located in the Minor Hall, while in the Gallery is a fine representation of the leading makers of accessories, parts, etc. In fact, so eager was the demand for space at the Exhibition that some makers of cars had to be content with positions in the Gallery—positions which have proved very satisfactory to those concerned, for the public has realised the importance of the exhibits there shown, and interested motorists have spent almost as much time in the Gallery as in the Great and Minor Halls.

In the centre of the building, opposite the entrance to the yard—the open space that last year was the scene of so much activity, and, at times, of excitement—is a grand floral display, which is really a refreshing splash of green among the dazzling red and white and other gay colours that abound. The wide space here, too, is serving a useful purpose, for at all hours of the day well-known men are to be seen chatting and conferring as though it were a village green—the central feature of the busy automobile world. For here in Islington are gathered this week all the men who are prominent in the British motor-car industry, and whose skill, energy, and enterprise, unrestricted by contracts that restrain the freedom of business, is adding new lustre to the manufacturing fame and increasing the commercial prosperity of the Kingdom.

The task of reporting upon nearly three hundred stands, which demonstrate the present position of the industry, and show the standard that has been reached in the United States and on the Continent, as well as at home, is no light one, nor is it one that can be undertaken by those who are not actually in daily touch with developments now taking place. But we make bold to say that our report, which will not omit a reference to any exhibitor, will prove a useful illustrated record of the Automobile's Club Exhi-

bition, the organisation of which has been carried out by Mr. Charles Cordingley without official or other help. Herewith we commence the report. It will be extended over the next few issues, so that firms not mentioned this week may be assured that the labours of the staff, who have personally visited every stand, will find exposition in our columns.

A marked improvement in design is noticeable in the latest types of Bardon cars to be seen at the stand of the Auto-Carriage Company, Limited. To deal first with the 12-h.p. cars, two of these are shown, one of them being fitted with a handsome limousine body, painted white, with red lines and brass edging (Fig. 1), and a *tonneau* with dark green panels and black beading (Fig. 2). The frame is made of channel steel. The motor is placed in front, across the frame, and consists of four working cylinders, each pair being placed end to end, and having an explosion-chamber to each pair of cylinders. The latter, as well as the valve-chamber, are water-jacketed, circulation being effected by a rotary pump and radiator. Each of the two crankshafts is provided with two flywheels, placed one on either side of the crank-bearings, thus ensuring an equal distribution of weight. Only one induction valve, one exhaust valve, and one sparking-plug are required for each pair of cylinders, thus reducing the number of parts requiring attention and simplifying the mechanism generally. The water-circulation is assured by a rotary pump: the water, after having cooled the cylinders, passes through a radiator fitted in the front of the car. A manometer, placed in full view of the driver, enables him to observe that a good circulation of water is maintained. A constant level spray carburettor is employed, the feature of which is the employment of a cone-shaped float, which, when the petrol has entered in sufficient quantity, acts immediately by pressing a metallic disc on a fixed leather seat. This arrangement is claimed to enable the supply of petrol to be completely shut off, even when the car is in an inclined position. The motor is controlled by a centrifugal governor fitted to one of the crankshafts, which acts upon the exhaust valve. The action of the governor may, however, be modified by the use of a foot accelerator provided for that purpose; while in addition a throttle is fitted on to the induction pipe, this being controlled by a hand lever. The ignition is effected electrically, the timing of the spark being controlled from the driver's seat. The two engine shafts drive the main shaft by bevel-gearing. The main shaft carries a clutch

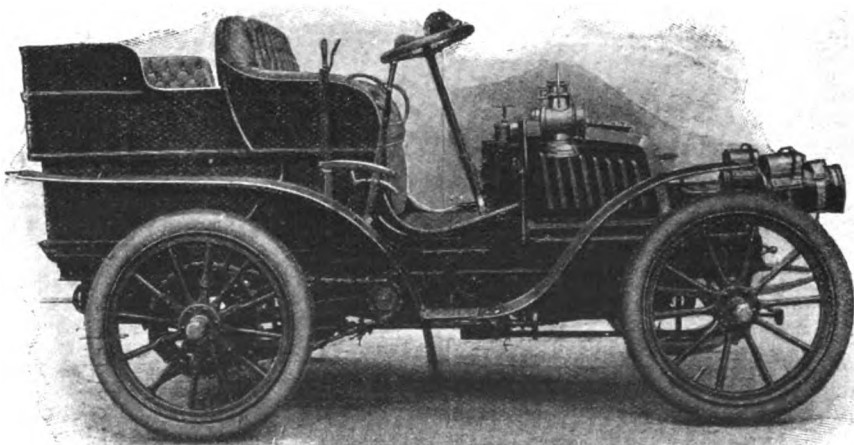


FIG. 2.—THE BARDON 12-H.P. TONNEAU.

with double conical contact surfaces, upon which two sliding cones are pressed by the action of springs operated by a single pedal. Four speeds forward and a reverse motion are provided, these being controlled by a single lever. From the differential countershaft, the power is conveyed to the rear road-wheels by the usual duplicate set of chains and chain-wheels. The vehicles are fitted with

two powerful brakes, one controlled by a pedal and acting on a drum on the countershaft, the other actuated by a hand-lever, and acting on drums fitted to the sprocket rings on the rear wheels. Both countershaft and sprocket brakes are double-acting, and will brake the car when travelling either backwards or forwards. Special attention has been paid to the lubrication of the various parts, this being controlled from the driving seat. A special device is fitted to prevent back fires when the motor is being started, as unless the ignition is retarded the motor cannot be started. Equal-sized road-wheels of the artillery type are fitted, these being shod with 90 mm. pneumatic tyres. Another car on the stand is a 5½ h.p. *Bardon tonneau*. This is fitted with a two-cylinder engine, and has three forward speeds and reverse motion. In general arrangement it follows the line adopted in the larger cars. To enable visitors to get an idea of the quality of material and workmanship used in their cars, the Auto-Carriage Company display a wide range of detached parts.

The 10 h.p. cars (Fig. 2) shown by the Brush Electrical Engineering Company, Limited, have been so recently referred to in the *Journal* (see issue March 15th last) that no lengthy description is necessary. The motive power is supplied by an Abeille vertical two-cylinder petrol motor, developing 10 b.h.p. at a normal speed of 900 revolutions per minute. As a description of the engine was published in our issue of January 25th last, it need only be here mentioned that it is fitted with a centrifugal governor acting

spect. A new car now seen for the first time is the 16 h.p. *Brush tonneau*, the one shown having been built to the order of Mr. G. F. M. Cornwallis-West. This is fitted with a four-cylinder Abeille motor, which develops 20 h.p., a noticeable feature being the ease with which the valves may be taken out for inspection or other purposes. This engine is fitted with the ordinary electrical ignition only, but otherwise is similar in all respects to the two-cylinder engine in the 10 h.p. cars. Four speeds forward and a reverse motion are provided, these all being controlled by a single side-lever. The car has equal-sized road-wheels, and has a 7 ft. wheel base. In general arrangement it is similar to the 10 h.p. cars, its weight complete coming out at 18 cwt. A *chassis* of the 20 h.p. type is also on the stand, an examination of which will indicate that no pains are being spared to bring the Brush cars into the front rank of high-class automobiles.

Among the displays of carriage work the exhibits of Messrs. Salmons and Sons, though small in number, are excellent in finish and workmanship, the most conspicuous being a *tonneau* body fitted with a canopy and removable seats.

Lubricants for motor-cars are the feature of the display made by Messrs. Stern Brothers. Among the specialities shown are Sternoline lubricant for the bearings, Fram lubricant for the axles, Sternoline motor-car oil, Sternoline cylinder oil, Sternoline rust preventative, Sternoline elastic paste for gearing, cog wheels, chains, etc. This latter must be applied in a liquid state

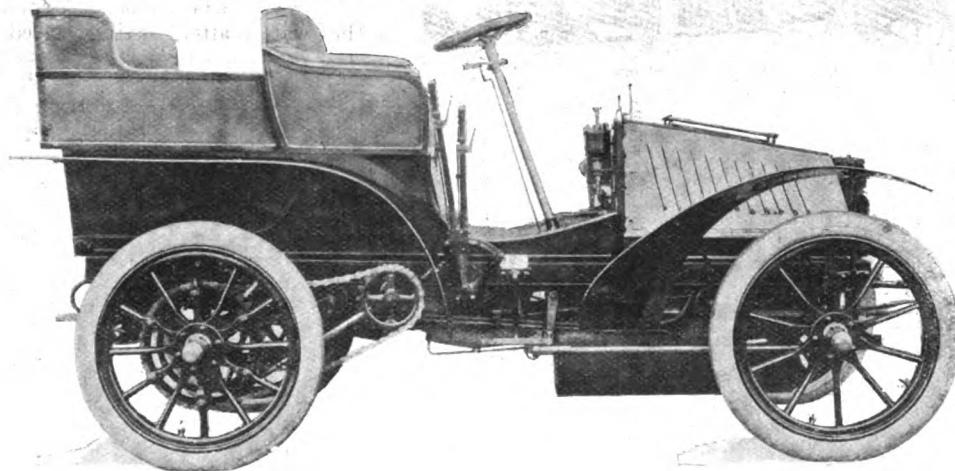


FIG. 3.—THE BRUSH 10 H.P. CAR.

on the admission pipe, provision being made also to control the throttle valve from the driver's seat. The engine is fitted with three methods of ignition—electric, magneto-electric, and Auto-incandescent tube; the ordinary electric ignition is normally used, the others being held in reserve in case of necessity. The water circulation for the cooling of the cylinders is maintained by pump and radiators, the former being of the centrifugal gear-driven type, the gear being enclosed in the crank chamber. Three speeds forward and a reverse motion, controlled by a single lever at the side, are provided. The engine transmits its power through a pedal-controlled friction clutch to a change-gear box, and thence by bevel gear to a cross differential shaft, the usual duplicate pair of chains and chain-wheels connecting this with the rear road-wheels. Non-reversible inclined wheel steering is adopted, while both hand and foot brakes are available, each acting equally well, be the car travelling in a forward or backward direction. It may be added that the first result of applying either of the brakes is to release the clutch. The frame—of wood and steel—is supported by long springs on artillery wheels of equal size (32 in. diameter), these being shod with large pneumatic tyres. The weight of the *chassis* comes out at 10½ cwt., while the *tonneau*, with petrol, water, tools, etc., ready for a run, weighs 15 cwt. Special attention has been devoted to the question of lubricating the various bearings, while provision is made for the adjustment of the various working parts. On the stand are shown a couple of *tonneaux*—one being a duplicate of a car recently supplied to the War Office—and a *chassis* to enable the various parts, and their disposition to be in-

to chain and cogs. Specimens of the recently-introduced superheated steam oil for Gardner-Serpollet cars, recently referred to in our columns, are shown at the stand. This is a 800 degs. Fahr. high test oil. Here, too, are grease cups for crank pins and eccentrics, high-test vitroline oils, rusticide for preventing, and ferrubicide for removing rust, glandoline for packing, joints, etc. A well-arranged display is completed by a selection of Stauffer lubricants, spring pressure lubricators, asbestos compound, etc.

Oils, varnishes, and enamels of good repute are shown by Messrs. Craig and Rose, Limited, the specialities including a white enameline which dries in about twelve hours and hardens in a couple of days, presenting a bright and durable enamel surface. The "Rose" white enamel is also being largely used by builders of motor-car bodies, who recognise its great covering power, as well as the hard and solid surface which it secures. For use on coils, the winding of armatures, etc., a stoving insulating varnish has been prepared that will permanently resist currents of the highest voltage. Stoving readily and giving a tough and durable coating, it will not only provide efficient insulation, but also withstand the action of lubricating oils and moisture generally. Water-cooled motor oil, electric car varnish, dry colours, etc., complete a very interesting display.

Motor-car and other lubricating oils, greases, etc., are on the stand of Mr. P. Lawrence, whose specialities include axle grease, belting syrup, etc.

One or two of the White steam cars, made by the White Sewing Machine Company, of Cleveland, U.S.A., have been in this country for the past few months, but are now shown for the first time at any exhibition in England. While outwardly following the lines of American steam cars, the construction generally is of a more robust character, while in the details a number of new departures are made. In the White steam carriage we have a steam generator (Figs. 6 and 7) which is not a boiler. It consists of thirteen super-imposed helical coils of $\frac{1}{2}$ in. seamless copper tubing

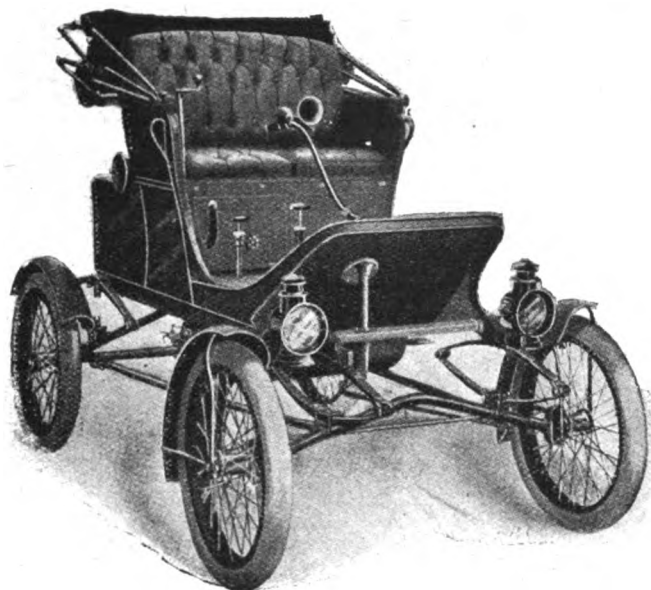


FIG. 4.—THE WHITE STEAM PHAETON.

(except the lower or super-heating coils, which are of steel), and surrounded by a casing of thin sheet iron, covered with asbestos material, and at the bottom the heat is applied by means of a burner. The coils of tubing are so connected that the water entering at the top cannot pass through the successive coils

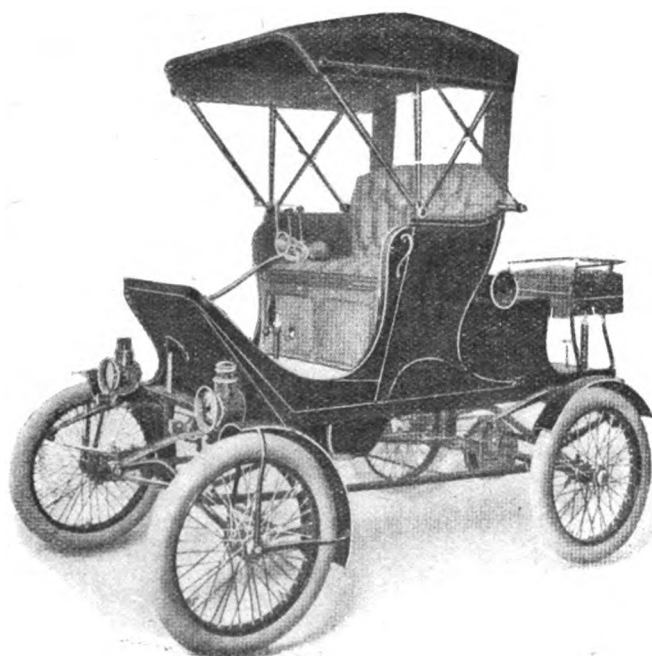


FIG. 5.—THE WHITE THREE-SEATED STEAM CAR.

below by gravity, but is held in place entirely subject to the action of the pump. The water comes in, and is at all times in the top of the coils, while the steam is in the lower coils, and goes out of the lowest coil next to the fire. There is no boiling water to generate steam; the upper coils act practically as water heaters, and the water is converted into steam at some variable point in the lower coils, depending upon the amount of steam which the engine

is using. The heating surface is equal to 30 sq. ft. *There is no water level to maintain, consequently no water-glass.* The makers claim that the generator is non-explosible and impossible to burn out. It is also unscalable, the generating coils having been found as clean after running over three thousand miles as when first made, any deposit being carried through as fast as formed. The water supply is automatically controlled by the steam pressure, by means of a plunger pump, thus doing away with all hand pumping. The steam, as it comes from the lower coil, is super-heated, thus insuring perfectly dry steam. The fire is automatically controlled by a special device which regulates the flame in such a manner as to furnish sufficient steam to meet all requirements, without entailing any care or thought on the part of the driver. The carriage can, it is stated, be run until the water supply is entirely exhausted, and it comes to a stop by reason of the lack of water in the generating coils, without the slightest danger of explosion or damage to the coils. The burner (Fig 8.) consists of two parts, a pilot-light and a main burner. The pilot-

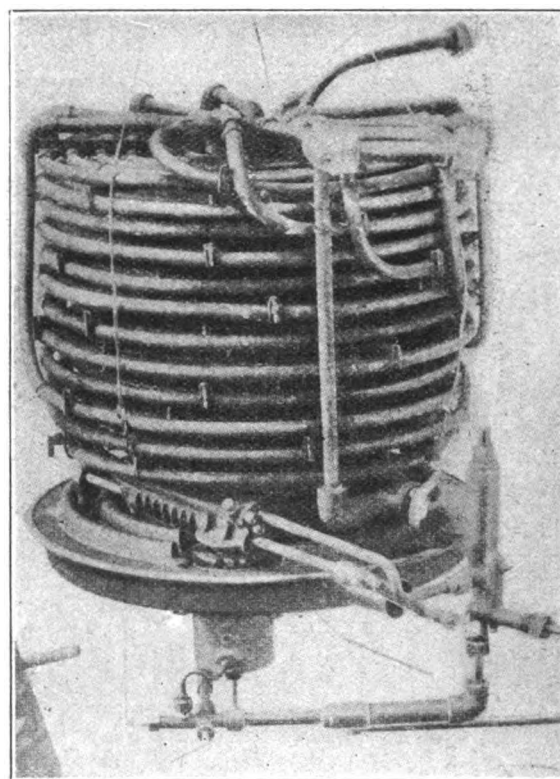


FIG. 6.—THE WHITE STEAM GENERATOR, WITH CASING REMOVED.

light is used to keep a constant light while the carriage is in use: for lighting the main burner, which, under the control of its automatic regulator, is being turned off and on as the steam conditions require, also for heating the vaporising coils, so that the petrol passing through these on its way to the main burner is converted into gas. It is also employed in getting the carriage ready for use, which is done in four minutes or less, depending upon the skill of the driver, simply by means of a match. The burner is of the usual flat cylindrical shape, with air tubes extending through it vertically, expanded into the two heads. The upper head is formed with a series of concentric circular corrugations, the air tubes being arranged so that their centres coincide with the centre lines of the depressions, and the high ridge of the corrugations being slitted normal to its direction with a large number of fine saw cuts, through which the hydrocarbon gas issues, these slits taking the place of the numerous small drill holes around the air tube in the ordinary form of burner. The air tubes are of $\frac{1}{2}$ in. diameter. The petrol arriving from the tank (under air pressure) is led through a vaporising coil, bent into a number of loops in the space

between the burner and boiler; then through the auxiliary vaporiser, in series with the former and located over the pilot burner. By this time it is transformed into a gas by the heat of the flame surrounding the two vaporisers, and it now passes through the hand-controlled fuel valve, an automatic regulator and an injector into the burner casing, drawing in with it a considerable amount of air owing to the pressure with which it issues. The hand-controlled valve can be operated from the seat. The auxiliary vaporiser is heated in the first place by means of a sub-burner consisting of a little pan, into which some petrol is let run by opening a valve. When the auxiliary vaporiser is hot enough this burner is turned low and is kept burning continuously, whether the main burner is on or off. The time it takes to get the main burner ready to operate is said to be from three to five minutes. After the pilot-light is

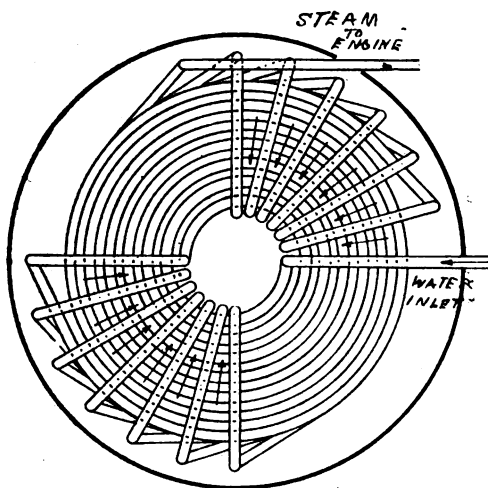


FIG. 7.—PLAN OF WHITE STEAM GENERATOR.

once lighted, the carriage can be started and stopped without further attention to it. The fuel feed is automatically controlled by a thermostatic regulator which includes a tubular casing, forming the connection between the lowest and the next to the lowest coils in the boiler, so that the steam is always flowing through this casing. At one end the casing is closed by a cap, and at the other end by the head. Within the casing and secured to this head is a tube of copper, which is closed at its outer end, and within which there is a rod of iron or steel. Secured to the head is a casing in which is pivoted a bell crank, against which the rod may abut. The casing leads by a tubular opening to the burner, while into this opening is a passage from the casing containing the main needle valve. Within the tubular opening is a plunger, having a reduced lower end extending below the passage, and adapted to close or vary the opening to the burner, thus constituting a valve for the hydrocarbon. On the upper end of this plunger are adjustable nuts, which form a shoulder bearing on the upper edge of the bell crank, wherefore the bell crank supports this plunger. When the thermostat is not regulating the fuel the plunger is above the opening, and the hydrocarbon flows to the burner. The thermostatic tube being made of copper, a material of relatively high expansibility, and the rod within it of steel, of relatively less expansibility, when the two are heated by the steam the end of the tube draws back from the bell crank lever more than the rod expands in length, causing the rod to be moved backward from the bell crank lever, the latter allows the plunger to descend and partly or wholly close the opening to the burner. The feed is regulated by a pressure-controlled diaphragm device similar to the fuel regulator in steam carriages, but by-passing the flow when not required, instead of interrupting it, as do fuel regulators. When the amount of water in the boiler decreases the pressure rises, and then closes the by-pass valve, when all the water pumped is fed into the boiler. If this should

give an excess of water in the boiler the pressure drops and the by-pass opens again. The diaphragm spring is adjusted to keep the boiler pressure normally about 200 pounds, but the safety valve is set to 500 pounds, which it is said the boiler will safely stand. Whenever the throttle is shut the pressure will immediately increase to 350 pounds or more, but will instantly drop again when the throttle is reopened, for the reason that the automatic feed regulator has opened the by-pass and no water is fed to the boiler.

The 6 h.p. engine is of the two-cylinder, double-acting type, with a simple link reversing gear, and is well balanced in all its parts. The cylinders are 3 in. diameter by 3 in. stroke. The main journals and the eccentrics run on ball bearings. The slides and cross-heads are lubricated automatically from oil-cups. The cylinders are lubricated from a cup of special design, which is at all times under the control of the driver. These cups hold a quantity of oil sufficient for a run of ten hours. The exhaust steam is muffled, so as to be practically noiseless. The throttle is especially designed to do away with all the trouble of the throttle not closing, and remains at any point desired by the operator without being held. It is operated by a handle, which, to open, moves toward the driver as he sits on the right-hand side, and away from him to close. This handle can be removed and carried in the pocket when the carriage is to be left unoccupied, thus preventing its being started through carelessness or mischief. A hand auxiliary water pump is placed conveniently for the driver, where it can be used when necessary in starting, or in place of the power pump, in case, through accident, this should have been put out of action. Petrol is used as fuel. This is carried in a tank under the foot-board. It is forced by air pressure through the vaporising coils, and from there to the main burner, where it is ignited. The pressure is maintained by a hand pump, conveniently located, so that it can be used at any time without leaving the seat. The petrol tank has a capacity of eight gallons, which is stated to be sufficient to run the carriage from 75 to 100 miles, depending upon the condition of the roads. The tank is provided with three gauge cocks for the purpose of permitting the amount of fuel supply available at any time to be ascertained. The water supply is contained in a copper tank at back of and partially surrounding the casing of the boiler. The tank has a capacity

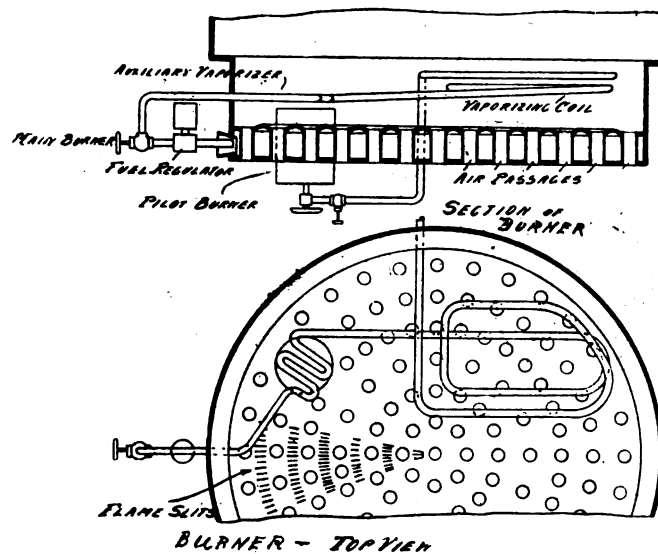


FIG. 8.—DETAILS OF WHITE BURNER.

of sixteen gallons, which is sufficient for running from 25 to 35 miles, depending upon the condition of the roads. The car is fitted with a condenser, to which is connected a pump and oil separator, to enable the condensed water to return to the tank.

The carriage is supplied with a powerful band brake, which will brake in either direction, and is actuated by a pedal. Speed is controlled entirely by the throttle. The vehicle is considerably heavier than most American steam carriages, weighing with supplies about 1,300 pounds. In the latest model the wheel base has been lengthened, and is now 72 inches. All four wheels are of the same diameter, are of cycle type construction, and shod with $3\frac{1}{2}$ -inch pneumatic tyres. The front and rear axle are composed of tubular arches, the front axle having no straight part, as is usual. The engine power is transmitted, as usual, by a chain to a differential gear sprocket located midway on the rear axle, and the latter is therefore a live axle in two parts, mounted on ball bearings, two arranged close to the wheel hubs and two close to the differential gear, one on either side. That the two bearings of the same part of the axle may always remain in alignment, the bearing near the hub of the wheel has a pivot support. The rear axle sleeves are provided at their outer ends with fittings forked in the same manner as front axle ends, these fittings serving to support the axle bearings and to fasten the reach bars. The forks embrace the ball-bearing housings and receive the pivots by which these bearings are supported in the arched rear axle. The housing or non-rotating member of the ball bearing forms a solid part with the rear axle sleeve. One of the cones of the ball bearings is slidable lengthwise on the axle between a shoulder thereon and the hub of the adjacent wheel. When the vehicle passes over a rough road the tubular rear axle arch will straighten out more or less, and this would result in a binding of the bearings, if this pivoted support and sliding cone were not provided to prevent it. The carriage is arranged so that all water can be drained quickly from it, in case it is to be stored in a place where there is danger of it freezing. Two cars are shown at the stand, an ordinary two-seated one (Fig. 4), the second having a spider seat for a third person at the rear (Fig. 5).

Quite a new car to the English market is the Elmore, shown by Messrs. Moffat's, Ltd. The vehicle, of which an illustration is given in Fig. 9, is of American design and construction. A novel feature of the car is the use of a two-cylinder vertical motor, the usual position being reversed—that is to say, the crank shaft is at the upper end and the combustion chamber below. The engine, which is of the two-cycle type, as against the four-

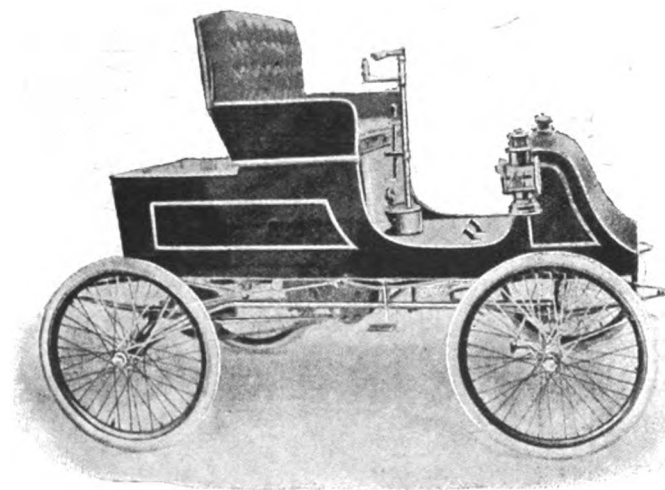


FIG. 9.—THE ELMORE CAR.

cycle usually employed, develops 5 b.h.p. at a speed of 600 revolutions per minute. Each cylinder has its own fly-wheel, the vibration being thereby greatly reduced. The cylinders are 4 in. in diameter by 4 in. stroke, and are water-jacketed, the circulation being maintained by pump and radiators. A governor acting on the admission pipe is fitted. The ignition is on the dynamo-accumulator system. A double cell storage battery

is used on starting the engine; and afterwards, by the use of a double-pole switch, the current is changed from battery to dynamo, which is driven by a belt from the rim of one of the fly-wheels. The dynamo, engine and battery are so wired that either dynamo or battery can be used for starting or running the engine, and by use of the charging switch the battery can be charged from the dynamo while the car is running. Three speeds forward and reverse motion by means of clutches and gear wheels are provided,

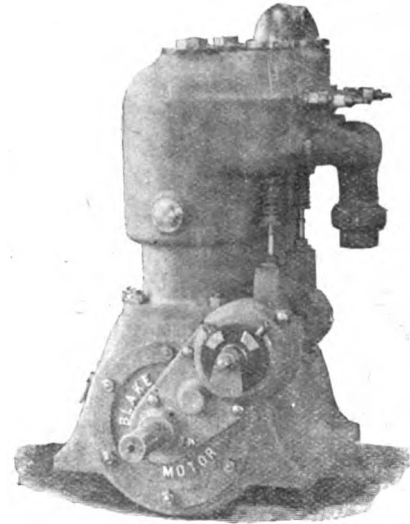


FIG. 10.—THE BLAKE 7 H.P. MOTOR.

the engine being connected to the countershaft by gears, a chain conveying the power from the countershaft to the rear axle. A double-acting brake, operated by a foot lever, is fitted on the drum enclosing the differential gear on the rear axle backward or forward. The frame is made of seamless tubing. The cycle-type road wheels are 28 in. in diameter, and are fitted with extra heavy $2\frac{1}{2}$ in. tyres. The body is of the box front pattern. Steering is controlled by a horizontal lever. The car, which is claimed to be able to attain a speed of twenty miles per hour, weighs about 9 cwt.

Mr. F. C. Blake, who makes a speciality of induction coils and sparking-plugs, has a large display of these ignition accessories, and among the latter is a new plug with English gas thread, and with a shield to prevent oil or carbon getting on to the sparking points and porcelain. Tanks for water, petrol, and oil are another speciality of Mr. Blake, these being shown in a variety of shapes and sizes. The Blake diaphragm carburettor and water-cooling coils have already been described in our columns. An interesting exhibit is the new Blake 7 h.p. double-cylinder motor, illustrated in Fig. 10. The two cylinders, with their water jackets, are cast in one piece, and are mounted on an aluminium oil-containing crank chamber. The cylinders are 90 mm. diameter, by 102 mm. stroke, the normal speed being 1,000 revolutions per minute. The exhaust valve cams are entirely enclosed, while provision is made for the ready withdrawal of all the valves. Electrical ignition is adopted, contact being made by a special rotary distributor. A four-cylinder motor, developing 15 h.p., is also to be seen; this consists of two of the small-sized motors mounted on one large crank chamber. Automatic splash lubrication of the cylinders is adopted. Both the 7 h.p. and 15 h.p. engines are fitted with an enclosed governor, which acts on the admission pipe. The new Blake voiturette had not arrived when we visited the stand, but by the time these lines are in print it will be on view, so that a brief description will not be out of place. It is fitted with a two-cylinder horizontal engine developing from 4 to 6 h.p., according to the speed. The motor transmits its power by a chain to the gear box, which is adapted to give three speeds forward and reverse, while from the gear box a single centrally-located chain conveys the power to the rear axle. A pedal actuates a band brake on the differential shaft, while there

are hand-operated band brakes on drums connected with the hubs of each of the rear road-wheels. The car, which is remarkably silent in operation, is adapted to carry two persons on the front seat, at the rear being room for luggage or a detachable spider seat. It may be added that the water-circulation for the cooling of the cylinder is on the thermo-syphon arrangement, the water in circulating between the cylinders and the tank passing through a Blake radiator.

The Straker Steam Vehicle Company, Ltd., who have been devoting attention to the question of heavy steam vehicles for some time past, have now entered the commercial arena, and have on view a couple of their five ton steam waggons—one built with open-sided body for a Bedford firm, and the other is intended for service in Johannesburg, South Africa. The vehicles (Figs. 11 and 12) are 17 ft. 9 in. long, by 6 ft. 6 in. in extreme width, the wheel base being 10 ft. They are designed to carry

through a central down-take, regulation being obtained by a damper fitted at the base of the funnel. The draught is created by the exhaust steam entering through a nozzle into the chimney; provision is also made for a live steam blower, if required. The

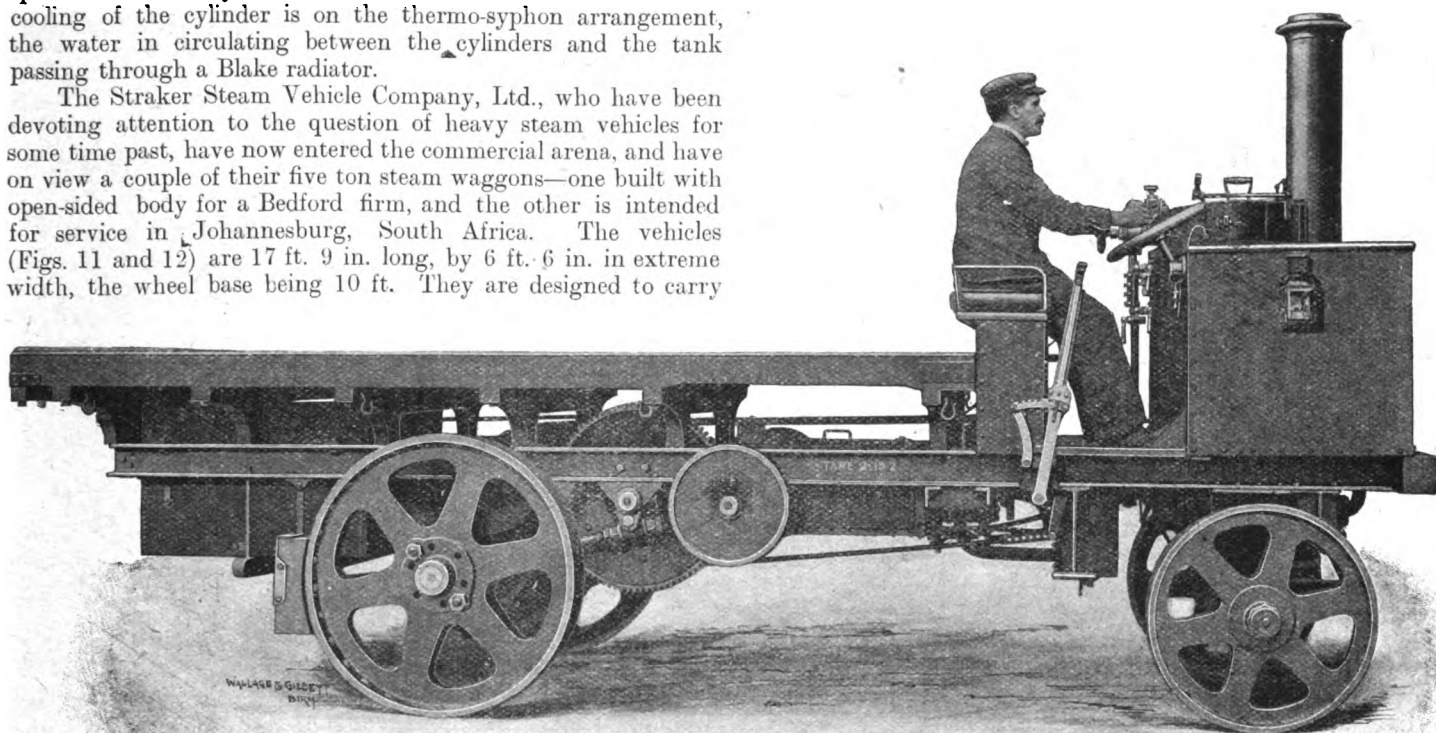


FIG. 11.—ELEVATION OF STRAKER STEAM WAGON.

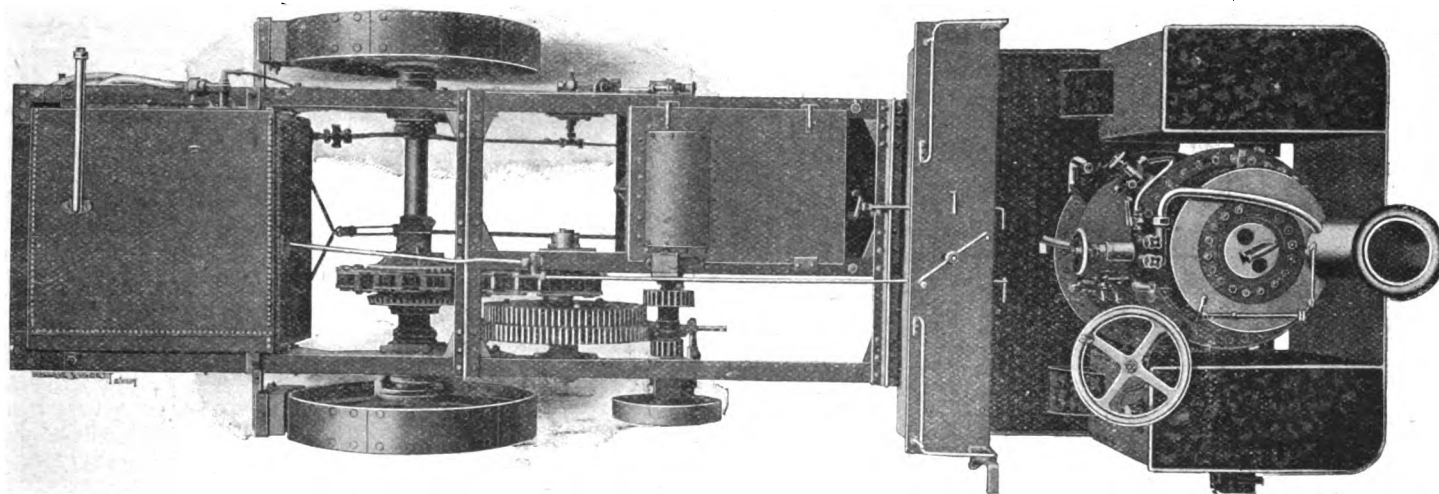


FIG. 12.—PLAN OF STRAKER STEAM WAGON.

a net load of five tons at a maximum speed of seven miles per hour, to be capable of ascending gradients up to one in nine, and to draw a trailer carrying an additional load of two tons on fairly level roads. The back axle is of the rotating type, it being secured to the frame through the medium of strong laminated springs and radius rods. The leading axle is mounted on a central pivot directly under the boiler, and takes the weight of that portion of the vehicle through anti-friction bearings. The boiler is of the water-tube type. It contains 70 sq. ft. of heating surface, and 2.2 sq. ft. of grate area, the working pressure being 200 lbs. per sq. in. The boiler is placed in the centre of the front of the vehicle, the fittings being arranged within easy reach of the driver. A superheater is attached to the fire-box for dealing with the high pressure steam, and a re-heater for rendering the exhaust steam invisible. Coke fuel is used exclusively, the firing being effected

boiler is fed either by above injector, or by means of a direct-acting plunger pump driven off the engine crankshaft; the capacity of either being more than sufficient to deal with the requirements of the boiler.

The road wheels are made of two steel flanged spoke plates, riveted to a steel tyre on the peripheries and cast into an iron boss by special process, thus forming practically an indestructible wheel.

The engine is of the compound horizontal type, fitted with single eccentric reversing gear, admitting of linking up to requirements, enclosed in a dust-proof casing of sheet iron. The cylinders are 4 in. and 7 in. by 7 in. stroke. The normal speed is 375 revolutions per minute, which can be increased up to 500. The lubrication of the working parts is arranged on a complete system providing for continuous oil feed, only the ordinary

attention necessary with locomotives and other machines of a similar class being required. Two gear speeds are provided, giving speeds from three to seven miles per hour. The engine crankshaft is extended in square section, upon which is mounted a sliding double pinion thrown in and out of gear by a hand-actuated device. This pinion meshes with gear wheels mounted on the countershaft, upon which a sprocket pinion is fixed, and by means of a roller chain the power is transmitted to the back axle. The back axle is 4 in. in diameter. The differential gear, which is secured to the sleeve carried at the right side of the axle, is designed so that a locking pin can be instantaneously inserted for connecting up the two parts of the axle in order that both wheels may become drivers as occasion may demand. The steering is effected by worm and segment, the leading wheels being turned by screw and worm hand gear, which is self-locking in all positions. The vehicle frame is constructed in channel steel of heavy section, braced together with transverse channels, T irons, gussets and angles. The single eccentric reversing gear is specially suited for acting in the capacity of a strong brake, and will, it is claimed, stop the vehicle under any ordinary condition. There is also attached a powerful hand brake bearing direct on the tyres of the rear road wheels, actuated from the driver's seat. Sufficient fuel is carried for a short day's work; it is stored in the two bunkers arranged either side of boiler.

A water tank of 140 gallons capacity is secured to the back of the frame, which in the ordinary way will provide sufficient for runs of from fifteen to twenty miles without replenishing. A steam ejector fitted with a 25 ft. length of $1\frac{1}{2}$ in. suction hose and strainer is provided, so that water may be filled in about five minutes by plunging the hose into any tank or pond. Under normal conditions the inclusive cost of working a five-ton Straker waggon is stated not to exceed 2d. per ton mile. The waggon, carrying five tons of net load on ordinary roads on a point-to-point job of say forty miles in extent, is claimed to be capable of maintaining an average speed of five miles per hour, inclusive of delays for taking water, clinkering, etc., at a fuel consumption of from 12 to 14 lbs. of coke, evaporating ten to gallons water per vehicle mile.

A new sprag, which has successfully passed through tests on Netherhall Gardens, Hampstead—one of the steepest inclines

when out of action. It can be easily operated by the driver, and the blocks readily brought down to the ground. More familiar specialities at this stand are the "Wellington" sparking-plug and the "Wellington" gas-engine ignition tube, while copies of the "Wellington Motor-Car Register" serve to draw attention to an important development of this firm's business. Among the cars on this stand are a 20 h.p. Panhard, a Panhard fitted with 7 h.p. Centaure engine, a 6 h.p. De Dion, and a New Orleans.

Messrs. R. M. Howison and Co. are introducing a new principle of constructing motor tyres, and have an exhibit of tyres made in

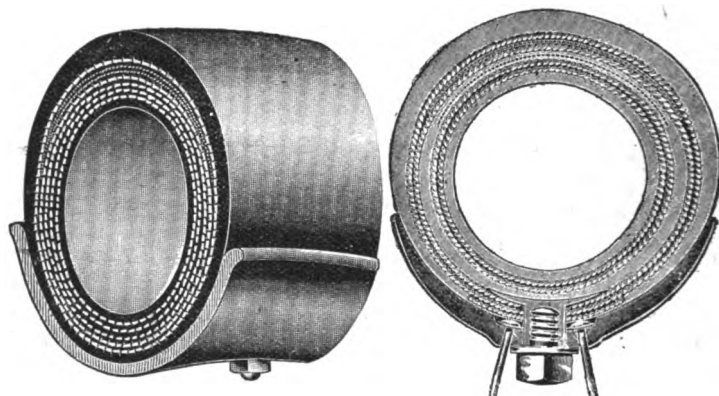


FIG. 14.

FIG. 15.

this way. So far, Messrs. Howison and Co. have only applied their principle of manufacture to single-tube tyres, but the notion is equally applicable to all tyres, both single-tube and detachable. The new departure made in the "London Penna" tyre consists in alternating the protective fabric introduced into the outer walls of the tyre for the purpose of securing strength with a layer of pure rubber. Figs. 14 and 15 show the difference between a tyre of ordinary construction and the "London Penna" tyre, Fig. 14 representing an ordinary single-tube tyre, and Fig. 15 the new form. It will be noticed that in the ordinary method of manufacture the air-tube is protected by a number of layers of fabric covering all crowded together, one on top of the other, and outside these layers of fabric is the rubber tread of the tyre. The object of multiplying and crowding together the fabrics is, of course, to obtain strength. It is claimed, however, that in one way the additional number of fabrics really increases the weakness of the tyre, because when the tyre is over-weighted, or when the weight upon the tyre exceeds the air pressure inside, it is liable to flatten on the tread, bringing the sides to more or less of a sharp angle, and as ordinary construction of the tyre does not allow of much movement or flexibility, the threads of the fabric are liable to get strained and crack, and eventually to break at the angle. In this way small breakages of the tyre occur, which are ascribed by motorists to punctures, but which really proceed not from punctures, but from the breakage of the threads of the fabric, owing to their being constantly strained by the flattening and re-inflating of the tyre on the tread. The interposition of the layer of pure rubber between the layers of fabric is claimed to have remarkable effect upon the movement of the tyre. Greater flexibility and greater resiliency are said to be added to the tyre, and the liability to puncture is also decreased, as it is found that the sandwiching of the layer of rubber between the layers of canvas causes the tyre to offer better resistance to puncture material, and is more difficult to penetrate than when a number of fabrics are laid one on top of the other for the purpose of strengthening the tyre. The "London Penna" tyre is made of very good rubber, so that its durability is of the best character, quite apart from any question of increased wear resulting from the special construction.

Sample castings for motors are exhibited by Dover, Limited. Here are castings of gear-boxes, connecting rods, bearings, gear cases, sprocket wheels, valves, etc., in gun-metal, aluminium, anti-friction metal, phosphor bronze, etc.

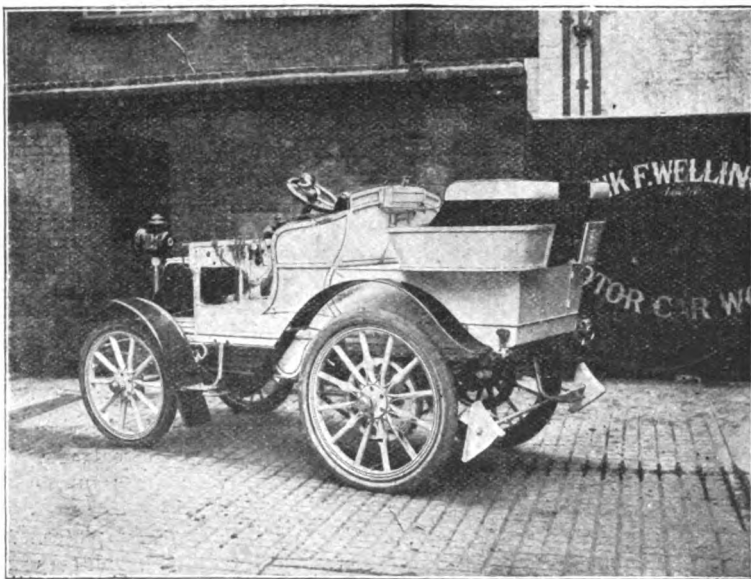


FIG. 13.—THE NEW MOTOR-CAR SPRAG.

near the metropolis—is shown on the stand of Messrs. Frank F. Wellington, Limited. A steep ascent of one in four has been set up for the purpose of demonstrations, and the efficiency of the sprag, which can be attached to any car, has been adequately shown. The accompanying illustration (Fig. 13) shows the sprag

A feature of the Show is the appearance of several new steam cars of English construction. Among these are those of the Steam Car Company, House's System, Limited, who are showing three vehicles—a two-seated doctor's car, a four-seated phaeton (Fig. 16), and a parcel delivery van intended to carry a load of one ton. As the mechanical parts of these vehicles are identical, the following description may be taken as applying to each. The boiler, which is located at about the centre of the frame, is of the fire-tube type, and comprises 280 copper tubes. Chief amongst its novel features is a mud-trap. A detachable circular plate some 6 inches in diameter covers a hand-hole in the top plate. Through the centre of this plate the feed water is let in from the feed heater by means of a tube connection and union joint. Bolted to the underside of this plate are two concentric cylinders, which extend to the bottom of the boiler. The outer one of these is closed at the bottom, and only perforated laterally near the top. The centre tube, which forms a prolongation of the water feed tube, is perforated by numerous holes throughout its entire length, and extends to nearly the bottom of the outer tube or cylinder. The feed water therefore enters through the centre tube and flows up between it and the outer tube, only entering the boiler proper when leaving the top of the latter. The sediment it may contain is deposited between the two tubes, and when the plate to which they are attached is disconnected they are lifted out with it, and the sediment may be removed. When the plate and the mud-trap are thus removed, a hand-hole is exposed, through which the boiler tubes may be cleaned. The boiler is tested up to 500 lbs. to the square inch, and the working pressure is 250 lbs. By this means the wasted products of combustion are utilised to raise the temperature of the feed water before going into the boiler. The burner, which is of the well-known Lifu type, burns common paraffin. It is led from the tank through a coil of tube and the vaporiser placed in the flame area of the burner where the oil is vaporised, the vapour there formed being conducted to a conical nozzle. This is surrounded by an air tube, shaped conically at its lower end to correspond to the conical vapour nozzle. The actual size of the orifice through which the vapour issues is varied by a needle shaped plug which fits down into it, and is controlled by a spring tending to keep it down in its seat, it being forced up by the vapour pressure. The height to which it rises, and the consequent amount of oil vapour allowed to issue from the nozzle, depend upon the pressure of vapour, and that in turn depends upon the oil feed, so that the regulation of the fire is effected by an automatic regulator worked by the steam pressure in the boiler, while the fire can also be controlled from the driver's seat. The oil is maintained in the oil chamber at a pressure of 30 lbs. The oil tank contains a supply of 15 gallons of oil, the water tank holding 45 gallons, sufficient in the former case for from 60 to 90 miles, and in the latter to 45 miles, according to the character of the roads traversed. The level of liquid in both these tanks is indicated on a small dial in view of the driver. For filling the water tank an injector is employed.

The engine itself is of the double cylinder compound double-acting type, the crank chamber of which is formed by a rectangular enclosed metal box, which contains the oil for lubricating the cranks and piston rods. The crank shaft carries a single pinion, which meshes with a toothed wheel on the periphery of the compensating gear on the rear axle, which is enclosed in a prolongation of the crank chamber.

A special feature of the engine is that both the cylinders, which are respectively $2\frac{1}{2}$ in. and $4\frac{1}{2}$ in. diameter by $3\frac{1}{2}$ in. stroke, while normally running as high and low pressure cylinders, may by a special controller and intercepting valve be made to work with high-pressure steam when additional power for hill climbing is required. On the side of the crank chamber is a double throw pump, one side of which pumps water into the boiler, the other portion of it pumping oil into the oil tank, where its pressure is maintained by an air cushion in the usual way. As regards the moving parts of the engine they are of marine type, the admission of

steam to the cylinders being by piston valves instead of the ordinary slide valves. The oil and water pump already alluded to is driven direct from an eccentric mounted on the rear axle. The whole motor is suspended by a double ball-jointed rod from a bracket above the rear end of the cylinder. A tubular condenser of the marine type is carried in front of the car underneath the foot-board, which condenses the greater volume of the steam. Any steam left uncondensed by the condenser is led into the smoke-box of the boiler, where it is burnt up, assisting to increase the draught, and escaping ultimately through an orifice at the back of the car.

The steering is on the side-post and lever principle. There is little or no pressure on the steering handle, from the fact that the axle bearings are so designed as to take the load direct from the periphery of the steering wheels on to the axle pivot. The brake power of the car is very effective. In the first place, the engine can be reversed, thus forming a powerful brake. In addition there are two pedal-actuated brakes, one on each of the hind wheels, of an entirely new design. The brake consists of a hollow drum, of suitable shape, fitted on to the hub

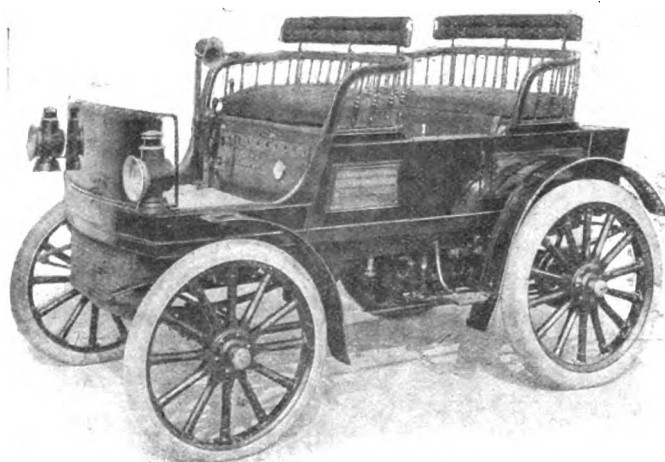


FIG. 16.—THE STEAM CAR CO.'S DOUBLE PHAETON (HOUSE'S SYSTEM).

of the hind wheel, a groove being cut out of the inner periphery. Into this groove two levers shod with fibre are expanded. It acts whether the car is running backwards or forwards, the pedal being provided with a notched quadrant into which a holding stop slips, so that the brake can be held hard on without putting any strain on the driver's foot. The two-seated car weighs 17 cwt., and the van about one ton. At this stand is also to be seen an unfinished body for a doctor's car, the feature of which is the front sliding doors.

Two well-finished motor bodies form the exhibit of Messrs. Hollick and Pratt. One of these is called the "Allweather" car body, and is fitted with a canopy and circular glass frames in the front. These are made in the form of triple shutters, and can be adjusted to form adequate protection from wind, rain, etc., in front, and also at the sides. The other exhibit of Messrs. Hollick and Pratt is a *tonneau*-shaped body, with a screen and folding canopy, so devised that it can be rapidly taken off and packed out of sight on the car. Thus, being readily to hand, it can be put into position again when required.

In the Gallery the Law Accident Insurance Society, Limited, is bringing before the notice of motor-car owners its policies of insurance in connection with automobiles. These include indemnities against accidents to owners, fires, public liability, burglary, personal injury to passengers, accidental damage to car, and other mishaps which may occur to motor-vehicles. The Society is also accepting premiums for insurances in connection with motor-bicycles, tricycles, or quadricycles, and is offering advantages which are evidently being appreciated by owners of automobiles of every type.

One of the notable sections of the Exhibition is the interesting array of heavy steam vehicles, a branch of the motor industry in which Great Britain is unsurpassed. In referring to this

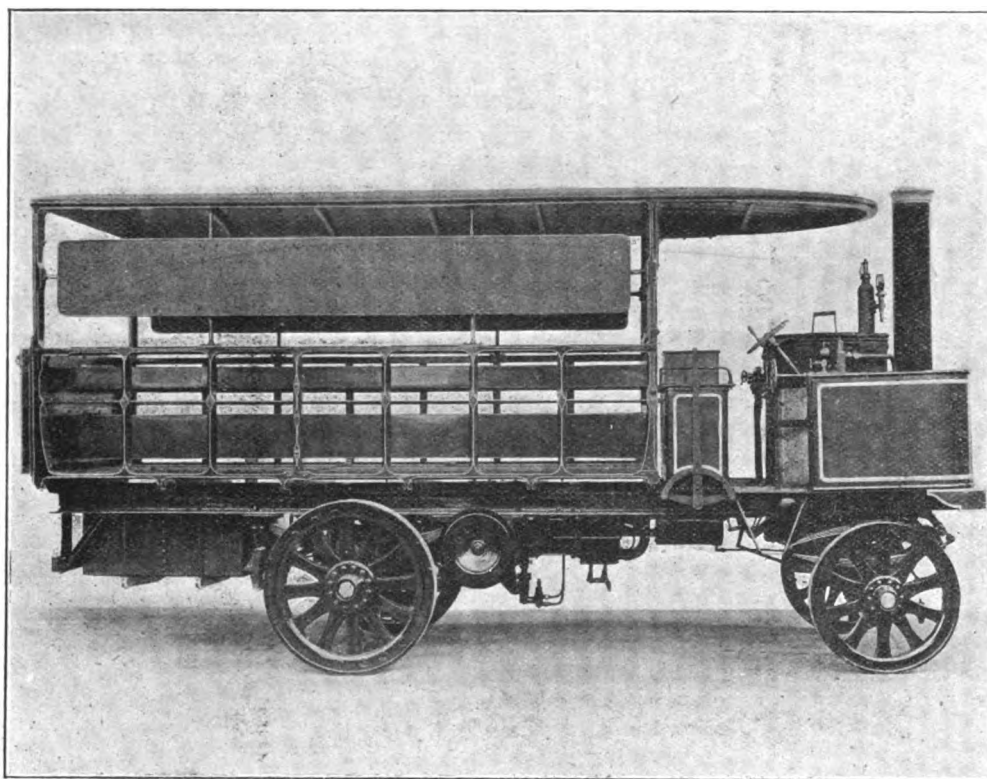


FIG. 17.—THE THORNYCROFT STANDARD BREWER'S STEAM LORRY.

class of automobile, the name of the Thornycroft Steam Wagon Company, Ltd., naturally comes to the front, for their vehicles are now at work all over the country performing a variety of duties. The general arrangement of the Thornycroft steam vehicles has frequently been dealt with in the *Journal*, so that only a brief reference to the exhibits is necessary. First we have a covered waggon built for brewers' use (Fig. 17). It is intended to carry a load of from 3 to 3½ tons, and to haul a further couple of tons on a trailer at a speed of about six miles per hour. The vehicle is driven by a horizontal compound engine of 25 to 30 h. p., completely enclosed, and lubricated by the "splash" method. The engine is reversible by means of the reversing lever at the driver's right hand. If desired, by means of the converting cock, high-pressure steam may be admitted to the low-pressure cylinder, giving the extra power which might possibly be needed in exceptional cases. The power transmission is on the company's well-known chainless principle, which allows a play on the bearing springs of as much as 7 in., whilst maintaining a perfect constant drive, and has been found quite satisfactory in use. The boiler is of the annular water-tube type, with straight tubes specially arranged so as to be easily cleaned both within and without. It is fired from the top, which can easily be done by the driver while attending to his work. The fuel used is either coke or

Welsh steam coal. Another vehicle on the stand is a tip waggon of the type now used by many municipal bodies for dust-removing purposes (Fig. 18). It is constructed to carry on ordinary

macadam roads a load of five tons up a gradient of one in seven, and the average working speed is about six miles per hour. On a separate stand the Thornycroft Company show a steam vehicle similar to the one which secured the first prize in the War Office trials in December last. This waggon is constructed to carry a load of from three to four tons, and follows the standard lines throughout, with the exception of the road wheels, which are of larger width than usual, and provided with shoes to enable the vehicle to travel on heavy ground. The wagon is painted in the regulation khaki colour and is attracting considerable attention from military visitors to the Exhibition.

An 8-h.p. tonneau completely upholstered in air-cushions is being shown by Messrs. Warburton, Allen and Co. in the Gallery. These cushions are also made separate for the seats of cars—to fit vehicles of any size. A new air footstool for use on automobiles has also been introduced by the firm. These cushions are made of strong duck-coated special pure rubber compound, which is rendered more durable by being vulcanised. To prevent the cushions losing their original shape the walls of them are stayed, with the added advantage that greater strength is secured. Their use on motor-vehicles for the backs and cushions of seats con-

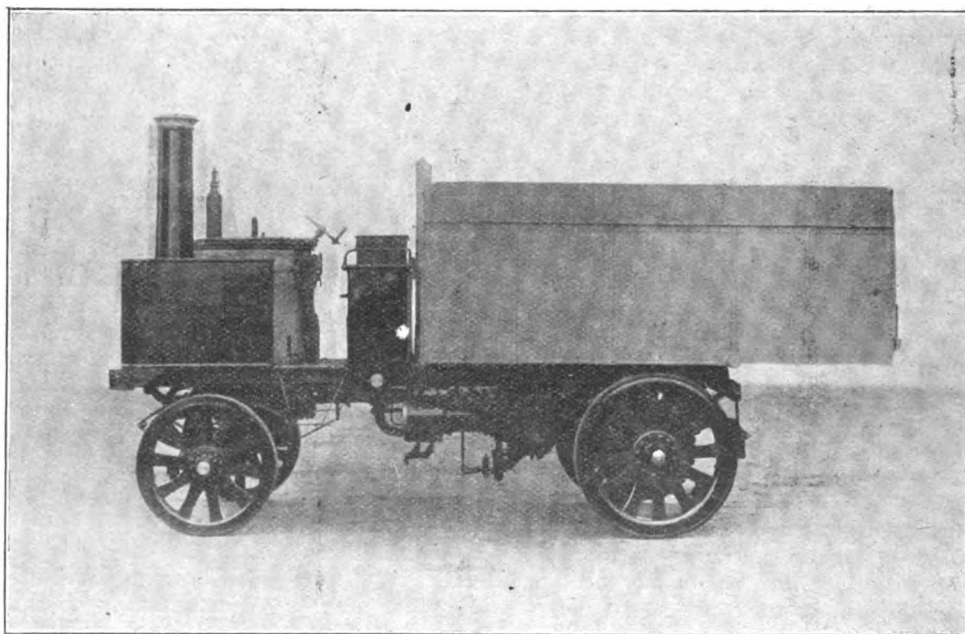


FIG. 18.—THE THORNYCROFT STANDARD TIP WAGON.

siderably lessens vibration, and they have the advantage of being non-absorbent of damp and the impurities that cling to cloth-covered cushions.

The well-known Aster petrol motors form the principal display at the stand of the Begbie Manufacturing Co. These are shown in various sizes, viz., $3\frac{1}{2}$ h.p. air-cooled, 5 h.p., $6\frac{1}{2}$ h.p., and 9 h.p., the latter being all of the single-cylinder water-cooled type. Fig. 19 gives a view of the Aster two-cylinder motor developing 12 h.p. The cylinder diameter is 88 mm., and the stroke 110 mm., the normal speed being between 1,500 and 1,600 revolutions per minute. The two cranks are set at an angle of 180 deg. to each other. An interesting new departure of the 12 h.p. engine is the governor with which it is now being fitted. The object which the governor, of which a section is given in Fig. 20, is intended to serve is to ensure a speed as uniform as possible for all variations of power required of the motor, below the maximum, by acting on the admission of gas without changing the composition of the mixture. The Aster firm has devised a governing apparatus in which the atmospheric pressure has no detrimental influence, and

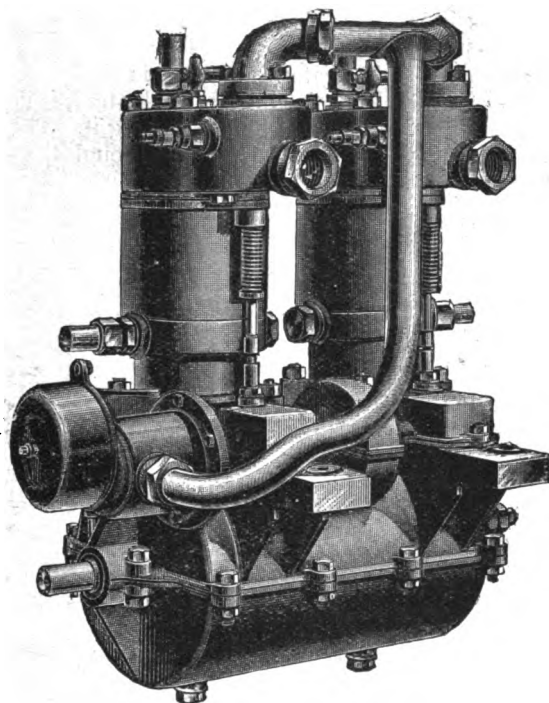


FIG. 19.—THE ASTER 12 H.P. MOTOR.

which is therefore balanced; which, further, opens and closes so rapidly that the charge is admitted either normally or is not admitted at all. In this manner variations in the richness of the charge are avoided, and also unforeseen variations in the operation of the carburettor. The device consists of a hollow cylinder A, inclosing all the parts of the governor, and connected by two tubes on its opposite sides to the carburettor and the motor respectively. These tubes, which have a circular section outside the casing, are flattened out where they approach the axis of the cylindrical casing in such a manner that their intersection with the internal surface of the hollow cylinder well is a rectangle bent to the shape of the cylinder surface. The openings thus formed are at least equal to the area of the tubes, and the small side of the rectangle is parallel with the axis of the cylinder. The dimension of the large side of the rectangle is less than the diameter of the cylinder. Hence a space remains between the extremities of the two parts. In the axis of the cylinder is located a shaft E provided with two collars F and F. Between these collars is a disc G capable of sliding on the shaft E, and turning with it. The disc G is provided at its outer circumference with a lateral flange H, while more toward the centre is pivoted on this disc a pair of balls K, similar to those employed in ordinary governors. A coiled spring R of suitable compression rests on one end against the collar F, and at the other against the disc G. The device is so constructed that when not in operation the disc G rests against the collar F under the action of the spring R. Under this condition the balls are close to the shaft and the flange A of the disc G is flush with the large side

of the rectangular openings, thus leaving the latter fully open. When the motor to be governed throws the shaft E in motion, the disc G turns with it, carrying the balls K along. Owing to the centrifugal force the balls tend to separate and to push the disc G towards F by compressing the spring R, since the balls have their resting point on the collar F. When the motor works with full admission its speed accelerates and the centrifugal force on the balls overcomes the pressure of the spring. The disc G then moves on the shaft E towards the collar F, and by this motion the flange H closes the rectangular openings to the casing. When the openings have been closed no charge is admitted, and the speed of

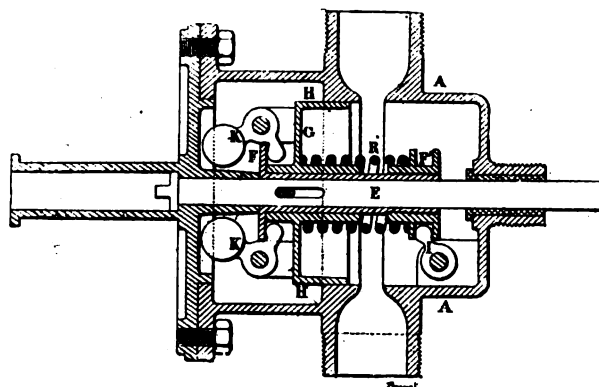


FIG. 20.—SECTION OF ASTER GOVERNOR.

the motor is reduced. The action of the centrifugal force on the balls diminishes and the spring causes the disc G to recede and the passage through the casing to open again. It will be seen that only a very slight motion of the disc G is necessary to completely close the passage. The governor acts on the hit and miss principle. It may be adjusted to operate at any speed desired by varying the compression of the spring R, for which purpose the sliding collar F and the shipper lever I are provided. Our attention was next drawn to the Begbie-Audin radiating coil (Fig. 21), the feature of which is the use of flat tubes in place of tubes of round section. It is claimed that increased efficiency is thus obtained, the water circulating in the form of a very thin sheet, steadily in its course, and leaving its warmth in the copper tubing, which, being fitted with a quantity of fins, sends the heat of the water into the air. The Begbie Company make a speciality of spare parts for Aster motors, and have a large array of these on view, in addition to Bozier and Aster change-speed gears

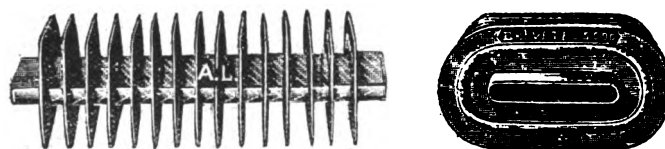


FIG. 21.—THE BEGBIE-AUDIN RADIATING COIL.

Messrs. F. Wilkinson and Co., who have acquired the sole agency for Great Britain for the steam cars made by the Steamobile Company of America, of Keene, N.H., U.S.A., exhibit a couple of these vehicles, those shown being of the two-seated type (Fig. 22). In general appearance they closely resemble the light American steam cars, but as they are now shown for the first time, and as they comprise a number of special features, the following description may not be without interest. The engine is of the simple two-cylinder, double-acting type. The diameter of the pistons is three inches, and the length of stroke is $3\frac{1}{2}$ in. The regular Stevenson link motion is employed. The engine frame comprises a protective covering for the reciprocating parts. This covering is continued below the line of the main shaft in the shape of aluminium "boots" which permit

the engine to run in oil. All wearing parts are easy of access and may be readily taken up. The bearings are bronze metal and tool steel. The pistons are composed of four rings, and the piston rod is of bronze, strongly secured at both ends. The journal bearings are of bronze, and provided with means for taking up wear. All steam joints are provided with metal packing, and the cylinders and steam chest are lagged with asbestos and covered with a sheet metal case. The boiler is 16 in. in diameter and 13 in. high. The shell is of cold drawn seamless steel, $\frac{3}{8}$ in. thick, the heads being $\frac{1}{4}$ in. thick. There are 420 $\frac{1}{2}$ in. copper

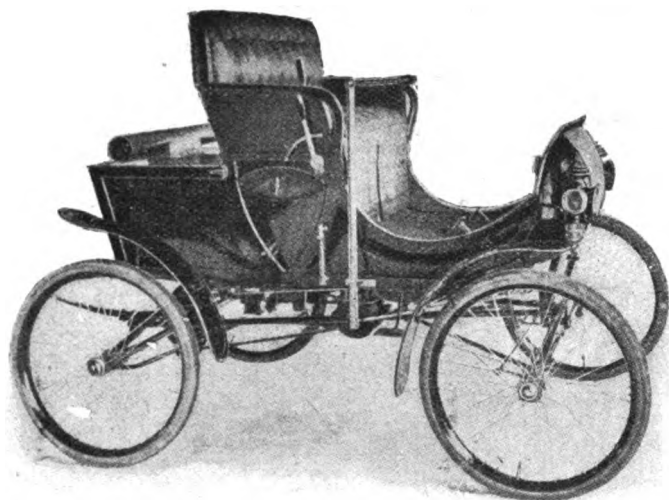


FIG. 22.—THE "STEAMOBILE" TWO SEATED CAR.

tubes affording a heating surface of 52 square feet, and each boiler is fitted with a fusible plug. In the event of extremely low water this plug will melt, and thus warn the driver of the condition of affairs before damage can be done to the crown sheet by scorching. A specially designed water glass is used, which includes check valves, besides positive globe valves, and facilities for unseating the checks if lodged. There is also a blow-off cock for cleaning out the glass. The water pump is attached to the cross head. It is of such capacity that the water flow is sufficient for the greatest demand upon it. At other times the surplus discharge may be regulated by the hand bye-pass valve, which is located under the seat at the left side; it has a sliding handle, which may be pulled out and the pump operated while the carriage is in motion. Like all modern steam cars, the Steamobile is fitted with a steam water lift. Instead of the laborious operation of pouring many buckets of water through a small opening in the tank, the driver, on finding his supply diminished, tosses the strainer end of the hose into the watering-trough, or whatever the source of water supply at hand may be, and, turning a valve beneath the seat, quickly fills the tank. One end of the hose is permanently attached to the inspirator, and the entire operation involves only the coiling and uncoiling of the hose in a compartment of the tool-box. The exact amount of water in the supply tank is shown at all times by an indicator on the side of the body, visible from the driver's seat. The pressure in the petrol tank is maintained by an air-pump which works off the engine. The amount of pressure is under the control of the driver, and is usually from 40 to 50 lbs. A hand-pump is provided to obtain the initial pressure. "Firing up" is effected by applying a match inside a simple device on the burner, which sets the pilot light going. Almost immediately the main burner may be turned on. The exact time of firing up, from striking of the first match under a boiler two-thirds full, to obtaining a steam pressure of 160 lbs., is stated to be seven minutes. The pilot light continues to burn under all circumstances, keeping the vapour tubes hot, and relighting the fire automatically when the main burner is shut off. When the automatic diaphragm valve affects the fire as a result of high steam pressure, its cut-off is complete, so that the steam never rises to the point of blowing off through the safety-valve. As a result of this arrangement the

machine may be left standing indefinitely with steam kept up automatically, always ready to start. Two band-brakes, operating with equal certainty forward or backward, are at the command of the driver. The two brakes act independently, and are operated by separate pedals, one always being in reserve for emergency, or reinforcement of the other. The frame is a flexible one. The heavy tubes which form the "reaches" run forward and converge in a pivoted yoke on the front axle arch. Braces from the ends of the front axle swivel at a central point toward the rear. In this way the frame conforms to any possible irregularity of the road, all torsional strain being done away with (see Fig. 23). The wheels are 30 in. in diameter, with either wire or tubular steel spokes, running on roller-bearings, and shod with $2\frac{1}{2}$ in. single-tube pneumatic tyres. The differential gear is made up of spur gears (not bevel), which run in oil. The car is controlled by a side-steering gear attached to the body and connected with ball-joints, so that no vibration is felt on the steering handle. The water-tank has a capacity of 26 gals., which is stated to be sufficient for a run of from 25 to 40 miles, according to the character of the road. The feed-pipe supplying the boiler is covered in the tank by a detachable strainer. This is immediately over a cap in the bottom of the tank. Any dirt which has gained access to the tank is deposited in this cap, and may be removed by unscrewing it. The water, after leaving the pump, is carried in a coil through the muffler, and reaches the boiler at nearly boiling temperature. The petrol-tank has a capacity of 8 gallons, said to be the equivalent of from 70 to 100 miles of riding. The same arrangement for straining and drainage obtains here as in the water-tank. A simple device is attached to the tank, which enables one at any time to know how much fuel still remains. The gauge consists of an ordinary water-glass guarded by metal bars. At the top and bottom are globe valves shutting off all connection between the gauge and tank, except when momentarily opened to determine the fuel level. All the valves are conveniently located on one side of the vehicle, and the control of fire, water, air, steam, starting, stopping, and steering are in the hands of the driver in his seat, while a detachable auxiliary throttle valve handle enables him to leave the machine locked. The throttle valve is designed to close itself in the event of an accidental opening. A slight pressure is, therefore, always necessary to hold the throttle open. The muffler combines a device for condensing steam and minimising the visible exhaust.

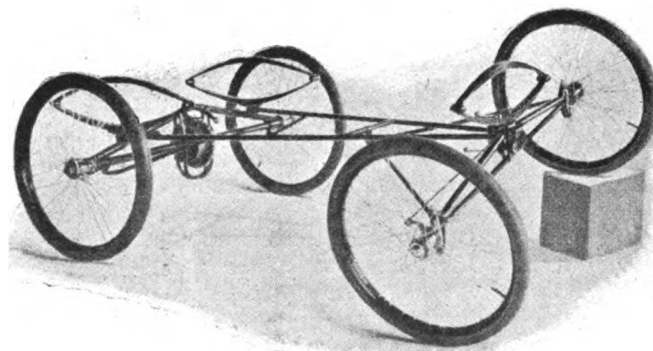


FIG. 23.—THE UNDERFRAME OF THE "STEAMOBILE."

Beneath the seat is an asbestos slide, and on either side are oval screened openings, in order to prevent the heating of the seat to the discomfort of the occupants. The arrangement for carrying tools and accessories is ingenious. The floor is hinged, and folds back, spreading out the complete kit strapped on the underside of the flooring. In the compartment thus exposed is coiled the ejector hose, besides any additional accessories that may be desired. From the engine the power is conveyed to the rear axle by a strong roller chain. The standard two-seated car, completely equipped with fuel and water, weighs about 11 cwt.

Goggles and glasses for motorists are being shown by the Symetric Lens Company, and also the Isometric Lens Company, the representatives of both of which companies have been actively engaged throughout the week in attending to the optical requirements of visitors.

With the Show the Motor Traction Company, Limited, introduce another Continental-built car to the English market. This is the Germain car, which, generally speaking, follows the Daimler and Panhard lines. We first examined the 15 h.p. *tonneau* (Fig. 24), built to the order of Martin, the well-known jockey. This is fitted with a four-cylinder vertical motor, which runs at a normal speed of about 700 revolutions per minute. It is set under the bonnet, under the fore part of the frame, and is fitted with both tube and electric ignition and pump circulation. In connection with the latter it may be mentioned that an indicator is fitted to the dashboard to show whether the pump is working or not. A Panhard type of governor is employed, in connection with which is fitted an accelerator. The engine transmits its power through a pedal-operated clutch to the gear box, which is adapted to give four speeds ahead and one reverse motion, controlled by a side lever. From the gear box the power is conveyed by bevel gear to a differential cross shaft, and thence to the rear road wheels by the usual duplicate pair of chains and chain wheels. Special attention has been devoted to the question of brakes and lubrication. The road wheels are of equal size, artillery type, and shod with stout pneumatic tyres. The *tonneau* body is of liberal dimensions to render it comfortable in riding. Another Germain car with *tonneau* body to be seen is fitted with a two-

making for automobile manufacturers, and in addition to their malleable iron castings have a large display of ordinary iron castings.

From the Malmö Glove and Leather Factory, in Sweden, Messrs. J. Feis and Co. have a large collection of leather suitable for motorists' clothing, etc. Among the special features of this display is a jackal fur coat, while the ordinary specialities include jackets, gloves, capes, rugs, trousers, knickers, etc., in leather.

On the stand of the Furriers' Alliance, Limited, a splendid collection of furs is attracting notice to the motoring clothing manufactured by the firm. Fur coats, muffs, hats, caps, and gloves are the leading specialities on view, a novel motorist's coat being one made up entirely of rabbits' ears, the appearance of which is decidedly effective.

Mr. Rowland Hill makes a bold show of motor castings in gunmetal, iron, phosphor bronze, aluminium, etc., the specimens of which shown on his stand have all been taken from orders now in progress. It is almost impossible to enumerate the full range of castings which he displays, but notable among the many are twin and single water-cooled cylinders, air-cooled cylinders, and combustion chambers, made from the patterns of some of the best known of English automobile firms.

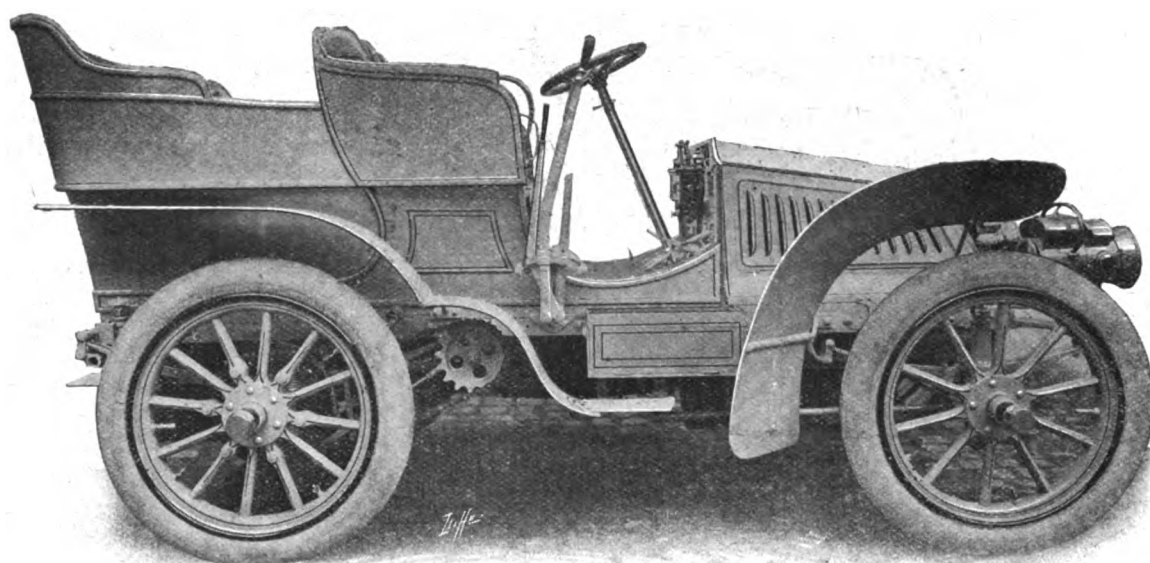


FIG. 24.—THE 15 H.P. GERMAIN TONNEAU.

cylinder motor developing $7\frac{1}{2}$ h.p. As regards the transmission, brakes and general arrangement, this is identical with the 15 h.p. car above described. Of Boyer cars, of which the Motor Traction Company make a speciality, a big display is made. These vehicles have already been described and illustrated in the *Journal*, so that a brief reference will suffice on the present occasion. Three sizes are shown—7 h.p., 9 h.p., and 12 h.p.—all fitted with *tonneau* bodies. The 7 h.p. car is fitted with a single-cylinder Aster motor, and has three speeds ahead and one reverse motion. The 9 h.p. car has a double-cylinder Buchet motor, three speeds and reverse. Of the 12 h.p. vehicles, two have Buchet two-cylinder motors, with four speeds forward and reverse motion, the third having a double-cylinder Aster engine, and three speeds forward and reverse. All the vehicles have inclined hand-wheel steering, equal-sized artillery type road wheels, shod with pneumatic tyres, and brakes acting in both forward and backward directions. The motors are all equipped with governors acting on the admission pipe, so that the engines can be kept running quietly at a slow speed when the car is stopped. The bodies are all comfortably upholstered, and painted in various colours, the one in olive green, red, and black taking our fancy.

Malleable iron castings of motor-car parts, including gear wheels, hubs, etc., are the main exhibits of Messrs. Floyd and Floyd, Limited. This firm make a special feature of pattern-

In a prominent position in the Arcade, Messrs. Moebius and Son have a capital show of their special oils for automobiles. It is well devised to show to advantage the firm's enamelled canisters in which the oils are supplied, various colours distinguishing the special brands. Certain oils are in cans fitted with a spout, so that they can be emptied without the disagreeable dripping associated with some patterns. Attention may well be directed to the mark "M" for motor-cycles—an oil which is being largely adopted by well-known riders. Other special oils include lubricants for motor cylinders, air or water-cooled motors, motor axles, etc., while the "Moebius" motor grease for gear wheels has also a place on the stand.

Prominent in the Show is the display of Messrs. Hoare and Sons, whose ideas of the clothes suitable for motorists have found much favour. A "Mota Perfecta" coat, the well-known "Autocoat" and "Autosuit," and a fur "Autocoat" for use in very rough weather, are prominent in the general selection, while Autocloaks and an "Autocoatette," for ladies' wear, have good features. A new automobile waistcoat, suitable for wear under any ordinary coat, is also shown. This is fitted with wind cuff sleeves and amply provided with pockets. Good styles of uniforms and liveries for motor-car drivers and servants have also a place in Messrs. Hoare and Sons' range of manufactures and designs.

Since its introduction a year or so ago, several changes have been made in the Traveller voiturette (Fig. 25) built by the Alldays and Onions Co., Ltd. The vehicle is an improvement on the ordinary motor-quadracycle, in that the front and rear passenger are provided with comfortable seats. The frame is of tubular construction, and is fitted at the rear with a 4 h.p. vertical engine, having an air-cooled cylinder, and water-jacket to the explosion chamber and valves and running at a speed of about 1,600 revolutions per minute. The valves are so arranged that they can be readily withdrawn without interfering with any of the pipes. The ignition is electrical, the trembler being fitted on the induction coil and not on the motor. The water circulation is on the thermo-siphon system, the tanks being located on the rear sides of the body, and having corrugated exterior walls to increase the cooling surface. The engine drives the change-gear shaft through a friction clutch; two speeds ahead are provided, controlled by a single lever, while provision is made for the addition of a reverse motion when desired. The change gear is of the sliding type, spur-gearing conveying the power to the rear axle. Steering is controlled by the rear passenger through an inclined

The Belfast firm of Boyd and Co. naturally give prominence to their motor clothes in Irish frieze, notably a knee-cover motor coat which affords double protection for the knees against wind and wet. From the waist downward there is a lateral extension buttoning at the side, so that when seated in the car the wearer appears as if provided with a neatly-drawn rug over the knees. For walking purposes the extension is folded back and buttoned on the inside of the left skirt, out of sight—altogether an ingenious and happy idea. The "Cadogan" vest is also shown. This is made of a material known as "Eiderdon," and has a drop back to protect the loins. A Polar coat, as supplied to the members of the Nansen Polar expedition, is a conspicuous feature of Messrs. Boyd and Co's display.

Waterproofed garments of varied descriptions are exhibited by Messrs. Abbotts, where the Harris tweeds, eulogised by Lord Rosebery in a public speech a few months ago, are to be found made up into waterproofed coats and ulsters. Proofed with rubber and lined with woollen material, they afford a material which is admirably adapted for the comfort of motorists. Here, too, are silk oilskins made up into ladies' and gentlemen's coats

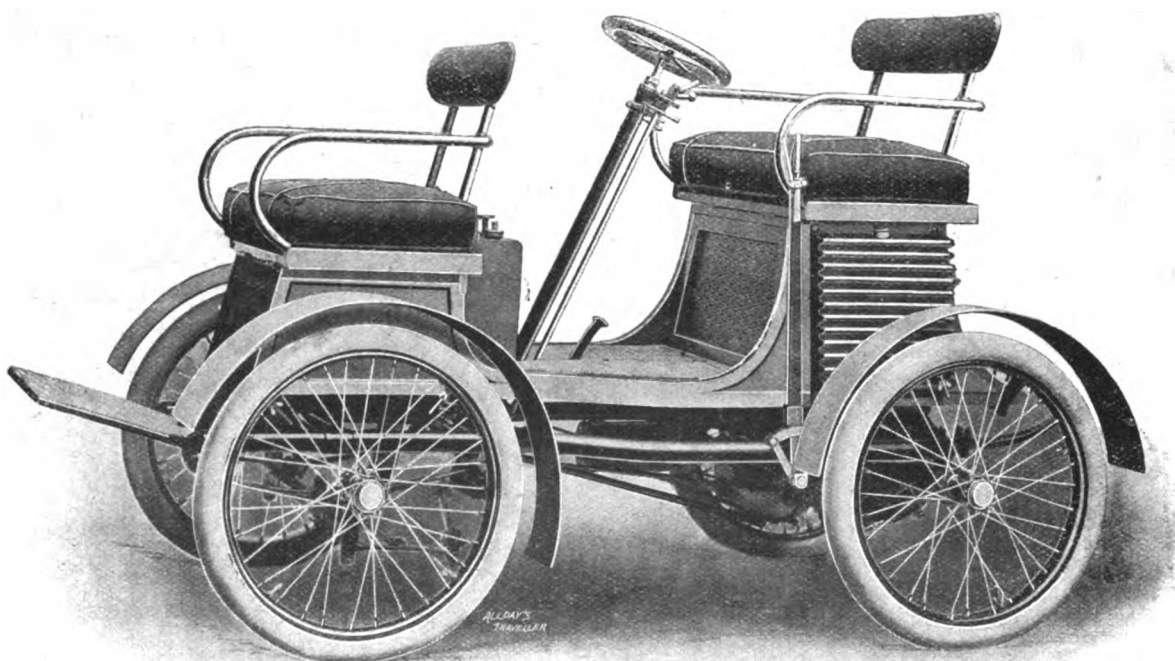


FIG. 25.—ALLDAY'S "TRAVELLER" VOITURETTE.

hand wheel. Two brakes are provided, one actuated by a pedal acting on the differential drum, and a hand-brake acting in both directions on the counter-shaft. Sufficient petrol and water can be carried for a run of 100 miles. A feature of the car is the small space it takes up, a consideration with many motorists. The over-all width of the car is only 3 ft. 7 in., while the length is 7 ft. 6 in. Complete, the little car weighs about 5 cwt., and can, it is stated, attain a speed on the level of twenty-five miles per hour. As its name implies, it is specially adapted for use by commercial travellers, many of whom are now, we understand, using them with considerable success.

A well-arranged show-case testifies to the full range of motorists' clothing made by Messrs. Anderson, Anderson and Co., Limited. waterproofed garments naturally forming the main factors of an excellent display. Here are new designs of cloaks, ulsters, etc., rendered absolutely waterproof, as well as impervious to the winds that prove so keen and biting when touring. Leather ulsters, coats, jackets, vests, leggings, etc., also attract attention, while the firm has not overlooked the claims of the growing numbers of lady motorists for raiment at once suitable and of pleasant appearance,

The oiled silk provides a flexible and pliable material, and one that will doubtless be appreciated by lady automobilists. Water proof aprons, hats, car covers, etc., are also shown at this stand, as well as leather ulsters, jackets, knickers, trousers, etc.

The house of Clement Rothschild makes a feature of the manufacture of motor-car bodies—turning them out, with the aid of improved machinery, in large quantities. Here they are represented by five *tonneaux*, one special type being a spider with two seats in front and a dicky behind. This is made of wood and sheet steel, and can be fitted with wood or steel wings with brackets. There is also a *tonneau* of wood and steel with moulded steel wings and a high door; a *tonneau* in wood and aluminium, and another in wood and steel, with a dismountable back.

Brampton Brothers, Limited, have developed their business in chains for motor-vehicles since the last Show, and a good selection of block and roller chains for automobiles is on view. They are now making chains for heavy waggons, as well as for light cars—a 4 in. pitch chain with a breaking strain of 26 tons, and a 3 in. one with a breaking strain of 20 tons being on view. Chain-wheels and cutters for milling the teeth of the same also find a place on this stand.

Automobile timepieces, watches, and chronographic speed indicators are on the stand of Messrs. S. Smith and Son, Limited, Motorists will be most interested in the registered speed indicator for recording speeds of from twelve to sixty miles an hour. The scale is arranged on five circles on the face of the instrument. On passing a milestone a winding button is pressed down, an



FIG. 26.—THE ALBION DOCTOR'S CAR.

operation which is again performed on passing another. To read off the speed attained it is only necessary to notice the number that is pointed to by the small hand, and then look upon the corresponding circle for the figure that the long hand denotes, which indicates the mileage per hour. The same arrangement has been adopted in combination with a chronograph watch, thus enabling a record to be made of observations taken during the different stages of a run. Messrs. Smith's automobile timepiece is too well known to need description on the present occasion.

Waterproof black and brown polishes for leather goods, and also a selection of enamels, form the main features of the stand occupied by the Nugget Polish Company, Limited, while elsewhere in the Gallery will be seen the specialities of the Chiswick Soap Company, consisting of Buttercup metal polish—a polish well favoured for cleaning the bright parts of motor-vehicles.

Among other aluminium goods on the stand of Mr. Robert W. Coan are castings of crank chambers, name plates, engine boxes, and gear cases for motor-cars, all cast in aluminium, of which metal Mr. Coan makes a special feature.

Several excellent specimens of printing and engraving are shown by Messrs. F. King and Co., George Newnes, Ltd., the Temple Press, E. Kenealy, Iliffe and Son, and J. and C. Cooper, the latter having some examples of designs for carriage work displayed on one of the walls in the Gallery.

A Scotch firm making its *debut* at the Exhibition is the Albion Motor Car Company, Limited, who have a couple of their Albion cars on view, one being a phaeton or doctor's car (Fig. 26), the other a *tonneau*. These vehicles are quite different in design to the majority of motor-cars, and comprise a number of special features, the object of the makers being to design a car easy of control, smooth in running and economy in working; and it must be admitted that they have fairly well attained their ideals. The engine, which, as will be seen from Fig. 27, which gives a plan of the vehicle, is centrally located, comprises two horizontal cylinders set opposite to one another, the piston-rods working on to cranks set at an angle of 180 deg. to each other on a central

shaft. The engine (Fig. 28) has cylinders 4 in. diameter by 5 in. stroke, develops 8 b.h.p. at a normal speed of 700 revolutions per minute, but by means of the accelerator this can be raised to 1,000 revolutions per minute, and the power of the engine and the speed of the car proportionately increased. It is fitted with an adjustable limit governor acting on the exhaust to prevent the engine racing.

The power of the motor at all speeds is controlled by means of a lever placed at the driver's right hand, which regulates the quantity of the in-going charge, thus ensuring perfectly smooth and economical running. All main bearings, including the crank-pins, are positively lubricated, splash lubrication being only depended on for the minor bearings. There is no water joint in the combustion chamber, while another useful feature is that the valves are very accessible, and can be removed without disturbing any piping. The water circulation is maintained by a pump driven off the crank-shaft by a belt, a radiating coil being also provided. The ignition is magneto-electric, on the low-tension system, the rotary armature of the device (Fig. 31) being mounted directly on the engine shaft. No batteries or accumulators are thus required, and only a single conductor runs from the generator to each ignition-plug. A modified form of float-feed carburettor is employed. In addition to the usual starting-handle the driver can, by means of a ratchet arrangement, start the engine from the seat. The power is transmitted through a leather-faced friction-clutch and a raw hide pinion on the engine-shaft to a spur-wheel on one shaft of the change-speed gear, which is enclosed in the casting below the engine. Spur-gearing, giving two forward speeds and one reverse, transmits from the first to the second countershaft in the gear-box. The change-gear is enclosed in an aluminium casing, and runs in oil, the changes of speed being obtained by special combination clutches, which make the operation very simple and silent (see Fig. 29). There are two forward speeds of thirteen and five miles per hour with the engine running at the normal speed. By using the accelerator these speeds can be raised to nineteen and seven and a half miles per hour respectively. The Albion Company consider two changes of speed sufficient, about 95 per cent. of the

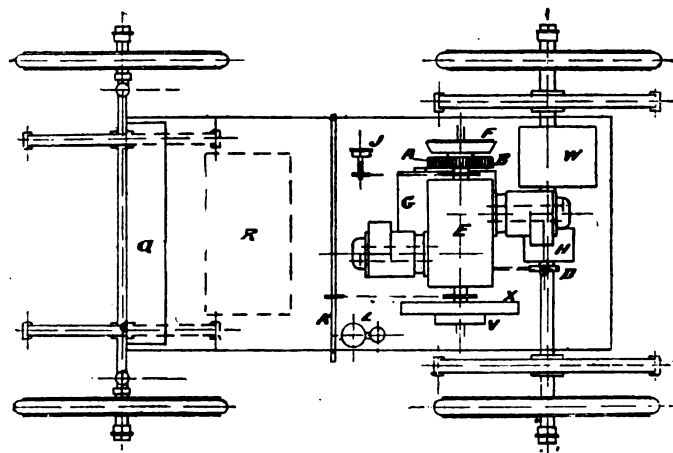


FIG. 27.—PLAN OF ALBION CAR.

running being done on the high speed. A reverse speed of four miles per hour is also provided for backing. The change-gear is operated by a single lever, the change from high to low speed being made without releasing the engine clutch, which thus entirely does away with any risk of the car running backwards while changing speed on a hill. From the gear-box the power is transmitted by a chain to a short differential shaft. The rear axle, which is directly below the differential shaft, is practically in two

halves, each being driven by enclosed spur-gearing. The crank-case and the change-gear casing are in one aluminium casting. The whole engine, gearing, and mechanism are mounted on a frame of channel steel provided with fitch plates, to which are also fixed the springs and axles. The carriage body is entirely independent and is easily removable. Particular attention has been paid to the question of brakes. A pedal operates a neat form of block brake on the countershaft,

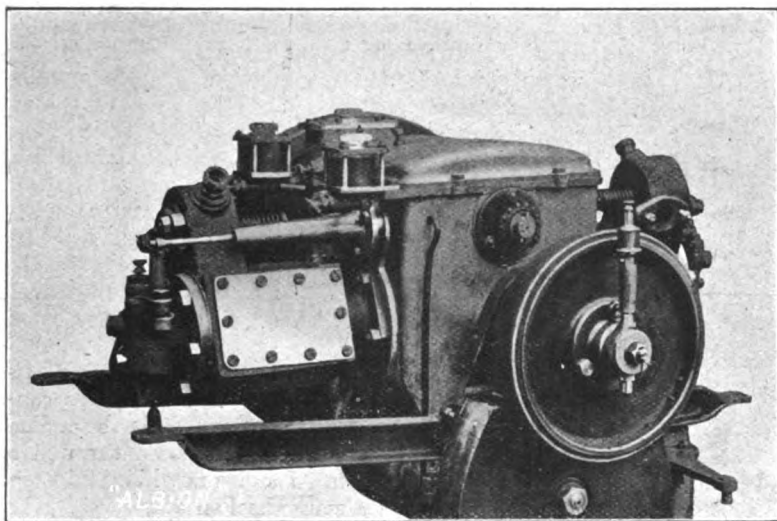


FIG. 28.—THE ALBION MOTOR.

from which the rear axle is driven. Referring to Fig. 30, A is the brake drum, which is keyed to the shaft B; the brake shoes are attached to the levers D E, pivoted from a bracket brazed to the tube C around the live axle. The shoes are normally prevented from pressing on the brake drum by a spring S on a bolt T, which passes through slots at their upper ends. The lever L, pivoted at R on the lever D, is connected at its upper end to the bolt T and at the lower end to a rod P, which is connected to the brake-actuated pedal. When tension is applied through the rod P,

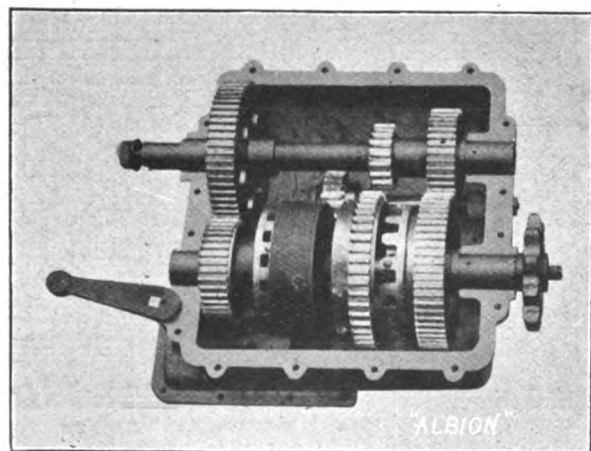


FIG. 29.—THE ALBION CHANGE-SPEED GEAR.

the brake shoes are, by means of the levers, brought into contact with the drum, the brake acting equally well be the car running in either a forward or rearward direction. A hand lever at the side also operates shoe brakes, which press upon the solid tyres of the driving wheels. The oil tank holds five gallons of oil, this being sufficient to run the car 125 miles when fully loaded. The wheels are of artillery pattern, with hard-wood spokes, the front ones being fitted with 2-inch and the rear ones with 2½-inch solid tyres. Tiller steering is adopted, little or no vibration being

transmitted to the driver's hands, owing to the interposition of rubber buffers in the steering rod links. The car, which complete weighs about 18 cwt., is speeded up to a maximum of about 19 miles per hour, and will, it is stated, ascend the steepest of hills at a speed of 7 miles per hour.

The principal exhibit of the Streatham Motor Car Company is the Streatham *tonneau* car for four persons. The body of the vehicle is painted white with red lines, and has an attractive and comfortable appearance, the two front seats being of the arm-chair type. The motor, which is set in the fore-part of the frame,

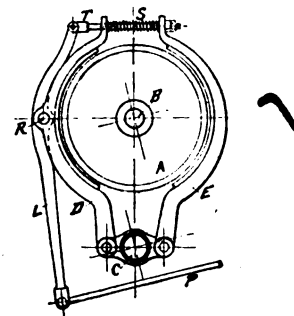


FIG. 30.—THE ALBION BAND BRAKE.

is of the Cudell vertical two-cylinder type, developing 8 h.p. Electrical ignition is adopted, while the water circulation is maintained by pump and radiators. The cylinder diameter is 90 mm., with a stroke of 100 mm. The speed of the engine can be varied between 200 and 1,600 revolutions per minute by means of a centrifugal governor acting on the admission pipe. A hand accelerator is fitted in connection with the governor. Three speeds forward and a reverse motion are provided, the forward motion being controlled by a hand lever at the side of the car, the reverse being actuated by a heel pedal. The power is transmitted through a pedal-operated friction clutch to the change gear box, in which is a sliding train of pinions, and from the latter direct to the rear live axle by means of a universally jointed shaft and bevel gearing. The road wheels are of the artillery wood type, equal sized, and shod with 80 mm. pneumatic

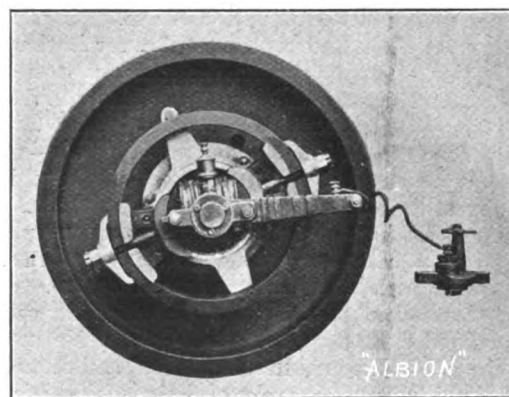


FIG. 31.—THE ALBION MAGNETO MACHINE.

tyres. Inclined hand wheel steering is adopted, while there is a pedal-actuated band brake on the clutch shaft, and double-acting band-brakes on the hubs of each of the rear wheels, the latter being operated by a hand lever. To prevent the car running backwards on a hill, a ratchet arrangement is provided on the rear axle, in place of the ordinary sprag. The car weighs complete about 14 cwt., and on the level is claimed to be able to attain a speed of forty miles per hour. The Streatham Company also show a *voiturette*, somewhat on the lines of the De Dion *voiturette*, but fitted with a 6 h.p. engine. It has two speeds ahead and one reverse.

A new motor-bicycle (Fig. 32) is to be seen at the stand of the Aurora Manufacturing Company. The engine, which is of the air-cooled variety, developing $2\frac{1}{2}$ h.p., is supported vertically in the frame, just forward of the bottom bracket. Electrical ignition is adopted, with the trembler on the induction coil instead of at the side of the crank chamber. A Longuemare float-feed carburettor is employed to furnish the mixture for the

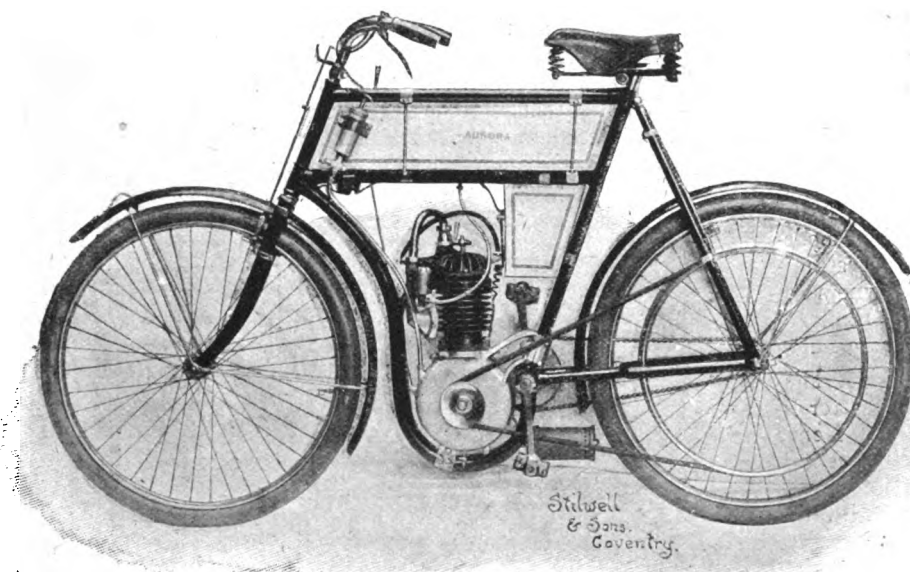


FIG. 32.—THE AURORA MOTOR BICYCLE.

motor, which drives the rear wheel by means of a twisted belt. The variable ignition and exhaust valve lifter are controlled by a single lever. The frame of the machine is of strong construction. A large tank is fitted, capable of holding $1\frac{1}{2}$ gallons of petrol, which is stated to be sufficient for a run of 100 miles. Lubrication of the crank chamber can be effected without dismounting by means of a pump within reach of the driver's hand.

The electric landaus of the Electric Landauet Company, Limited, are now quite a prominent feature of West End traffic. Three types are to be seen at the company's stand, one having accommodation for two persons, in addition to the driver and footman; one, built to the order of Madame Melba, the well-known operatic artiste, having seating accommodation for three persons inside; and one to accommodate four persons, built for Laura, Countess of Wilton. A replica of the latter vehicle, but painted in yellow and black, constructed for the Carlton Hotel Company, Limited, is also to be seen. The under frame of all these vehicles is of tubular construction, with special flexible joints to allow for uneven roads. Supported on this at the rear are two small electric motors, one at each side, pinions on the motor shafts gearing with internally-toothed wheels rigidly attached to the rear road wheels. The battery used as a standard consists of 44 E.P.S. accumulators. The distance that can be covered on one charge of the battery ranges from thirty-five to forty miles, according to the character and condition of the roads traversed. The controller is adapted to give three forward and two reverse speeds, the maximum speed in each case being from twelve to thirteen miles per hour. Steering is controlled by a tiller, while the driver has both foot and hand double-acting brakes under his command. The road wheels are of the artillery type, shod with solid rubber tyres, the company finding these quite satisfactory, having regard to the ample springs introduced between the carriage body and frame. Needless to say, the carriage work and upholstery are of the highest class.

Mr. Frank Morriss, who has long held a prominent place in the motor industry in the Eastern counties, makes a successful *debut* as an exhibitor at the Agricultural Hall. For some time past he has been making a speciality of the repair of Daimler cars, and of modernising old types of these vehicles by, among other things,

increasing the power of the early 6 h.p. engines up to 9 h.p. He does this by fitting new cylinders and pistons to the crank-chambers of the old engines, the cylinders being cast complete with their water-jackets in such a way that there is no water-joint. Whilst primarily intended for electrical ignition, the tube is still retained as a stand-by in case of necessity, and two neat lamp-cases are attached at either end. The induction and exhaust valves are of large diameter, whilst the exhaust space is much larger than in the old type, and is discharged straight away without passing round the head. Other items of interest at Mr. Morriss's stand are the gear sleeves with detachable third speeds in addition to the usual detachable fourth speed described in our issue of January 4th last; water-circulating pumps with Delta metal centres, and metal clacks, inlet and exhaust valves with cast-iron heads screwed on to the stems, the display being completed by a selection of motor-car bodies.

Motor-car houses and sheds are shown by Messrs. Boulton and Paul, Limited, who have already supplied large numbers of these for service in the Eastern counties. The principal example on view is a good design, 15 feet by 10 feet. This is intended to stand on a concrete floor, and the ridged roof is fitted with two ventilators, a glass skylight in the centre of one ridge and a window at one side of the house giving ample light. The shed is waterproofed, and seems well designed for its purpose. Smaller wooden sheds are also worth inspection at this stand.

A varied collection of tyres is assembled by the Diamond Tyre Co., the specimens ranging from those for the lightest types of voituresses to those for heavy waggons. There is also an assortment of "extra stout" single-tube Diamond tyres, in sizes from $2\frac{1}{2}$ in. to 5 in. diameter. The Diamond tyres for motor-cars have a layer of fabric covering that portion lying next to the edge of the rim, thus preventing rim-cutting to a certain extent. In the manufacture of these tyres the fastening bolt has been introduced into the rubber, as shown in the sectional drawing, Fig. 33, and a standard equipment of eight bolts is given the tyre, these being spaced alternately 40 and 50 degs. Variations, however, are made



FIG. 33.—THE DIAMOND TYRE.

in the cases of wheels for special vehicles, so that the principle of the Diamond tyre can be adapted to any size wheel. In addition to tyres a general assortment of steel crescent rims with flared edges for wire wheels, inflators, valves, repair outfits, and automobile sundries will be of more than passing interest.

Appropriately enough the Vacuum Oil Company, Limited, finds an early place in the catalogue, and a conspicuous one in the Exhibition. At a well-appointed stall is its representative collection of oils, greases, lubricators, &c., while its grease cups, oil filters, sight feed lubricators, and oilers make up an essentially utilitarian display. Four classes of "Mobiloil" are shown, No. 1 being for air-cooled engines of $1\frac{1}{2}$ h.p., and less, for water-cooled engines of the Panhard, Cannstatt-Daimler, M.M.C., Milnes, and similar types, with speeds ranging from 800 to 1,000 revolutions per minute. A dark lubricant for air-cooled engines of larger size than $1\frac{1}{2}$ h.p. is "Mobiloil" No. 2—an oil of good viscosity and high flash point, which is also adapted for engines of the Serpollet type. For water-cooled engines with speeds of from 400 to 800 revolutions per minute the Vacuum No. 3 "Mobiloil" is applicable; the N. variety is recommended for De Dion engines and those of the Serpollet type employing moderately-superheated steam. Special oils for various types of steam-cars and for heavy steam vehicles are shown, and owners of electrical cars will be interested in the company's "Electra" engine oil, which is claimed to give full lubrication at zero Fahr,

Mr. Argent Archer, the official photographer to the Exhibition, is known to automobilists as one who can give to matter-of-fact business appearances the glamour of pictorial effect. Hence his photographs of motor-cars are always artistic and interesting. During the Exhibition he has taken a series of photographs which will have permanent interest, not only as illustrating the stands of particular exhibitors, but also presenting a complete view of this highly successful display. Mr. Archer has a collection of photographs of cars for Royalty, as well as of all the historical incidents in connection with the development of automobilism during the last decade.

The *Motor-Car Journal* has a place at the stall at the entrance to the Exhibition, and also at the well-lighted stall on the right-hand side of the Hall, near the Post Office. During the week thousands of copies have been sold in the Exhibition, and the annual subscriptions which have been received have proved a record, when compared with the results of previous displays. All this accession of strength is gratifying—not only from the *Journal's* particular point of view, but also from the general interests of those who regularly use our advertisement columns.

Messrs. Rubery and Co.'s exhibit is of interest to those practically engaged in the manufacture of motor-cars. They show steel channel frames which combine lightness with strength, special prominence being given a light voiturette frame made of a very light section of steel channel. Specimens of channel sections, bent to every conceivable angle and curve, are also on view. The "Castle" lock-nut is an ingenious contrivance which enables a pin to pass through the top of the nut and thus hold it in place. This has a place on the stand, as well as bright and black steel bolts and nuts of all descriptions.

The Vulcan Motor and Engineering Company have on view one of their Vulcan voiturettes with belt and gear transmission. As this car was described and illustrated in our issue of March 22nd last, it is only necessary to mention that it is fitted with a 4 h.p. single-cylinder motor in the forepart of a tubular frame. The water circulation is on the thermal syphon system. Three speeds are available—two, eight, and eighteen miles at normal rate of engine, any intermediate speed being obtained by varying the speed of the motor.

At the stand of the Anglo-American Oil Company, Limited, the new list of agents for Pratt's motor spirit, to which we referred last week, can be obtained on application. Motor spirit is so familiar to all who are practically interested in automobilism that it remains but to be said that an improvement has been introduced into the sealed cans employed by the company since the last show. Then the screwed stoppers had bevelled edges, but these are now made with a straight cut, so that in opening there is no slipping of the instrument employed. Small holes, too, have been introduced, so that wiring can be effectually done, and an improvement thus made on the Government regulations.

Among firms showing for the first time at the Exhibition are Messrs. A. Russell and Co. They have an attractive display of well-designed lamps suitable for electricity, acetylene, or oil. Notable among the acetylene lamps for motor-cars is a new "Phare Bedford," which has already been adopted by several motor-car firms. Messrs. Russell and Co. have also a varied collection of ironmongery for motor-car builders, and are to be congratulated on their *debut* at these shows.

What is known as an "automobilists' umbrella" is shown by Messrs. O. Strom and Son. This is an ingenious arrangement which entirely encircles the wearer, completely protecting him from the heaviest downpour. It is really a long smock of water-proofed material with a deep collar of india-rubber, which draws closely around the neck of the motorist. The sleeves have wind-cuffs, and when seated the wearer is completely enveloped from



FIG. 34.—STROM'S MOTORISTS' UMBRELLA.

neck to heel. With headgear, as shown in Fig. 34, the whole device gives ample protection, and is, at the same time, easy and comfortable. A stylish coat, which can be easily converted into a suit with trousers when the motorist is away from his car, is on view, and there is also an apron similarly convertible. This is made in leather and fur. A complete assortment of fashionable clothing for ladies completes a display which indicates how comfort and protection from the weather can be combined with artistic effects, which show a considerable advance on the styles which were popular a few seasons ago.

A show of motor accessories is made by Mr. H. Waterson. These include radiators, pumps, steering wheels, sparking plugs, accumulators, induction coils, lifting jacks, etc.

The Mulliner Motor Body Company makes its first appearance at these Exhibitions with a selection of motor-car phaeton bodies—one with a hood and glass shield in front—in the Gallery. On some stands elsewhere, notably on that of the British Power Traction and Lighting Company, will be found other examples of the firm's coach-work, which is characterised by a fine finish. Here, too, are several artillery wheels, including a set of teak wheels destined for use in India.

Those motorists who are looking for a light motor-car for two persons at a popular price should not omit to inspect that shown by M. A. Bailleau. As we gave an illustration and description of this little vehicle so recently as our issue of January 25th last, it will now suffice to state that it can be had fitted with a $3\frac{1}{2}$ h.p. De Dion or 4 h.p. Aster water-cooled motor, and that there are two speeds provided. M. Bailleau also informs us that he is about to introduce a slightly higher-powered car on similar lines, with seating capacity for three or four persons.

Phaeton car bodies in plain wood are shown by Messrs. Peters and Buchanan. A similar type of body painted, lined out and varnished is also shown, the good workmanship being a notable characteristic of the display.

The system of index-filing introduced by the Shannon, Limited, is already so well known, and so generally adopted by commercial firms, that no lengthy description need now be given. Suffice it to say that the company shows a representative collection of their letter-filing cabinets, roll-top desks, and chairs, rapid roller letter copiers, and card index cabinets. These latter are now specially adapted for the service of motor-car manufacturers and repairers, and also for the proprietors of public service vehicles. Special cards are printed with the necessary rulings, so that particulars of repairs to motor-cars, the cost of running, etc., can be tabulated on separate cards alphabetically arranged and fitted into drawers, which form the sections of the cabinet. The idea is certainly readily adaptable to various purposes, and can be made to suit almost any business requirement.

Few trades have found such scope for new ideas in connection with motoring as the tailoring industry, and the present Exhibition reveals the artistic instincts, as well as the vagaries, which have been associated with the designs of suitable clothing for automobilists. A few years ago the evident intention of tailors was to design garments which secured warmth without regard to appearance, with the result that fantastic notions were responsible for some very ridiculous costumes. But now the general line upon which the trade seems to be going is towards securing an ordinary appearance combined with the requisite essentials as to the raiment being wind and rain proof. A good example of what we mean will be found at the stand occupied by Mr. T. H. Holding. Here is the "Ayrshire" motor ulster, which is designed both for ladies and gentlemen. This is really a



FIG. 35.—HOLDING'S MOTOR APRON FOR TWO PERSONS.

walking overcoat, so that a man may leave his car and not appear conspicuous when passing along the street. When seated on the vehicle, however, there is ample knee room, and it forms a freely-setting apron. A motor apron adaptable for one or two persons is also shown, as well as coverall smocks, a patent puttee knee for sporting knickers, a kangaroo leather vest fitted

with sleeves and wind cuffs, and leather garments of all descriptions.

A provisionally protected skirt apron of simple yet effective design is the leading novelty among several new notions practically demonstrated at Mr. Alfred Dunhill's stand. This is made of leather, and slipped on like a skirt, encircling the whole of the body downwards from the waist. Two stout elastic fastenings are provided to the upper portion, by which it can be securely and comfortably held to the person, so that it forms an impenetrable protection against wind and wet. A combined puttee



FIGS. 36 AND 37.—DUNHILL'S MOTOR OVERCOATS.

and leggings, which can be instantly released, is also shown, and the M.C. semi-knickers, specially intended for motor-cyclists. These take the form of overalls, and while they have the appearance of ordinary knickers to the observer, afford ample protection where most needed. They can be readily taken off or put on—an advantage that will be appreciated. Leggings and boot-covers—the latter lined with wool—chrome calf leather clothing, dust coats, gauntlet gloves, foot muffs, etc., occupy a large space on this stand, the interest of which is enhanced by a collection of sundries, including lifting jacks, collapsible cans and buckets, and other conveniences for motorists. In the gallery the *Motor Mart* is being displayed, thus giving publicity to another department of Mr. Dunhill's motoring interests.

A tyre-inflating pump which secures a constant stream of air and in which energy is not dissipated is a desideratum which has been introduced by Messrs. Hedley S. Hunt and Company. This was shown at the last Exhibition, since when it has been adopted by many well-known motorists. It is a compound foot-pump in which two cylinders—one of larger diameter than the other—are connected at the top by a cross-air channel. Two plungers are connected to a double handle, and fitted with collapsible leather valves working in opposite directions. The up-stroke compresses the air of the larger barrel into the smaller, at the same time expelling the air from the latter, so that the inflation of the tyre commences forthwith. The down-stroke expels the compressed air into the tyre, and at the same time the pump feeds itself through the larger barrel. In this way a pressure of 150 lbs. can be obtained. The pump is fitted with a pressure-gauge and non-returnable valve, as well as a collapsible foot, and is conveniently adjustable to any type of car. This is the sole exhibit on this stand, but it is proving of sufficient interest to attract a large number of visitors to that part of the Gallery in which its utility is being demonstrated.

(To be continued.)

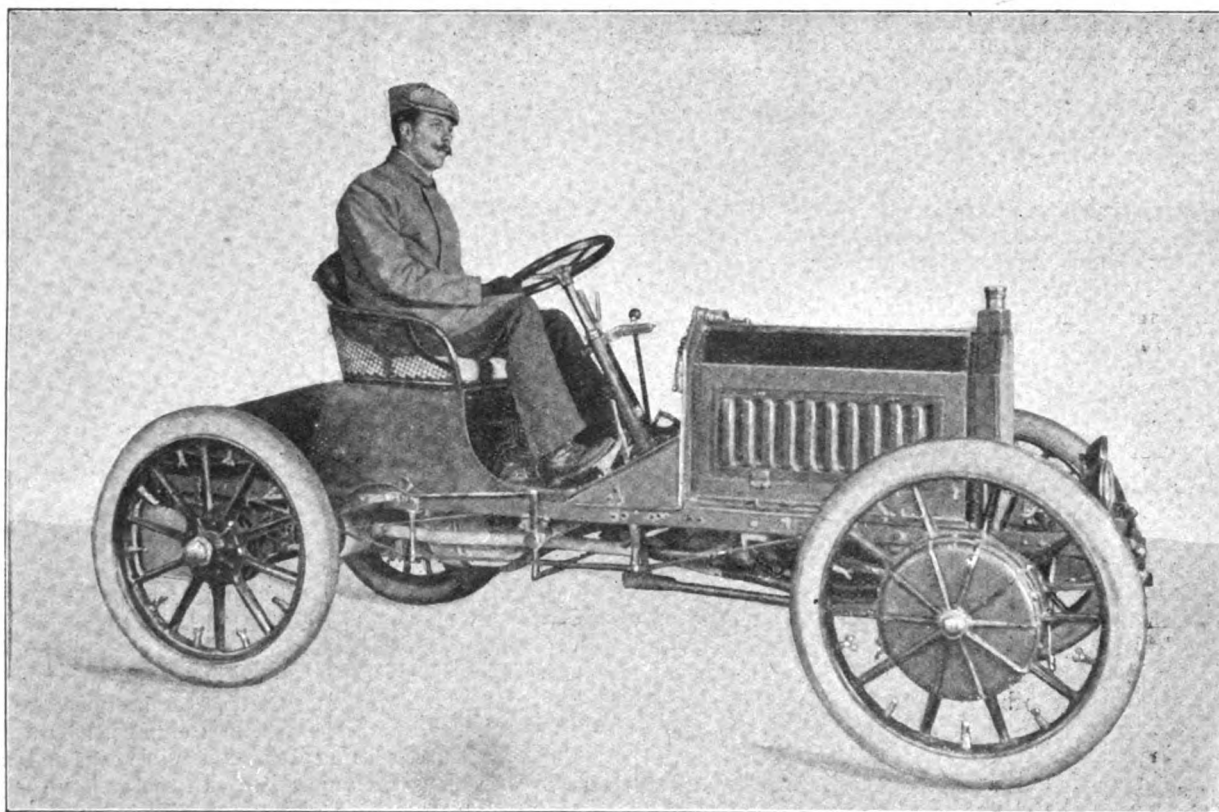
EXHIBITION ECHOES.

A DEPUTATION from the Torquay Corporation visited the Exhibition on Wednesday, with a view to acquainting themselves with the present reliability of automobiles. A local agitation in favour of electric trams is proceeding, and the idea was to secure evidence as to the possibility of successfully inaugurating a motor-car service.

DEPUTATIONS from other towns have also attended the show to make inspection of the vehicles on view specially designed for municipal work.

AMONG the novelties at the Exhibition are several interesting exhibits unobserved by many in charge of stands, but discovered by enterprising newspaper men. One found "a Morse car, belonging to the Hon. C. Rhodes"; another a Bucket motor; and a third was interested in a "Sir Polly wagon."

Wednesday was a special day at the Exhibition, the visitors not only including a large representation of the Automobile Club but also many of the leaders in social and political circles. The Prince of Wales arrived at the Barford Street entrance about half past three o'clock, and was cordially greeted by many leading automobilists whose names are prominent in the motor world. In their company his Royal Highness made a tour of the Exhibition, evidencing a keen interest in the cars. His attention was drawn to the splendid array of British-made vehicles, of which he took particular notice. Among those who have attended the Exhibition during the week, and most of whom were present to meet the Prince on Wednesday, were the following:—Duke of Portland, K.G., Duke of Devonshire, K.G., Duke of Newcastle, Duke of Manchester, Marquis of Ailsa, Earl Grey, Earl of Shrewsbury and Talbot, Earl Denbigh, Earl Carnarvon, Earl Londonderry, Lord Llangattock, Marquis of Tweedmouth, Lord Derby, Lord Hillingdon, Lord Vaux, Lord Wemyss, Lord Kinnaird, Lord Harewood, Earl Russell, Mr. A. J. Balfour, Lord Willoughby d'Eresby, M.P., Lord de Grey, Viscount Ingestre,



THE NICE WEEK.—MR. LORAIN BARROW ON THE LOHNER-PORSCHE-MERCEDES COMBINATION PETROL-ELECTRIC RACING CAR.
[Automobil Zeitung.]

WHILE the firms that have stands at the Exhibition are doing good business, we are afraid one or two enterprising folks who are canvassing the various exhibitors, without being exhibitors themselves, are faring rather less successfully.

MR. A. L. CREYKE has purchased the Gardner-Serpollet car which recently made a kilometre record of 29 4-5 secs. An illustration of the car, which is on view on the Speedwell Company's stand at the Exhibition, appears on another page of the present issue.

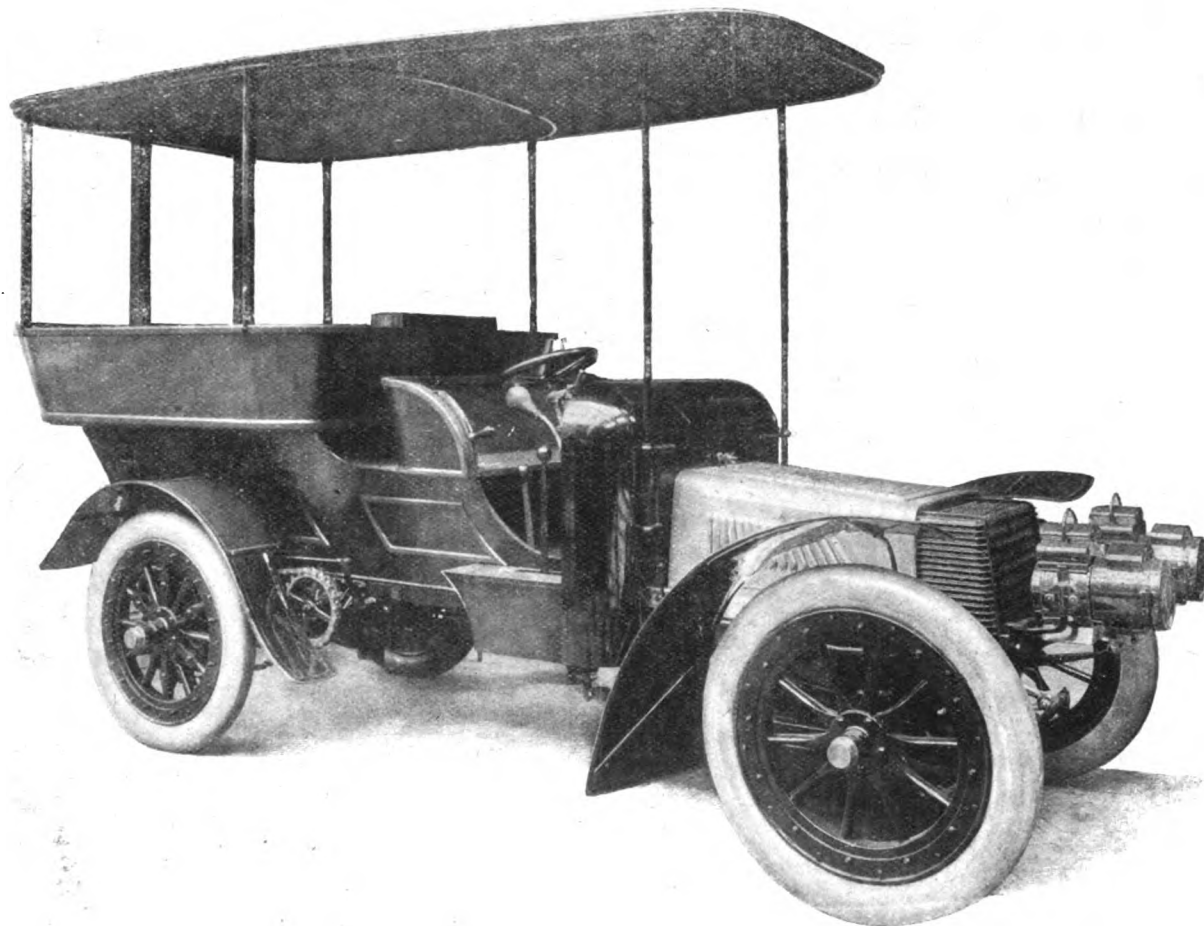
THE opinion of the *County Gentleman*, that "the Agricultural Hall as a *locale* for the Exhibition is not an unpopular one," is being fully justified by the attendance. "It is not far distant from the termini of the principal railways, while the Hall lends itself to an effective display of exhibits," is another newspaper comment verified by the appearance of the Show.

Sir Hickman Bacon, Bart., Sir John Murray, Sir Rivers Wilson, Sir Mark Stewart, M.P., Mr. Cochrane, M.P., Hon. Arthur Stanley, M.P., Col. McCalmont, M.P., Sir Herbert Ashman, Mr. Gordon Bennett, Mr. Eric Chaplin, Countess Dysart, Countess de Grey, and the Hon. Mrs. Ridley. It will be seen that these ladies and gentlemen are not only prominent in our public life, but that many of them are also keen automobilists.

THE five Mercedes cars which took part in the Nice trials have all been sold. One has been acquired by Mr. Vanderbilt, Junior, and another by Mr. Wolf Bishop, two well-known American motorists. Prince Lubecki has purchased the third, Baron de Rothschild the fourth, while the fifth now belongs to Mr. Alfred Harmsworth, and is at present on view at the Exhibition at the Agricultural Hall where it is the centre of attraction. Mr. Harmsworth himself visited the show on Monday, and was not the least interested observer of the car.

SEVERAL cars were driven direct from the works of the makers to the Show, and thus from Guildford, Lowestoft, Reading, and other towns came effective road advertisements of new types of vehicles.

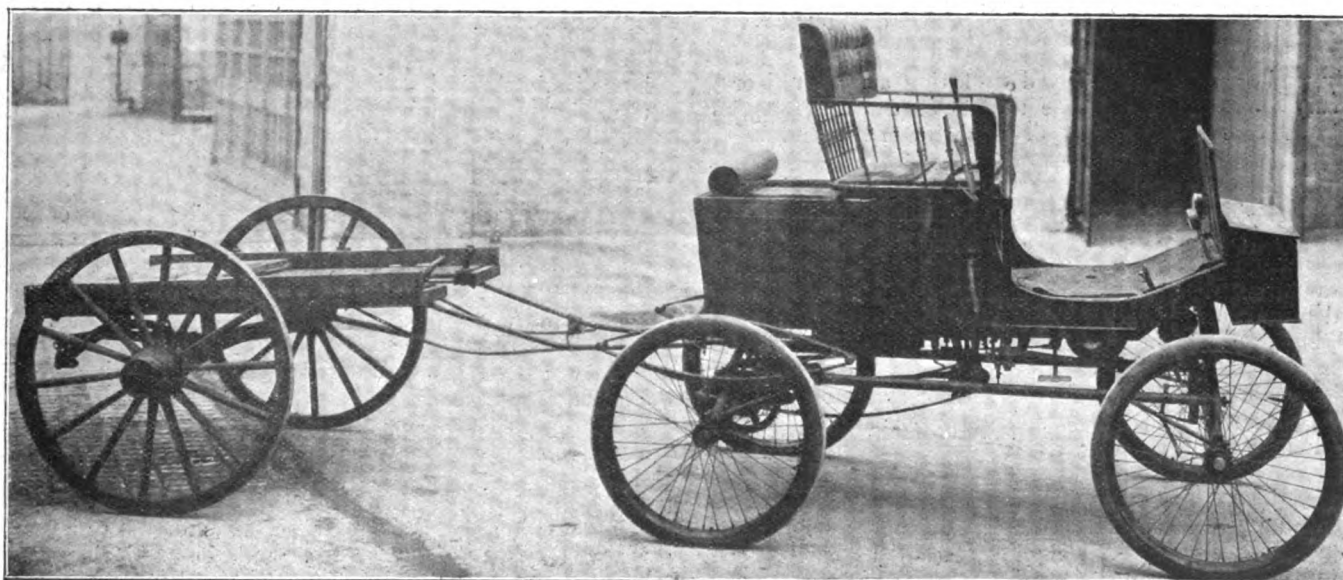
AMONG the meetings held at the Agricultural Hall, on Wednesday, were the annual meeting of the Motor Union and the dinner of the Automobile Club, over which Mr. Roger Wallace, K.C., presided.



THE KING'S NEW 22 H.P. DAIMLER, ON VIEW (IN INCOMPLETE CONDITION) AT THE EXHIBITION.

The *Referee* says:—"For the seventh year in succession at the Agricultural Hall, Mr. Charles Cordingley, who was one of the first to take an active interest in the 'horseless carriage,' has

THE *Free Lance* in the course of a description of the "Passe Partout," which arrived at the Exhibition on Tuesday, says "the seats turn up and make beds." We have heard of the



THE LOCOMOBILE AND TRAILER WHICH HAS BEEN USED IN THE TRANSVAAL WAR.—EXHIBITED AT THE AGRICULTURAL HALL.

organised a splendid exhibition of all that is thoroughly up to date in the motor-car world. The show, which was opened at the great Islington Hall, eclipses all its predecessors."

automobile kitchen and the mechanical stoker, but the seat that can turn up and make beds is a novelty which Maple or Shoolbred should take up at once.

OWING to the enterprise of the Hemel Hempstead Motor-Car Company, parties of local people interested in automobilism have come to the Exhibition from that town on motor-cars, a capital combination of practice with theory.

AMONG the rumours current at the Exhibition is one to the effect that some developments may shortly be expected with regard to the sale of the Mercedes Simplex cars of the German Daimler Company in this country.

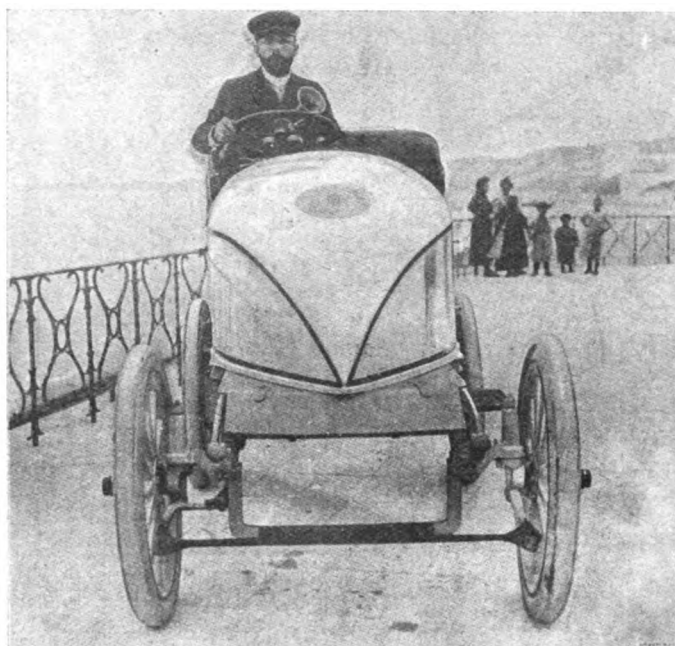
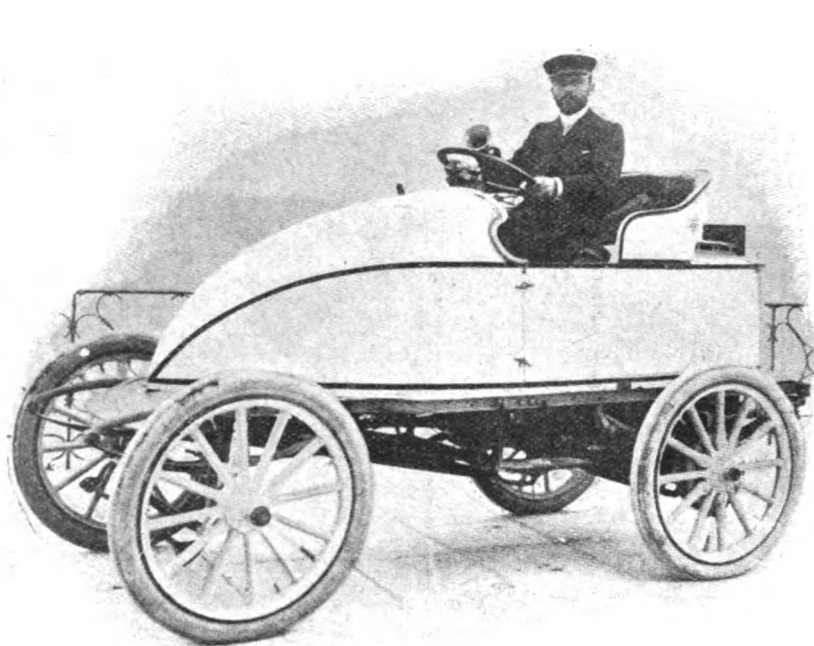
Now that the essential parts of motor-cars are being made increasingly reliable makers are attending to the smaller matters which, however insignificant, go to make easy the experiences of the automobilist. Thus two or three cars shown have the brake pedals covered with leather pads to protect the sole of the driver's boot, and others have short rails by which the intending passengers can pull themselves up to the seat of the car, thus saving the wear and tear that is associated with the continual grasping of the leather in many cases. This friction quickly renders the upholstery in a prominent part of the car

One or two even grew bolder in their freedom, and we hope it was not an act of disloyalty that caused one perky little fellow to perch awhile on the King's car.

AMONG the many visitors to the show on Saturday were the Duke of Devonshire, the Duke of Manchester, and Mr. A. J. Balfour.

SEVERAL splendid photographs are shown on several stands, that of the workmen of the *Carrosserie Industrielle* being a conspicuous example of photographic art. The Hon. C. S. Rolls has two albums which will recall some interesting reminiscences and the Locomobile Company have also a collection of photographs deserving a careful inspection. Of varied interest—especially to those familiar with continental automobilism—is the collection shown by Madame Lockert.

ON Saturday night there was a great influx of provincial visitors to the Exhibition, and hundreds of people who had come o London for the final for the English football cup spent a few



M. SERPOLLET ON THE STEAM CAR ON WHICH HE COVERED ONE KILOMETRE IN 29 4-5THS SECONDS AT NICE. THE VEHICLE IS THIS WEEK ON VIEW AT THE AGRICULTURAL HALL.

unsightly, and can easily be obviated by fitting a short rail or a leather band covered with a textile to match the upholstery, as is done in the case of many types of horse-drawn vehicles.

ONE firm was in dire distress on Saturday, several large parcels with which it had been intended to make a good display having gone astray—the railway company blaming the increased excursion traffic for the delay. Possibly at some future Exhibitions firms near London will avail themselves of the motor-car for the delivery of their goods. Several vehicles were sent up by road, but probably the funniest incident of the week occurred on Sunday, when a vehicle arrived towed by a horse of sturdy proportions. It may be sad to reflect on an automobile being thus reduced to the status of a common barge; but to observe the actual entry in such a condition is, at least, amusing.

ON Sunday the Agricultural Hall presented an unaccustomed sight to the firemen and other attendants in charge, for most of the stands were well covered, elaborate precautions having been taken in many cases to shield the vehicles from the dust. So far as the galleries were concerned the only moving things were a dozen sparrows, which flitted from pillar to post as though endeavouring to make the most of the only quiet day of the week.

hours in the Agricultural Hall before proceeding to the railway termini at Euston, Liverpool Street, King's Cross, St. Pancras, and elsewhere for their return journey. Thus they demonstrated that if the Hall is convenient of access it is also handy for the late trains from London—a point which will always give the present *locale* an advantage over any other site in or near the Metropolis. Some of those who travelled at a slow and doleful pace from the Crystal Palace must have been delighted with the speed and comfort of the newly-opened line from South London to the Angel at Islington.

As to the value of the cars in the Exhibition during the week one daily journal estimated it at £250,000—a sum considerably below the mark, as is evidenced from merely totalling the value of the vehicles staged in the Great Hall.

MANY lovers of horses have been among the most interested visitors, and among the early arrivals on Saturday was Sir Walter Gilbey, whose efforts in connection with the breeding of horses are recognised throughout the kingdom.

MOTORING firms are not entirely unmindful of the equine world and at the stand of the Shrewsbury and Challiner Tyre

Co., Ltd., are specimens of a horse shoe ventilated cushion pad, which is calculated to save horses from much suffering when pulled up suddenly.

THROUGHOUT the week the long string of carriages assembled around Islington Green and right along the Upper Street has been a noticeable feature of the traffic, several policemen having been necessary to regulate the rows of fashionable carriages that have lined the roadway. Here and there a motor-car was standing behind a horse drawn vehicle, but the number of automobiles was rendered apparently insignificant by the great number of other carriages in which visitors have come to the show.

SUCH was the impression gleaned by a correspondent who has seen most of the Show from the Islington side; at the Barford Street entrance, however, a far different complexion is given, for there motorists drive up on their motor-cars, and horse-drawn carriages are the exception. Quite a score of automobiles are often to be seen in the narrow thoroughfare at one time.

In conversation with exhibitors, we have found a remarkable unanimity with regard to the good business done. Not only have orders been plentiful at the Show, but it is clear that most of the factories are as well employed as they can possibly be.

HERE AND THERE.

A RACE for motor-bicycles is to be held at Wishaw, N.B., on May 3rd.

MOTOR-LORRIES are being employed in Portuguese South Africa with success.

WE learn that Major-Gen. Sir Henry Colville has purchased a Holden motor-bicycle.

PRATT'S motor-spirit is now being stocked by Mr. P. Hebden, 133, Woodhouse Lane, Leeds.

THE members of the Motor Cycling Club held a run to Godalming on Sunday last.

SIR JOHN MURRAY, K.C.B., F.R.S., has, we hear, lately ordered an 8-h.p. Albion car.

THE 1902 trials in connection with the Automobile Club have been definitely fixed for the week commencing September 1st.

THE Wilson Premium for papers read before the Crystal Palace School of Practical Engineering has been awarded to Mr. G. de Havilland for a paper on motor-cars.

AN instrument prepared by Mr. R. E. Phillips for the electric timing of races will be used in connection with the trials at Bexhill on Whit Monday. Motor-cycles, as well as cars, will be included in the programme.

CONFIRMATION of our recent statement with regard to M. Santos Dumont's summer plans comes in the announcement that the Aero Club has arranged that his first trip from the Crystal Palace will take place on June 2.

A SERVICE of electric motor-omnibuses on the Lombard-Gerin system is being established in Copenhagen. In this system the cars run on the ordinary road, but take the necessary current from an overhead-conductor, similar to a trolley tramway.

THE John Simmons Company, of 106, Centre Street, New York, have devised an instrument called a "Tell-Tale," for determining the exact amount of petrol in a tank, whether under pressure or not. The contents are registered in gallons, the number of which is at all times clearly visible through a heavy glass dial. That element of doubt and uncertainty when operating a steam-vehicle, as to just what amount of petrol the tank contains, is, by this device, claimed to be entirely eliminated. The apparatus can be adjusted to any tank by simply cutting an opening $1\frac{1}{4}$ in. in diameter through the top, inserting a ball and rod, and soldering a flange to the wall.

THE Bexhill Motor Company, 27, Sackville Road, are making arrangements for the convenience of motorists staying at the seaside resort at Whitsun.

LIEUT. BARRON, of Taplow, who has been serving in South Africa with the active service company of the Bucks Volunteers, has recently become a motorist.

IN connection with the bazaar that is being organised on behalf of the Great Ormonde Street Hospital (London), a Daimler 12 h.p. car will be the first prize in a great raffle.

AMONG the entertainments to be offered to the Colonial Premiers when in England is an excursion by automobile. The British Empire League is interesting itself in the matter.

THE Great Central Garage, Limited, has been registered with a capital of £1,000 to carry on the business of garage proprietors. The registered office is at 302, Marylebone Road, W.

THE Hon. J. Scott Montagu, M.P., will allow the cars of members of the Automobile Club driving to the Solent to witness the Naval review to be stored in some of the buildings on the Beaulieu Estate.

THE twenty-third annual amateur race meeting and athletic sports of the Chichester Cycling Club, to be held in the Priory Park, Chichester, on Whit Monday, May 19th, will include a three miles motor-cycle handicap.

THE Antwerp Automobile Club is organising a series of kilometre trials for the 4th prox. The trials will be held on the military road between Mortsels and Borsbeek, and will be open for motor-cycles, voiturettes, light cars, heavy cars, and steam and electric vehicles.

AFTER all it appears that the tenancy of the Whitehall Court premises cannot be terminated by the Automobile Club until November. The premises will therefore be sub-let—probably for use as a ladies' club—and entry made of 119, Piccadilly, about May 1st.

MR. M'CRUM, of Armagh, has introduced two steam vehicles of the Thornycroft type for dealing with the heavy traffic to and from his company's mills. Between the new motor-vehicle, Lambe's traction train, and the passing backwards and forwards of the County steam roller, the roads around Armagh should be improved.

WE understand that the Thornycroft Steam Wagon Co. have submitted designs to the Explosives Department for a heavy steam vehicle specially designed for the conveyance of gunpowder. The design has met with the approval of the Department, one of the conditions, however, being that only anthracite coal or coke shall be used as fuel.

NEW members of the Automobile Club include Lord Elphinstone, Major Lord C. Cavendish-Bentinck, D.S.O., Sir John Murray, K.C.B., Major-General H. E. Colville, K.C.M.G., Vice-Admiral Sir J. Fullerton, C.B., Mr. D. C. Thompson, J.P., D.L., Capt. D. H. Morgan, Professor A. K. Huntingdon, and Mr. J. Hargreaves, the master of the Blackmore Vale Fox Hounds.

MESSRS. JACOB LOHNER AND COMPANY, of Vienna, are now building three types of Lohner-Porsche combination petrol-electric cars on the lines of that recently illustrated in the *Journal*. One is fitted with a two-cylinder petrol motor of 11-h.p., another with a four-cylinder motor of 20-h.p., and the third with a 30-h.p. Mercedes-Simplex motor. The illustration on page 154 shows the Lohner-Porsche-Mercedes combination racing car driven by Mr. Lorain Barrow at the recent Nice meeting.

THE Hart Accumulator Company, Ltd., of Marshgate Lane, Stratford, E., is placing on the market an entirely new form of accumulator intended for use with electrical motor-cars, and which is stated to be lighter and cheaper than any other cell adapted for such work. The Hart Company has been experimenting for several years with cells for motor work, with the result that one has now been produced which combines mechanical strength with electrical efficiency, and in addition to light weight and high capacity extreme durability is claimed for it. The cells are made in three sizes, of 80, 120 and 160 ampere hour capacity, and weighing 17, 24 and 33 lbs. respectively. The normal charging rate for a cell of 120 ampere hour capacity is 18 amperes, although it will safely stand being charged at 24 amperes. The discharge rate of the same sized cell varies from 12 amperes for ten hours to 27 amperes for three hours, or 33 amperes for two hours.

THE Automobile Club of Westphalia has just been formed, with headquarters in Bielefeld.

WE learn that Messrs. De Dion, Bouton and Co. are about to open a branch depot at Buenos Ayres.

DURING the month of February automobiles and parts to the value of £6,900 were exported from the United States.

It is announced that Baron de Crawhez is making arrangements for a tour round Belgium by the members of the Belgian Automobile.

THE Automobile Club of America is seeking to find a level stretch of road two and a-half or three miles long for speed trials and racing purposes.

THE Belgium Automobile Club is organising a series of kilometre trials, which will probably be held on the road between Namur and Bastogne.

THE influx of French and German automobiles through the U.S. Custom House in New York continues unabated, and has reached the rate of three vehicles per day.

ARRANGEMENTS are being made for the sales of the "New York" tyres by the Motor Accessories, Limited, which will also have the agency for the Midgeley tubular wheel.

IN an article on "Players at Play," in the current number of the *Royal Magazine*, are portraits of Miss Margaret Fraser and Miss Ethel Matthews on their respective motor-cars.

THE Automobile Club of America has resigned its control of automobile racing in the United States to the American Automobile Association.

WE understand that Mr. L. Williamson, the well-known motorist, has just placed an order through Mr. G. H. Bechtel, of Lord Street, Southport, for a 22-h.p. Daimler car of the latest type.

THE B. F. Goodrich Company and Single Tube Tires Limited, have sent us a copy of their 1902 Showcard "Ruth," which is undoubtedly one of the most artistic advertising mediums we have so far received.

THE Locomobile Company of America have brought out a complete catalogue of their vehicles, printed in Spanish, for circulation in Spain and Spanish-speaking countries in South America.

THE Porto Rico Transportation Company, which is about to establish and operate a motor-bus service between San Juan and Ponce, has also submitted a tender for carrying the mails between these points.

THE Lincoln Motor Car and 'Bus Company was finally wound up on Monday. After paying all accounts it was found there was a small balance in hand, which will be distributed to the shareholders.

A TELEGRAM has been received at the Foreign Office from H.M. Commercial Attache in China, to the effect that tenders are being invited until June 30th next for a service of automobile omnibuses at Shanghai.

J. W. AND T. CONNOLLY, LTD., has been registered with a capital of £125,000 to acquire the business of tyre smiths, wheelwrights, etc., carried on by Mr. J. Connolly at 65, Wharfedale Road, King's Cross, N.

THE *Auto-Velo* states that Signor Carlo Rezzonico, a well-known Italian automobilist, who has just made the tour of Europe, is completing his preparations for a motor-car excursion to the Arctic regions.

IN the annual report of the Continental-Caoutchouc and Guttapercha Company there is an item of 44,143 marks for patent expenses, 40,000 of which are for a tyre patent which the directors think will be a profitable one.

THE Union Motorfahrzeugfabrik of Nurembourg, Germany, are about to inaugurate a public service of motor-cars between that town and Heroldsberg. The vehicles, which have been constructed by the Union Company, have accommodation for eleven passengers.

TO-DAY (Saturday) an auction sale of twenty motor-cars, including the remainder of those which belonged to the Edinburgh Autocar Co., Limited, and some belonging to the Scottish Motor Car Co., Limited, will be held at Edinburgh.

It is the announced purpose of the Runs and Tours Committee of the Automobile Club of America to use every endeavour to put a stop to excessive speeding on Club runs. A member of the Committee will take part in every official run and act as pacemaker.

MR. W. K. VANDERBILT, JUN., has achieved the notable performance of driving his Mercedes car from Monte Carlo to Paris in seventeen hours. The distance is 1,030 kilometres, and the journey was made at the average rate of about thirty-eight miles an hour.

UNDER the name "Accelerator," Messrs. Edward de Poorter and Company, Limited, are introducing a new belt dressing for the belts of motor-cycles. It is a non-chemical preparation for preventing slip; it is claimed to preserve and add greatly to the life of the belt.

THE American Motor League has been formed, with Mr. E. F. Brown, of Chicago, as president, Messrs. C. E. Duryea, Reading, Pa., W. F. Murray, Detroit, and S. W. Merrihew, Detroit, as vice-presidents, Mr. F. B. Hills, of Boston, treasurer, and Mr. F. A. Egan, New York, secretary.

THE President of the Automobile Club of America announced at a recent meeting that an endurance test over a course from New York to Boston and return would be held next autumn. With return trip the journey extends to more than 500 miles, and is expected to take five or six days.

SELANGOR, a State of the Malay Peninsula, has already a notable collection of automobiles. There is a motor-bicycle, two motor-tricycles, an Albion car, four Locomobiles, two De Dion cars, and a Thornycroft steam car, so that automobilism may be said to be fairly established in the State.

AMONG newly-invented air-ships is one designed by Mr. Gustave Whitehead, of Bridgeport, Conn. This rises from the earth by means of power supplied by a 20-h.p. engine. Mr. W. C. Horgan, of Chicago, has not only floated an airship, but also a company—the latter with a capital of 25,000 dollars. A third invention which has lately attracted notice in the United States is that of Mr. Mytton, who has brought petroleum spirit into the service, using a small engine of light power.

FROM Messrs. Phillips, Ormonde and Company, Melbourne, Victoria, we learn that at a meeting of the Essendon Town Council recently it was announced that a Mr. A. C. Aucher was prepared to run a line of motor-cars from Melbourne to North Essendon and also to Ascot Vale. The terms of the agreement were that Mr. Aucher should deposit £400 as a guarantee to run a line within eight months, the Council undertaking not to introduce omnibuses, cabs, or tramways for ten years.

THE balance-sheet of Messrs. A. W. Gamage, Limited, has just been issued, from which it appears that the turnover for the year ending January 31st, 1902, showed an increase of £40,000 over that of the corresponding twelve months. The net profit, after payment of fees, and making provision for depreciation, amounted to £11,100. The directors mention that the new buildings now in course of erection in Leather Lane, E.C., are likely to be of great advantage to the business, and the increase in trade for the first three months of the current year amounts already to £5,000, so that a good year for 1902 seems assured.

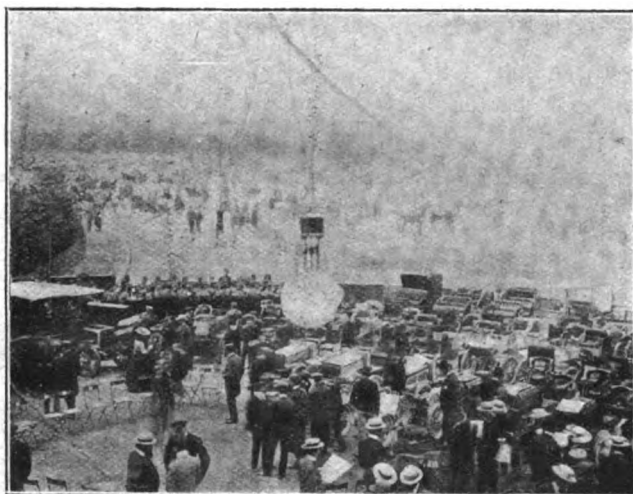
SOME time ago we reported that a motor-car factory was to be established at Burton-on-Trent. The Ryknield Engine Company, Limited, has now been formed with a capital of £30,000 (of which £20,000 has already been subscribed privately) to erect works which will be on a site adjoining the Midland Railway main line at Burton. Building operations are to be commenced forthwith, and it is hoped to be able to deliver cars early next year. The intention is to standardise all the work and turn out large numbers of automobiles of one or two identical types.

CONTINENTAL NOTES.

BY AUTOMAN.

NOTWITHSTANDING all the trials to which the French and Italian Governments and the bad weather combined subjected the Nice automobile races, some Continental manufacturers have reason to be more than satisfied with the results, and have already begun to reap a good harvest, due entirely to the publicity given to them by competing successfully. Mr. Leon Serpollet has received a crop of orders which will keep his works busy for some time to come. By the way, he estimates that his record-making car developed nearly 130 h.p. during the

Mr. ARTHUR GARANDEAU, writing to the *Chasseur Français*, remarks that with the speed at which the motor-car is able to travel nowadays it is quite necessary that there should be indications along the roads by which the motorist can tell in a measure what he is coming to, and thus avoid dangerous speeds owing to the local contour or conditions. He proposes signposts of different colours, each separate colour having a distinct signification, as, for instance:—White, right ahead; black, go gently; red, danger; blue, sharp turn; yellow, caution, cross road with much traffic; green, blow your horn. Thus, for instance, at the entrance to a village there would be a black post to warn the motorist to slow down, and a little further on a blue and green post would give warning of a sharp bend in the road hidden by



THE CARS ON EXHIBITION AT NICE.



THE HEAVY VEHICLE TRIALS.—THE ARRIVAL AT NICE.



MADAME LOCKERT INTERVIEWS M. RENÉ DE KNYFF ON THE NEW PANHARD RACER.



M. DEGRAIS ON THE NEW MERCEDES SIMPLEX 40 H.P. RACER.

THE NICE WEEK.

fastest portion of the kilometre. As the wind pressure develops in increasing proportions, and at over sixty miles per hour reaches a very high figure indeed, it is quite certain that a very big power was required to propel his vehicle at nearly 75 miles per hour. Mr. Serpollet gives the figures as follows: Four single-acting cylinders of 75 millimetres in diameter (2.95 inches), with a stroke of 90 millimetres (3.53 inches), speed 1,220 revolutions per minute, and pressure reaching 53 atmospheres (795 lbs. per square inch). Another maker who has no reason to regret the expenses he incurred in preparing for the Nice meeting is Mr. Jelinck, the proprietor of the Mercedes car, made by the Daimler Company at Cannstatt. The five racing cars were sold, the prices paid being quite in proportion to the means of the purchasers.

houses, and before reaching it the driver would have tooted to clear the way. In the middle of the village a yellow and green post would give the necessary warning of a street crossing much frequented, and again the driver would toot his horn to warn the passers-by. After clearing the village a white post would give notice to the driver that he might "let her go," and he would keep on until a red post warned him of a dangerous spot, and so on.

THE delivery of telegrams by motor-tricycles is the latest development from Bordeaux. The suburbs are about to be served in this intelligent manner. Should the motor go wrong the telegraphist will have recourse to his calves. He will also be able to find a bicycle at various depots in case of need.

THE French Government is flogging a dead horse in trying to make alcohol take the place of petrol as a carburant for motor-cars. Nobody uses alcohol. It is, however, a good stalking horse, and comes in nicely for electoral purposes, sounding well in talking to the agricultural voters. After all, it looks as if it were going to save road-racing, which has undoubtedly received a very hard knock from the action of the Italian Government. The Governmental alcohol race (the "Circuit du Nord") I have already called attention to, and I also told the readers of the *Journal* that there was a strong probability of the Paris-Vienna race being authorised by the French Government after the Parliamentary session was terminated. I understand that it has been decided by the Government unofficially that at least one other race beside the "Circuit du Nord à l'Alcohol" shall be authorised, and it is a question between "Paris-Vienna" and "Paris-Bordeaux."

THERE was some exciting automobile racing on Sunday last on the road from Chartres to Ablis, about 36 miles from Paris, in what is known as the millionaires' contest, the millionaires being Baron Henri de Rothschild and Mr. W. K. Vanderbilt, junior. They in turn covered the kilometre in 28 seconds, says the *Figaro's* correspondent, six kilometres in 3 min. 14 sec., and finally Mr. Vanderbilt beat the ten kilometre record. The Baron, however, had a slight accident with his car, so the ten kilometre race is to be run again instead of the hundred kilometre race, which was originally fixed but has since been annulled.

MESSRS. BOTWOODS have lately completed a handsome Gobron-Brillie car, with double-phaeton body, to the order of Sir Charles Stewart Forbes.

M. L. BLERIOT, of Paris, the maker of the well-known Bleriot acetylene lamps for motor-cars, has now opened a depot at 54, Long Acre, London, W., for the sale of these extensively used light-givers in this country.

AMONG the Society leaders who have lately been shopping and motoring in Bond Street, W., is Lady Helen Stavordale. On Tuesday the Countess of Gosford drove through with a daughter in her motor-brougham. The motor-car is certainly becoming popular in the West End as a vehicle for use on shopping expeditions.

MOTORING columns in the general newspapers are rarely of value, but are frequently amusing. We have often noted that the writers of the notes in the least important papers generally give the largest numbers of answers to correspondents who write from the most distant papers—and in most alarming numbers. Of course, none of these correspondents are imaginary.

As we go to press we have received from the Wolseley Tool and Motor Car Company, Limited, an advance copy of an instruction book that has just been issued. Great pains have been taken to make this a thoroughly comprehensive treatise of the Wolseley motor-vehicles, illustrations for the same having been specially prepared from drawings. The cover has been made of a material both water and oil proof, and is so arranged as to entirely protect the contents of the book from injury or being soiled even if it be kept in the tool kit belonging to the car.

MESSRS. BRANSON, KENT AND COMPANY, LIMITED, 332, Goswell Road, E.C., have favoured us with a copy of the new list of their motor fittings, which should be useful for reference. Particular attention may be drawn to the very complete section devoted to horns, lamps, reservoirs, and tyre pumps, as well as tremblers and sparking plugs. The Branson motor watch is also illustrated in the catalogue, and being guaranteed water and dirt proof, should prove popular for use on long tours. Messrs. Branson, Kent and Company have every facility for all kinds of repairs to motor-cars, while at their own factory they are able to make any parts to pattern, an advantage which should be appreciated.

GLASGOW TO LONDON.

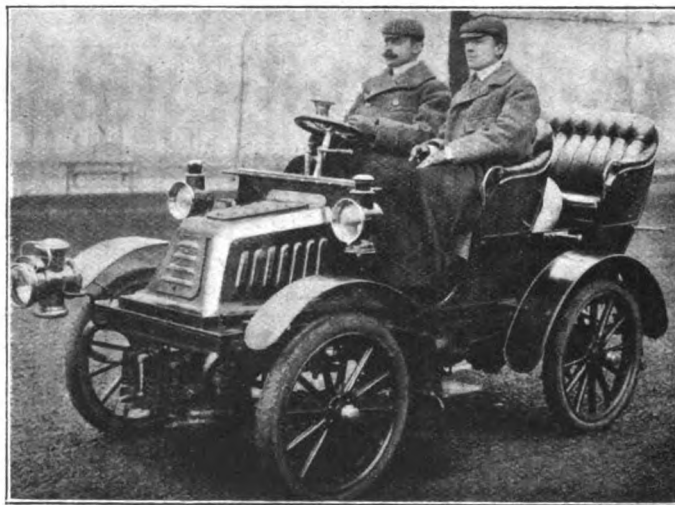
WE have already recorded the initial stage of the trial from Glasgow to London organised by the Western Section of the Scottish Automobile Club. This was intended to demonstrate that it is possible to revive the glory of the old coaching days and to journey by road from the great Scotch and English centres in a reasonable period. It was arranged that the trial should extend over two days, but this record will probably be beaten ere many months have passed, and we may shortly be able to announce an attempt to reach Glasgow from London, in one day.

On Thursday of last week a start was made from York to London, the Napier, driven by Mr. S. F. Edge, leaving the ancient city at 5.10 a.m., and reaching its destination at 4.55 p.m. Mr. J. W. Stocks, on the 8-h.p. De Dion phaeton, arrived at 5.12 p.m., and Mr. G. Iden brought the 8-h.p. M.M.C. wagonette safely through at 8.30 p.m. The roads were uniformly in good condition, but about thirty miles from London a good deal of dust bothered the drivers somewhat.

The marks, out of a maximum of 100, awarded the cars which came successfully through the ordeal were as follows:—

8-h.p. De Dion phaeton ...	86
8-h.p. M.M.C. Wagonette ...	74
16-h.p. Napier car ...	68

The last-named car was sometimes running for half an hour at a time on the low speed and for many hours together on



MR. J. W. STOCKS, ON THE 8 H.P. DE DION CAR WHICH SUCCESSFULLY MADE THE JOURNEY FROM GLASGOW TO LONDON LAST WEEK.

its second, so as to get within the speeds set out in the conditions of the trial. Such a state of things is, of course, the reverse of economical in working. Even then, however, the consumption of petrol by the four-cylindered 16-h.p. car was but 16½ gallons of petrol—or a little less than a gallon per hour. The engine required no attention on the run owing to the efficiency of the automatic lubricating arrangements. The low consumption of petrol on the journey was due to the throttle regulation preventing more than the proper amount of petrol necessary to give the requisite power to keep the car running being set free.

JOSEPH LUCAS, Limited, of Birmingham and London, have issued a new catalogue of their "Motoralities."

MR. J. B. DUNLOP, the inventor of the pneumatic tyre which bears his name, has ordered a 2-h.p. Progress motor-bicycle.

THE first run of the Irish Motor Cycling Union starts from Gough Statue, in the Phoenix Park, Dublin, on the 26th inst., at 3 o'clock. The run is only a short one to Bray, where a smoking concert will wind up the proceedings.

CORRESPONDENCE.

CRACKED WATER JACKETS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Your correspondent W. B. asks about repairing a cracked water jacket. Mr. Smith writes, giving particulars how this can be repaired; but it is quite possible the crack is situated where it is difficult to repair as he suggests, or if it is done the vibration would probably make a leaky joint. I have repaired pumps and pipes on large steam engines, including road locos, in this way (when it has been difficult to patch) viz.:—Jacketing the whole castings in one of the white alloys or brass; the former will do in most cases, and would in this. Have the part or the whole casting moulded in sand and allowance made on casting (thickness of jacket) $\frac{1}{4}$ in. or $\frac{1}{2}$ in. with plaster of Paris; after moulding, remove the plaster and place the part in the mould, turn the alloy round it; this will be found very simple and inexpensive. I have tried it for years, and it has never failed to my knowledge.—Yours truly,

WM. WARD COOK.

HOW TO SELECT A MOTOR-CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Replying to "Perplexed's" letter in the *Journal* of April 12th, regarding the question of "How to Select a Motor-Car," I note that he states that he has had great difficulty in getting information about a car from anyone in the trade, and that he wanted a car which is a good hill climber. A few months ago I made up my mind to purchase a new car to replace my old one, and, like "Perplexed," I required a really good hill-climber. After making inquiries from various agents, I came to the conclusion that a 6½-h.p. Gladiator light car would suit me, and on writing to the agents, I found them most willing and anxious to give me full information about their cars. Being unable to get to London myself to try the car, I arranged for a friend of mine to do so. The trial run was to Hampstead Heath and back, and included the ascent of Netherall Gardens with four passengers up; this the car successfully performed, and I purchased one forthwith. Since I got the car it has given me every satisfaction. I have not the slightest interest in that firm, but I can testify to the exceedingly fair way in which they treated me, going so far as to offer to send a 6½-h.p. Gladiator to Scotland, and if it failed to go up any of the hills in this district the company would take the car back to London free of all cost to me.—Yours truly,

JOHN CUNNINGHAM.

FINANCIAL INTERESTS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice in the last issue of the Automobile Club's Notes and Notices that "a member of the Club is financially interested in the Hotel Metropole, Bexhill, and has expressed the hope that members may see their way to make use of this hotel." May I express the hope that that member—or the company owning that hotel—will contribute to the propaganda funds of the Club? One good turn deserves another.—Yours, etc.,

NON-TRADER.

A SUGGESTION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—There is a combination petrol-electric car being made; why not a combination air engine and petrol or petroleum engine air compressor to drive same, and get all the advantages of both steam and explosion engines? Any heat lost by compressing the air could be replaced by the exhaust from explosion engine encircling cylinders of air-compressing engine. Down-hill the air engine might be made to compress air instead of otherwise retarding speed. A Locomobile car, with explosion engine and air pump instead of a boiler, would be the idea.—Yours truly,

W. H. R.

A WARNING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The following information may be of use to your readers:—The police in the district of Brentwood and Ingatstone are in telephonic communication and time every car passing through between these points, and if the legal limit is exceeded, a summons follows.

A few days since I underwent the ordeal, a policeman coming forward at Ingatstone with smiles, seeking to know the name and address of my driver and my own as owner, as I had exceeded the legal limit. I may mention that between the two points the road is almost free from traffic and very broad. I need hardly say that I shall never spend another penny in this part of the country again.—Yours faithfully,

A MEMBER OF THE A.C.G.B.I.

THE LIABILITY OF SELLERS.

At the Brecon County Court, Godfrey Williams, of Aberpergwm, Glyn-Neath, sued Nott and Company, Limited, Brecon, for £11 4s. as damages. Mr. Randall opened the case at some length, and claimed that the defendants were liable under Sub. Sec. 1 of Sec. 14 of the Sale of Goods Act, 1893.

Plaintiff stated that he bought a motor-car in September of last year from Hurst and Lloyd, London, who also supplied him with the petrol and oil for lubricating purposes. After ten days the oil ran out, and he went to Brecon for the purpose of obtaining some more. He called at the defendant's shop, and asked for a lubricating oil with a high flash point for the cylinders of his motor-car. One of the assistants said they did not keep it, but when he remarked that he understood that Messrs. Nott were agents for motor-cars, and that they sold oil, another assistant said "We do keep it." Plaintiff asked if it was the right kind of oil, and the assistant replied in the affirmative. Plaintiff told the assistant that he required a mineral oil. He asked to be allowed to see the oil poured out, and the assistant invited him to the cellar. He was shown some oil, and he told the assistant that it looked something similar to what he had used before. He bought half a gallon and when on his journey in the direction of the "Storey Arms" he used some of the oil in the machine. He was on his way to Maesteg, and when about two miles out of Brecon he noticed that the machine was smoking. When going down an incline the machine suddenly stopped, and he was nearly thrown out. He found the cylinders had seized. After some time he got the machine to work, and drove back into Brecon. He went to Nott's shop, and asked to see a mechanic who had previously been with him at Gilestone. Together with the mechanic he started again to drive towards the "Storey Arms," and once more the machine broke down. It struck them that the cylinders required lubricating, but on examination they found there was sufficient oil for the purpose. After about an hour's work they got the machine to go, and came back to Brecon and on to Gilestone. Here he found that the machine was emitting clouds of smoke, and as he felt there was something wrong he sent for the makers, and Mr. Lloyd, one of the heads of the firm, came down. Plaintiff further stated that he called upon Messrs. Nott some time afterwards, and the head of the firm, after some conversation, told him that they could not hold themselves responsible for the action of their shopman. He replied that if that was the view they took of it he would certainly sue them.

In the course of the evidence Lewis Lloyd, of Hurst and Lloyd, said plaintiff showed him some of the oil supplied, and, although he was not an expert in oil, he could see that it was ordinary bicycle lubricating oil. He tried the engine with some of Messrs. Nott's oil, and it emitted volumes of smoke. He then had it cleared out, and put some of his own into it, with the result that the engine worked all right. He repaired the machine temporarily, but he afterwards had the axle sent up to London to have it permanently repaired. The injury to the machine was caused by the sudden seizing of the cylinder due to bad lubrication.

For the defence David Parry, an assistant of Messrs. Nott's establishment was called. He stated that he remembered the plaintiff coming to the shop and asking for lubricating oil. Witness attended to him, and took him down the cellar. Witness first poured out some olive oil, which was suitable in some cases for lubricating purposes, but the plaintiff said it was too expensive. Witness then poured out some gas-engine oil in a measure. The tank in which this oil was kept was marked "gas cylinder oil." Plaintiff took the oil to the window, and, looking at it, said, "This is just the thing I want." George Nott said the sample of oil produced was a fair sample of the oil supplied to the plaintiff. It was supplied to his firm by the Anglo-Bosporous Oil Company. The oil supplied the plaintiff was a mineral oil with a flash point of 405. Price's Motorine (C) oil was similar in character to that supplied the plaintiff. Proceeding, the witness stated that he called upon Mr. Lloyd at Wood Green, London, and had a conversation with him regarding the plaintiff's breakdown. He asked Mr. Lloyd what oil should be used in the firm's motors, and he replied, "Ordinary gas-engine oil, the same as we use for an Otto gas-engine," and at the same time he pointed to a gas-engine in the corner. The oil supplied to the plaintiff had also been supplied to Captain Hughes Morgan, who used it regularly, and to Mr. Anning, who frequently stayed in the neighbourhood, and it had given them every satisfaction.

The Registrar, in summing up, said it appeared to him to be quite clear that the plaintiff did not bring clearly before the defendants that his car was different in character to other people's cars, and, therefore, required a special kind of oil. Then they had in evidence that the oil supplied by defendants had given every satisfaction to other motor-car owners. Looking at the evidence very carefully, he failed to see that the plaintiff had brought his case within Section 1 of the Sale of Goods Act, and he therefore gave judgment for the defendants with costs.

SEQUEL TO A COLLISION.

At the Hereford County Court, Arthur Hines, engineer, of Hackney, sued Mrs. Helme, residing at King's Thorn, to recover £8 15s. for the repair of a motor-car. Mrs. Helme counterclaimed £15 10s. for damage done to her pony, carriage, and harness. Negligence on both sides was alleged. Mr. Hines, it appeared, was touring, in company with a friend, and whilst going down a decline at Harewood End Mrs. Helme and her son came round the corner of a cross road. A collision resulted. The trap and the car were smashed, the pony injured, and the occupants of both vehicles thrown out. The Judge failed to see that there was negligence on either side. The parties were entitled to costs on the claim and the counter-claim.

FURIOUS DRIVING CASES.

BEFORE the Basingstoke County Bench, Ernest Buffer of Lombard Street, E.C., has been fined 50s. and 13s. cost; Wm. Hutchings, of Woking, 38s. including cost; and Percy Black, of South Kensington, 43s. including costs—all for driving motor-cars at excessive speeds.

J. W. WICKENS has been fined 20s. and costs, at the West London Police Court, for furiously driving a motor-car in Finborough Road, Kensington.

At the West Hartlepool Police Court last week, C. E. Smith was summoned for furiously driving a motor-car. The police evidence was to the effect that he covered a distance of 320 yards in about thirty seconds, while a butcher estimated his speed at more than twenty miles an hour. The defendant gave evidence on his own behalf, saying he was a chief engineer and marine surveyor, and that sixteen miles an hour was the maximum speed of his car. On the occasion in question he had the machine geared to the second speed, eleven miles an hour. Mr. Arthur Levison, a marine engineer, and others gave corroborative evidence, and in the end the bench dismissed the case.

At Shoreham, A. F. Mortimer has been fined £4 3s. for driving a motor-car at a reckless pace.

H. H. RAPHAEL, J.P., of Havering-atte-Bower, Essex, has been fined £3 and 6s. costs for driving a motor-car at a greater speed than twelve miles an hour between Ingatestone and Brentwood on Easter Sunday.

At Brentwood, Edwin Jackson, of Kentish Town, was fined £2 and costs for furiously driving a motor-car at South Weald, on Easter Monday.

At Exeter, Leonard Willey, electrical engineer, Oxford Road, St. James, Exeter, was summoned for driving a motor tricycle furiously in



A NEW DANGER—ALCOHOL MOTOR-CAR HELD UP BY TOPERS.
(Fliegende Blätter.)

Fore Street, on April 12th, to the danger of the public. The magistrates said the public must be protected, and defendant would be fined 10s. and costs.

On Tuesday, Gilbert Errington, of Jermyn Street, W., was summoned at the Southwark Police Court, for furiously driving a motor-car across Parliament Square, on the 11th inst. As he admitted his error, he was only called upon to pay the cost of the summons, 2s.

CHARLES BELL, of Crosby Lodge, Carlisle, has been fined £5 and costs at Carlisle for driving a motor-car to the common danger.

NO LIGHTS.

STANLEY LAMBERT, of London, was charged at the Litchingdon (Essex) Petty Sessions with driving a motor-car without a light at Burnham. From the evidence of police-sergeant Digby it appeared that the offence took place at 3 a.m. Defendant explained that his lamps were burning when he reached Chelmsford, but he got out of his reckoning among the cross roads, and, in consequence of losing time, ran out of oil. Fined 19s. 6d., inclusive.

At the Folkestone Police Court, Sibley Simpson was summoned for driving a motor-car without a light. He pleaded guilty and was fined £1 and 0s. costs.

ROY SOHER, High Street, Loughborough, was summoned at Loughborough for driving a motor-car without a light on the 7th inst. P.C. Taylor gave evidence, and defendant said he had been to Belvoir Castle,

On the way back, at Melton, he examined his acetylene lamps to see if they would be all right when lighting up time came, and thought they would be. When he tried to light up, however, he could not do so, the lamp having gone wrong. Fined 10s., including costs.

A TRIPLE CHARGE.

At Leigh, Charles Whitley, of Manchester, has been summoned on three charges with furiously driving a motor-car through Leigh on the 15th ult. Superintendent Cocker said the summons was taken out under the town's Police Clauses Act, the Highways Act, and the Locomotives Amendment Act. Councillor R. Greenhough said that shortly before nine o'clock on Saturday night, the 15th ult., he saw a motor-car being driven furiously through Bradshawgate, Leigh. He could not see how many people were in it. It was travelling at about twenty-five miles an hour. When he followed he found it had run into Pennington's wall at Butts Bridge, which was knocked down. There were hundreds of people in Bradshawgate at the time. The motor-car was smashed and the party upset, though they escaped with a shaking. Defendant did not appear. On the first charge he was ordered to pay costs, on the second charge he was fined £10 and costs, and on the third charge he was ordered to pay costs.

ATTACKING A JEWELLER'S SHOP.

On Wednesday at Marlborough Street Police Court (London), Oswald Edward Lord, of Arundel Mansions, Fulham, was charged with being drunk and furiously driving a motor-car, and with causing bodily harm to a man. While driving down Regent Street early in the morning the car driven by defendant charged the window of a jeweller's shop, smashing the shutters, glass and frame completely to pieces. The damage, it was stated, amounted to some thousands of pounds. The car then ran back and knocked down a man who was passing, fracturing his arm, shoulder-blade, and several ribs. The case was adjourned until the afternoon for the defendant to be legally represented.

ALLEGED REFUSAL TO STOP.

At Cullompton Police court, John Bennett, a motor-car driver, of Wellington, was summoned by a farmer, for not stopping the car when requested to do so. The motor-car was the property of Messrs. Fox Brothers, of Wellington, and was used for conveying goods to their various factories. The evidence submitted being of a conflicting nature, the Bench dismissed the case.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

VOL. IV.]

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THE EXHIBITION QUESTION.

ON Monday the Executive Committee of the Automobile Club of Great Britain and Ireland decided not to continue to negotiate with the motor-car trade in the matter of exhibitions, and to withdraw its name and patronage from the proposed exhibition at the Crystal Palace.

In our issue of March 15th, we announced that it was Mr. Charles Cordingley's intention to terminate the agreement with the Automobile Club. The next Motor-Car Exhibition will be held at the Agricultural Hall, London, from March 21st to March 28th, 1903.

COMMENTS.

The Club and the Trade.

THE history of the motor-car exhibitions and the part played by the Automobile Club is interesting. Going back to June, 1901, it will be remembered that the trade decided to support exhibitions at the Agricultural Hall in the spring of 1902 and 1903. In view of this arrangements were made by Mr. Cordingley with the proprietors of the Agricultural Hall and financial obligations duly entered into. Some of those present at the original meeting then supported a rival show, with the result that, by direction of the Automobile Club, they were prohibited from exhibiting at the recent display at the Agricultural Hall. The consequence was that applications for space had to be declined by the promoter.

The March Meeting.

THEN, in March of the present year, the Club invited promoters of exhibitions to suggest schemes for the 1903 Exhibition. Several made proposals, but Mr. Cordingley—in view of the decision of June, 1901—declined to enter into competition, and intimated his intention of terminating the agreement with the Club, according to the terms of notice provided for in that document. The trade held a meeting on March 20th at the Automobile Club, when several who had previously ignored the resolution of June, 1901, urged the appointment of a committee to consider holding an exhibition in January or February. This was agreed to, and Mr. C. Johnson accepted the position of secretary.

Patronage Given.

HAVING inspected a site at Earl's Court and reported adversely thereon, the Committee then circularised the trade with a view to getting firms to sign an agreement not to exhibit elsewhere than at the show to which the Club gave its patronage. Meanwhile the preparations for the Exhibition at the Agricultural Hall continued, and several leading firms secured good positions for March 21st to 28th, 1903. The Association which was appointed by the trade agreed to recognise the Crystal Palace exhibition of January 30th to February 7th, and the Club consented to give its name and patronage to that Exhibition.

And Withdrawn.

THE Automobile Mutual Protection Association joined in the discussion, and replied to the suggestion of the President of the Automobile Club as to its being unrepresentative in a letter which pointed out the inconsistency which had marked the reversal of the June, 1901, resolution; and their attitude has proved an important factor in the situation, for on Monday evening the Executive Committee of the Club decided "that they could not with dignity continue to negotiate with a trade divided against itself, and therefore resolved to withdraw their name and their patronage from the proposed exhibition at the Crystal Palace, and to refuse to give their name or patronage to any outside exhibition."

The Function of the Club.

HITHERTO we have refrained from criticising the action of the Club in the matter; but now that the matter has come to a conclusion, we may be excused a reference. Had the attempts to upset the unanimous resolution of the trade in 1901 not been allowed to continue, the trouble would not have arisen. Having entered into arrangements with the promoters of the Exhibition, the Club should have seen that the obligations into which the trade had entered were loyally carried out, and instead of opening the door to controversy its more dignified course would have been to have explained that the question was settled for 1902 and 1903—and that no negotiations could be entertained which were calculated to conflict with the policy that had been marked out by the trade in its earlier meetings. Let us hope that past experience will now cause it to steer clear of such matters in the future, and confine itself to its proper function, viz., that of popularising automobilism and providing a social centre for motorists.

Protecting the Trade.

IN connection with the purely trade interests of motoring, the Automobile Mutual Protection Association, Limited, is doing good work, and the accession of the Earl of Shrewsbury and Talbot to the presidency is a good augury for its future. Although in existence only a comparatively short time, it has—as will be seen from the report of the annual meeting in another column—proved of value to the industry, particularly with regard to patent questions, while in the matter of exhibitions, it has demonstrated its capacity to secure that freedom of action without which no industry can flourish.

Next Year's Show.

So far as the Motor-Car Exhibition at the Agricultural Hall in 1903 is concerned, everything points to a repetition of the recent success. Spaces are already being booked, not only by firms who exhibited, but also by some who were unfortunate enough not to secure space. These facts will probably lead to anxiety among intending exhibitors with regard to the stands, and we take this opportunity of suggesting to those members of the trade who have not yet secured the options of positions the advisability of giving the matter early consideration.

The Motor-Cycle Union of Ireland.

THE recently-formed Motor-Cycle Union of Ireland, held its inaugural run on Saturday last. The meet was in Phoenix Park, and fourteen motor-bicycles, a couple of tricycles, and a quad took part in a run to Bray. The inevitable photograph was taken at the start, and after indulging in a run round the park a start was made for Bray, *via* Dundrum and the Scalp. All those who started reached the destination safely, and were then joined by several other members, who had come by more direct routes. A moderate pace was maintained through the streets of the city, but on the unfrequented roads outside less regard was paid to the legal limit. After tea had been disposed of, an enjoyable smoking concert followed, and about 9 o'clock a start was made for town. The first run of the Union was an undoubted success.

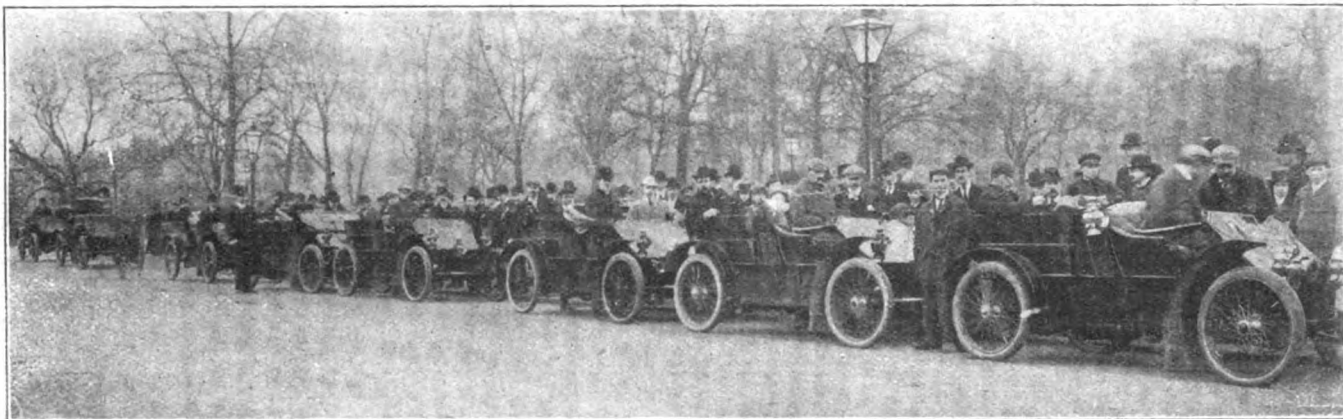
Round the World.

THE motor-caravan, "Le Passe-Partout," which, with good luck, is to girdle the globe, with Dr. Lehweß, Mr. Max Cudell, and Mr. H. Morgan-Browne, started from Hyde Park Corner on Tuesday morning, amid the cheers of a large crowd. Accompanying the big vehicle was the 8-h.p. "Argyll," under the control of Mr. Douglas Whitfield. Several friends accompanied

its environment will generally in the end be accepted by the public as the most pleasing one. The days when printing presses and planing machines were adorned with fluted columns and Corinthian capitals is past, and where mechanical construction is involved simplicity is the best way to attain elegance; while, to adapt a proverb from the motor we are endeavouring to supersede, "a good car cannot have a bad outline."

Un Embarras de Choix.

THE choice of a new car is not always an easy matter to decide on even for the seasoned motorist, and it would be difficult, even if it were not invidious, to give good reasons for choosing a particular vehicle. It is much easier, however, to give some bad reasons for rejecting a car, taken from cases in which we have known them to be operative. The most absurd, yet an actual case, was an objection to the colour of the paint! The rather inferior finish of the same in another instance led to the choice of a worse, but better painted vehicle, while the fact of a third being obtainable with a particular maker's coachwork led to its selection in the place of a much better car. Yet again, a very suitable car was rejected by an intending purchaser because, being rather low-geared for the district, it "cut-out" too noticeably on easy grades, though a little gearing up would have rectified matters. Another was pronounced to



THE LANCHESTER CO'S. INVITATION RUN TO WORTHING ON APRIL 19TH. THE START FROM ST. JAMES'S PARK, W.
[Photo by] [Fradelle & Young.]

the expedition as far as Guildford. Tyre troubles caused a long delay about three miles this side the old town. At the Angel Hotel, at Guildford, about twenty sat down to lunch, when the voyagers were toasted. Later in the day a start was made for Southampton, where the vehicles were to be shipped by steamer to Havre. The route round the world is *via* Rouen, Paris, Brussels, Cologne, Warsaw, Moscow, Nijni, Omsk, Tomsk, Irkutsk, Peking, Tientsin, Japan, and across the United States. The most ample preparations for relays of petrol, accessories, and spare parts, particularly tyres, have been made along the line of route. On other pages of the present issue we reproduce photos of the big car as shown at the Exhibition last week, and one of "Le Passe-Partout" and the "Argyll" in Hyde Park on Tuesday last, just previous to the start.

The Line of Beauty.

MANY people will have had ample opportunity during Show week to form, or modify, their opinions regarding car design from an æsthetic point of view, and those who least realise the problems involved will probably assert their views with the most conviction. Grace of outline is a desirable, if minor point, about a motor-vehicle, though its contemplation affords small satisfaction during a "panne," but the design that has secured most popularity by the solid merit of adaptation to

have too little seating accommodation, too much of this being expected for the power and price. In this case the purchaser got what he wanted elsewhere, and was, of course, duly disappointed. Probably most of the minor mishaps—even down to explosions in the exhaust box—have been responsible for scaring off would-be buyers on trial runs, and it is well for the novice to form his choice—in the absence of an experienced and unprejudiced friend—on the old maxim, *Quod semper, quod ubique, quod ab omnibus*, and shun novelties, however they may appeal to his idea of what a car should be.

The Age of Indolence.

AS a counterblast to the high opinion of the value of motoring, from a hygienic point of view, expressed by so many of the medical profession, we are favoured by ominous vaticinations of its influence, more especially in the popular and widely-spreading form of motor-cycling, on the muscles of the race. One doctor is of the opinion that a cycle should never be made powerful enough to climb all hills, while another recommends a quarter-mile sprint every few miles (with Nature's organs of propulsion, *bien entendu*) if the benefits of motoring are not to be outweighed by its disadvantages. Some cars, however, require muscular effort where they should not—and we are not referring here either to hill-climbing or tyre-repairing.

A small car we recently tried had a clutch considerably stiffer than that of a 50-h.p. Napier, much to the inconvenience of the lady who owned it; while it is not uncommon to find hand-brakes that require quite needless muscular exertion to put on. It is not too much to say that all of the accessory mechanism of a car should be capable of being actuated without extreme effort, a state of things which presents no particular difficulties of attainment; and if its absence presents no great objection to the average driver, even he may find it inconvenient—perhaps dangerous—in an emergency where prompt action is needful.

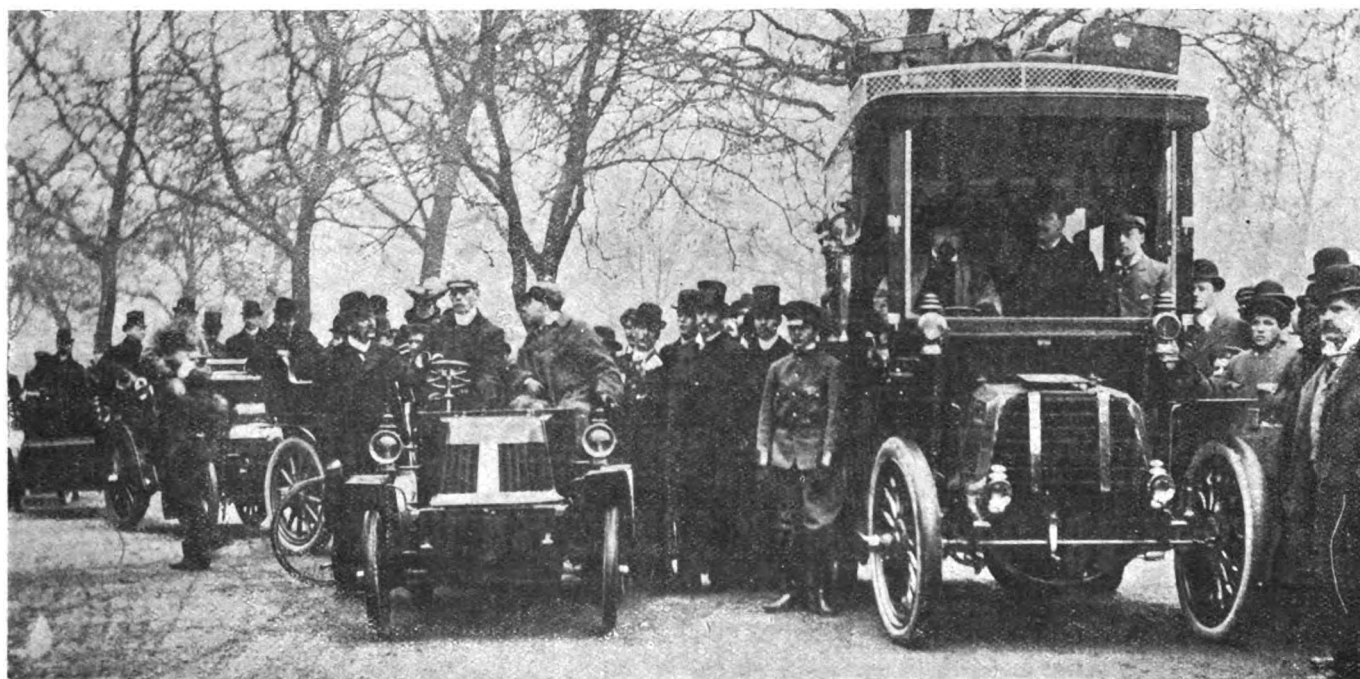
The Manchester Automobile Club.

THE first run of the season of the Manchester Automobile Club will be to Tarporley to-day (Saturday). There will be no procession of cars, the members starting any time they may think fit. Tea will be provided at 5.30 p.m. at the Swan Hotel, Tarporley, which is situated in the centre of the village. This early hour has been fixed to enable those members who wish to make the return journey the same day and reach

late a few levers and everything is automatically carried out but the steering. The monotonous precision with which he reaches his journey's end, the complete absence of exciting or mysterious failures in the engine and running gear, the hum-drum perfection of the whole thing, in fact, makes him unhappy. All his vast, hard-won experience lies stagnant, he moans. It is called up only when he happens on some novice in a cheap car, and he often envies the man's ignorance and his luck in having a vehicle that jibs occasionally. Not that the old grumbler would give up his own car and go back. Oh, no! He cannot retrograde. He must only grumble.

Motor-Cars in Ireland.

IRELAND has hardly yet appreciated the value of the motor-car as an adjunct to the work of the agricultural revival that is now taking place there. But in connection with the creameries that are being organised throughout the country automobiles ought to play an important part in the collection



THE 8-H.P. ARGYLL AND "LE PASSE PARTOUT" AT HYDE PARK—READY TO START.

home in good time. It is suggested for those who desire, that the run may be continued to Chester for the week end, some members having already arranged to do so. Before tea, the grounds of Portal Hall, the residence of Mr. J. Marshall Brooks, will be open to the members and friends. After tea, a visit will be paid to Arderne Hall, the residence of Lord Haddington, permission to inspect which has been obtained.

Perfection's Dead Monotony.

THE human beast knows not complete satisfaction. His pleasures are based on comparative degrees of unhappiness. The lesser evil following the greater takes to itself the character of merit. When perfection is attained it introduces new evils, and one sighs for old conditions. There is fear of such happening in automobilism already, according to some croakers. The man who graduated on a mulish tricycle, and gained a wealth of patience and expertness on an elementary belt-driven voiturette, is not likely to feel very much happier when good fortune puts him at the helm of a modern car, that persists in being faultless. We have heard one grumbler compare his 16-h.p. Irreproachable to a stout trolley car. He complains that he has but to manipu-

late a few levers and everything is automatically carried out but the steering. The monotonous precision with which he reaches his journey's end, the complete absence of exciting or mysterious failures in the engine and running gear, the hum-drum perfection of the whole thing, in fact, makes him unhappy. All his vast, hard-won experience lies stagnant, he moans. It is called up only when he happens on some novice in a cheap car, and he often envies the man's ignorance and his luck in having a vehicle that jibs occasionally. Not that the old grumbler would give up his own car and go back. Oh, no! He cannot retrograde. He must only grumble.

Trams v. Motor-Cars.

AGAIN the bath-chair proprietors and other residents of Brighton are considerably alarmed at the revival of the suggestion that modern trams should be allowed to make themselves a nuisance on Brighton Front. This is a suggestion which crops up just before the season, every two or three years, at the southern watering-place, and we have a large amount of sympathy with the inhabitants, who regard it with disfavour—a disfavour, however, naturally associated with a somewhat mercenary motive. Whilst such a line might be a matter of public convenience, we certainly should object to the front

our seaside places being thus retained for the purposes of a metal roadway. But surely the people of Brighton are sufficiently familiar with motor-vehicles, and encourage a public service of motor-cars rather than a tramway. For, as we have often urged in these columns, a motor-car service has the advantage of being able to make use of side streets when necessary, and also to avoid great crowds, whereas the tramlines monopolise such a large portion of the roadway as to become a nuisance at any pleasure resort.

Motor Manufacturing Co., Limited.

THE balance-sheet and report which Mr. Roger Wallace, K.C., and his colleagues of the board of the Motor Manufacturing Company have sent to the shareholders of that concern is of general interest, and doubtless the summary we give on another page will be widely studied. Included in the assets, the largest total is that of £219,450 for licences, patents, patent rights, goodwill, etc. From April 30th, 1900, to May 31st, 1901, the gross profit on sales was £13,513, against which had to be set general expenses of the business, £18,387; directors' fees, £824; debenture interest, £183; and depreciation, £1,528; leaving a loss of £7,410. From May to October last the loss was £470; while from January 1st to March 31st orders to the value of £29,076 were obtained by the company, so that, with careful management, the company should yet be made a financial success. The scheme of reconstruction proposed to the meeting on Thursday involved the reduction of the capital of £300,000 to £80,000. Every holder of a £1 share will receive one 5s. share credited with 3s. paid, and thus reduced in capital the shareholders will expect a dividend ere long. The company has wisely decided to limit its operations to four standard types of vehicles, and now that the time of experiment has ceased, it is to be hoped that the works will be kept busy with the production of voiturettes, and 7, 10, and 12 h.p. motor-cars.

Tyres.

IN our correspondence columns this week a well-known doctor suggests an inquiry into the circumstances attending punctures which should lead to a series of letters from those who are familiar with such circumstances—and certainly no motorist can claim to know nothing of punctures, whether along the public highway or in more secluded positions. It is suggested that if readers would favour us with information on certain points it might result in some general conclusions which would be of assistance not only to makers of tyres, and to the scores of people who are now experimenting in that direction, but also to manufacturers of automobiles. There is no doubt that motorists do not always obtain exactly the size and make of tyre suitable to their particular cars, and what may be safely used on one kind of vehicle might lead to the "inevitable puncture" on another. Certainly the point is one upon which there should be a good supply of experiences.

In Evidence.

IN a recent issue we illustrated Signor Marconi's adaptation of wireless telegraphy to the automobile, and the pity is that the idea is at present, like so many other good things, only in the air. Otherwise it might have played a prominent part in a case which was heard in the King's Bench Division the other day. A Canterbury watchmaker brought an action to recover damages for assault from a local ironfounder, and in the course of evidence it appeared that the fact that the defendant's motor-car had broken down, causing him to arrive home late, was the source of all the trouble. Other witnesses said that some of the stories told in the court were "purely imaginary." We should hope that the wickedness of this particular motor-car was equally of a visionary character. But the motor-car as a subject of evidence in cases of a certain kind was bound to occur.

Furious Driving

THE question of the furious driving of motor-cars has again cropped up before the executive council of the County Councils Association, it having been introduced by a letter from the Automobile Club, which we are sorry to see is described in the current week's *World* as "nothing if not more or less exclusive." The Club asked the Association to reconsider the resolutions which it recently adopted, recommending enhanced penalties for furious driving. After some discussion a reply was couched, in which the Association re-affirmed their previous decision, and, in fact, declared that they did not see any reason for reconsidering it. We are afraid that the many prosecutions which have lately been recorded will do something to strengthen the hands of the County Councils Association. Hence it is imperative upon motorists throughout the country not only to be careful as to the speed at which they drive along frequented roads, but also to expose the un-English methods by which the police evidence is frequently obtained.

Scavenging Up-to-date.

THE Wellingborough Urban Council, having made application for a loan of £650 for the purchase of a motor-van for the purpose of the collection of refuse, etc., Mr. H. P. Boulnois, M.I.C.E., one of the Inspectors of the Local Government Board, has attended to hold an enquiry at the Council Chamber. The clerk (Mr. J. T. Parker) explained to the inspector the present plan of collecting the refuse by means of carts, and pointed out the objections to the system, which cost the Council £280 a year. Under the proposed new system the refuse would be collected from the backways of the houses, and besides being a more convenient and cleanly way of collecting the refuse it would be a saving to the Council, as the motor-van would be used for other purposes for which at present other means of conveyance had to be used. Evidence was given in favour of the scheme by Mr. J. H. de Key (engineer), Mr. Geo. Henson (late chairman of the Council), and Mr. Wm. Hacksley. The inquiry then closed. It is to be hoped that the Local Government Board will grant the application.

New Motor-Car Services.

LONDONERS and visitors to the great City are promised new pleasures for the coming summer, and motor-car services are to be established from the metropolis to Windsor, Brighton, Hampton Court, and other places likely to attract holiday-makers. The London termini will be at Westminster (near the Houses of Parliament) and in Piccadilly, and there will be daily trips to Windsor and Hampton Court, with subsidiary runs to Bushey and Richmond. The fare to Windsor will probably be about ten shillings, and to Hampton Court about four shillings less. The motor-vehicles will, it is hoped, run until October.

Warnings.

IT is not only in Surrey that motorists should be careful, and policemen are not the only foes of our order. This week's "Correspondence" columns contain two letters exposing two forms of persecution to which automobilists are liable. In the neighbourhood of the historic Rye House, in Hertfordshire, there is, it appears, a toll of 1s. 6d. demanded from motorists, while that for horse-drawn vehicles is only 3d. Doubtless other instances of a similar kind are known to readers, and we shall be glad to receive information on the point, so that a warning note can be given and other routes taken in time. The other complaint we have received relates to the action of the police on the Leeds road between Stanningley and Bradford, from which we learn that the police of that part of Yorkshire are as intolerant as they are in some parts of Kent and the home counties.

MECHANICAL FLIGHT UP-TO-DATE.*

By SIDNEY H. HOLLANDS.

CHAPTER VII.—SUPERPOSED SUSTAINING SURFACES.

IT is probable that systems of superposed surfaces for sustentation in aerial machine design have an important future.

By superposed surfaces is meant a "double-decker," or even a "multi-decker" arrangement of such surfaces in *parallel tiers or layers*, at a certain fixed minimum distance apart, to admit of an adequate thickness or depth of air stratum between them.

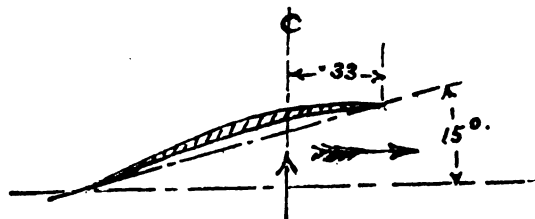
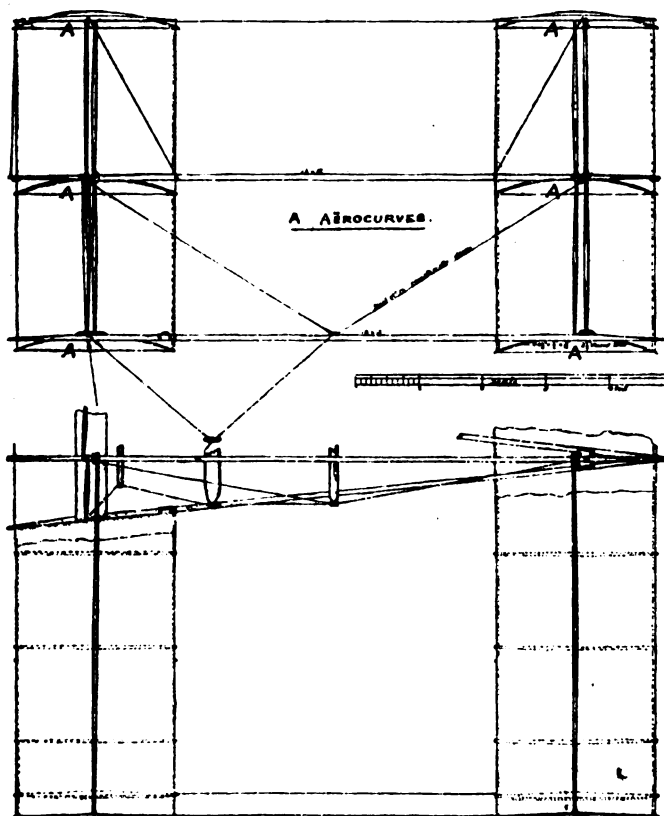


FIG. 1.—SECTION OF PHILLIPS' AEROCURVE.
C = Centre of Pressure at $\frac{1}{3}$ of breadth from leading edge.

The experiments of Wenham, as long ago as 1857, and those in more recent years of Brearey, Hargrave, and Phillips respectively have shown encouraging results.

In the experiments of Henson and of Brearey the surfaces were "double-decked" aeroplanes; but in those of Phillips it was a multi-tier aerocurve arrangement. In the latter system, which was a new departure in its way, the aerocurves were



FIGS. 2 AND 3.—LARGE "HARGRAVE" CELLULAR KITE.—THREE-DECKER TYPE OF SOARING MACHINE.

narrow in relation to their length (transversely), being shaped out of light wood, slightly concave on the under, or sustaining, sides, and convex above, but of more convexity (see Fig. 1). With this particular form of aerocurve the most efficient angle of inclination was found to be 15 deg. It will be noticed that this concavo-convex section bears some resemblance to the section

*All rights reserved.

of a natural wing, and it may be here remarked that aerocurves in general are found to be far more efficient than aeroplanes; in fact, the latter "have had their day," and may now be regarded as displaced by the former surfaces. Here, again, is an approximation to the formation of Nature, with advantage ensuing, apparently, as a consequence. No natural wing is a *flat* surface,

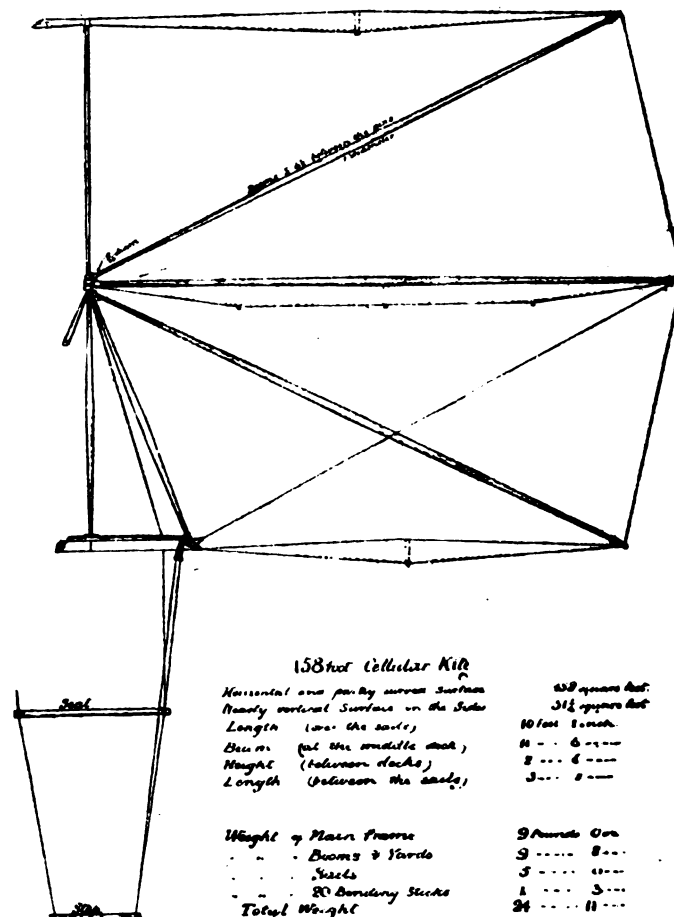


FIG. 4.—HALF END-ELEVATION.

To Sir George Cayley, one of the pioneers and early writers on aviation, living early in the century, is seemingly due the credit of first discovering that in narrow inclined planes, or slats, the centre of pressure or resistance does *not* coincide with the centre of surface, but is ahead of it in proportion to the acuteness of the angles. The same law has since been found to apply to aerocurves; and in that illustrated in Fig. 1, at an angle of 15 deg., the centre of pressure was at *one-third* of the breadth from the leading edge.

With Mr. Hargrave the superposed surfaces took the form of his original ingeniously conceived "cellular kites" (see Figs.



FIG. 5.—STEPPED CONDITIONS OF SAILING BIRD'S WING FEATHERS.
(Cross Section.)

2, 3, and 4), of which he made and tried numerous varieties successfully, and with very interesting results. Some of these "kites" have been of such size and lifting capacity that Mr. Hargrave has hitched four or five of them to one line (in series), and been thereby lifted to some height above the ground (see Fig. 6). I am strongly impressed that there is a sound practical reason for the subdivision of the natural wing into its component feathers,

This reason I take to be quite apart from that of the obvious convenience for closing and folding them compactly and close to the bird's body when not in use, and wholly unconnected with the hypothetical and now exploded "valvular" action theory of wings (the former condition being merely incidental), and that is, that the separate feathers form and act as two lateral

Dimensions.

	Length of main cell	Length of second cell	Length of third cell	Length of fourth cell	Length of fifth cell	Length of sixth cell	Length of seventh cell	Length of eighth cell	Length of ninth cell	Length of tenth cell	Length of eleventh cell	Length of twelfth cell	Length of thirteenth cell	Length of fourteenth cell	Length of fifteenth cell	Length of sixteenth cell	Length of seventeenth cell	Length of eighteenth cell	Length of nineteenth cell	Length of twentieth cell
A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
B	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
C	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
D	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
E	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
F	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
G	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
H	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
I	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
J	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
K	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
L	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
M	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
O	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
P	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Q	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
T	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
U	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
V	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
W	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
X	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Y	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Z	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

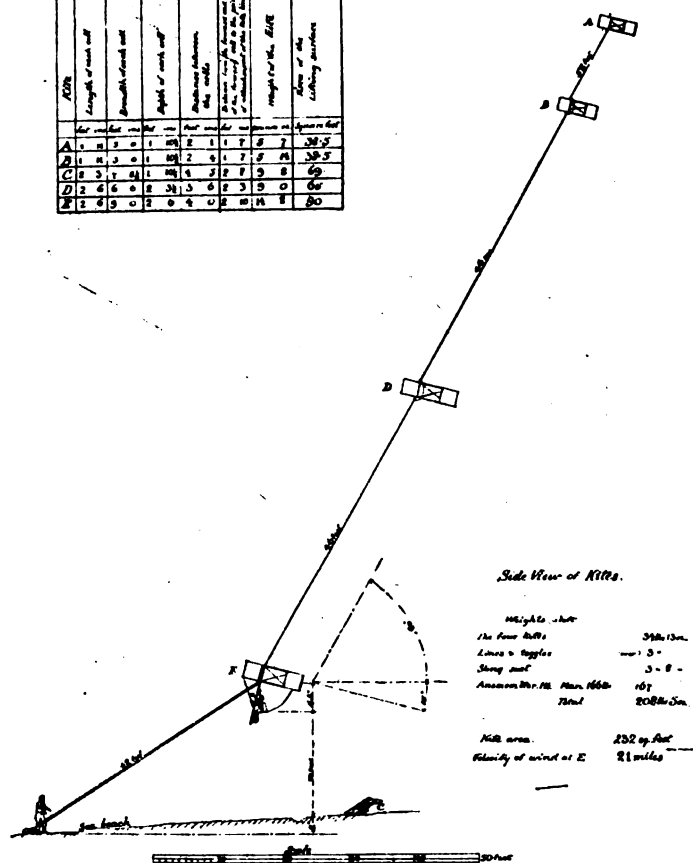


FIG. 6.—MR. HARGRAVE LIFTED BY A TEAM OF CELLULAR KITES.

sets of superposed aerocurves, or wings (the natural feather being really a wing in miniature), and thereby greatly augment the effective sustaining surface, *i.e.*, giving much greater effect particularly in sailing—flight—than that merely due to the breadth of wing, as seen in plan. This interesting and suggestive function of the feathers and condition of the natural wing has been noticed

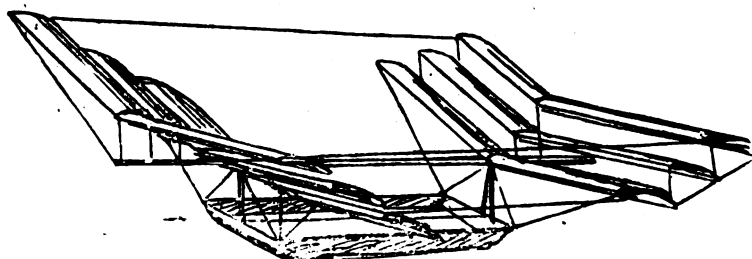


FIG. 7.—HOLLANDS' SEMI-SUPERPOSED OR "STEPPED" SYSTEM OF MULTI-AEROCURVE SUSTAINING SURFACES.
(Not restricted to three tiers.)

by a careful observer (through the medium of a good field glass). In thus watching some of the large sailing birds during their various evolutions it was seen that their wings when viewed side on (and on as regards the wing itself) were not only inclined as a whole at a small positive angle with the horizon, but that the individual feathers were distinctly separated and so inclined, evidently at the same angle as the wing (see Fig. 5). This certainly seems to be a clear analogy in Nature to systems of super-

posed surfaces now advocated. The recital of this observation first suggested to me, now twenty years ago, the probable great advantage derivable from an analogous arrangement of aerocurves—four inclined and stepped series in two pairs at diedral angles, and separated longitudinally (see Fig. 7). This "stepped" or semi-superposed multi-aerocurve system is exceedingly efficient, as was anticipated.

It is tolerably certain that the ordinary, or "two-decker," arrangement of superposed surfaces was evolved quite independently of suggestion from the birds. No one, as far as we have any record, has previously to 1881 noticed this condition of the natural wing, and Wenham suggested the use of double-decked aeroplanes as long ago as 1866.

(To be continued.)

GLASGOW TO LONDON.

REGENT issues have recorded the successful motor-car run from Glasgow to London, and we now have pleasure in chronicling the official figures which have been given us by Mr. Robert J. Smith, the hon. secretary of the Western Section of the Scottish Automobile Club, which is to be congratulated on the work it has done in popularising automobilism north of the Tweed. The maximum number of marks possible was 1,000, the marks obtained being:—De Dion phaeton, 986; M.M.C. car, 974; 16-h.p. Napier, 968.

Thus it will be seen that, while the places were rightly assigned last week, the marks now recorded show a greater uniformity of performance than did the preliminary figures. Each mark deducted represented a stop of one minute, and in the case of the De Dion phaeton 14 marks were deducted for stops for mechanical and other causes; as regards the Motor Manufacturing Company's car 12 marks were deducted for tyre troubles and 14 for mechanical and other causes; and in the case of Mr. Edge's Napier the 32 marks deducted were all for tyre troubles.

In a previous report we mentioned that when the other cars arrived at York nothing had been heard of the 8-h.p. and the 4½-h.p. Eagle motor-tandems. We now learn that, owing to being wrongly directed just before reaching Durham, the driver of the 8-h.p. Eagle tandem, in the dark and mist, mistook the road, and drove, when on high speed, into a ditch. The consequence of this was that the low-speed clutch became jammed, and, although the driver persevered, he was compelled, after going a further three miles, to give up on account of the clutch pinion stripping. Up to that time the tandem had behaved satisfactorily, and was only a very few minutes over the minimum time, taking into consideration that on several occasions the driver took the wrong road—at one time being over twenty miles off his proper route.

The Hozier Engineering Company inform us that the reason of the failure of the "Argyll" car in the non-stop run from Glasgow to London was that the crank pin on the half-time shaft of the Simms motor, which actuates the magneto machine, unscrewed from the disc, coming in contact with the fly-wheel, with the result that the end of the half-time shaft was bent and the pin itself completely destroyed.

THE members of the Yorkshire Automobile Club held a short run on Saturday last to Boston Spa.

MR. D. M. A. FIELD, carriage builder, Chichester Road, Bognor, has now added suitable accommodation in new premises, adjoining his carriage factory, for twenty motor-cars. Arrangements have also been made for the cleaning and overhaul of cars. A stock of Pratt's motor spirit, Carless Capel's petrol, and lubricants is kept on hand.

THE Motor-Car Exhibition at the Agricultural Hall.



SECOND NOTICE.



Photo by]

H.R.H. THE PRINCE OF WALES AT THE EXHIBITION.

[Argent Archer.

OUR task of recording the special features of the great Motor-car Exhibition does not conclude with this week's reports on the stands. In our last issue the work was begun, and again we have to supplement our ordinary pages in order that justice may be done to what is regarded by everyone in the trade as the first really representative and International exhibition held in this country. We would ask the firms whose exhibits have not yet been described to recognise the completeness with which the Show is being reviewed in these columns, and to rest assured that no stand has escaped notice. But it is absolutely impossible to chronicle our impressions in two issues; and hence it is probable that the next two issues will, like their predecessors, be largely devoted to describing the new and interesting developments in automobilism which were brought to public notice at the Exhibition which came to a successful close on Saturday last.

Of particular interest to owners of steam cars was the exhibit of the Albany Manufacturing Company, Limited, whose specialities include condensers, feed heaters, sight feed lubricators, combined feed and hand pumps, water sentinels, etc. The pump is intended to control the supply of water to flash boilers, such as are used on the Serpollet cars, and its main feature is a spring-controlled diaphragm. As the pressure on the back of this develops the fulcrum of the lever in the suction chamber shifts its position, and causes the foot valve to be held up for a more or less proportion of the stroke. The result is that as the pressure increases the fulcrum travels nearer the valve, until the maximum pressure at which the spring is set for is arrived at, when the pump passes no water whatever. When a fall in pressure, no matter how slight, takes place, the pump will re-commence to work, delivering even to one-hundredth part of its stroke. A water sentinel, which automatically shuts off the petrol supply when the boiler runs short of water, thus relieving drivers of all anxiety with regard to the likelihood of scorched boilers, was next inspected. The Albany Company also made a feature of their condensers and coolers, both in the vertical and in the horizontal form. When employed in the latter way it is placed below the car at a slight

angle in the direction of travel, thus catching the wind, which becomes circulated over the whole of the tubes, the metallic corrugated radiators between the tubes baffling the air over the surface of the tubes, simultaneously throwing off the heat generated. These condensers are formed from flattened tubes connected with long ones, the cooling effect being increased by the thin metal connections between each cross tube.

The National Gas Engine Company, Limited, of Ashton-under-Lyne, had a well arranged stand, whereon they exhibited their National (improved Otto) gas engines. These are fitted with patent air filters, and continuous lubrication at both ends of connecting rods. There is also a patent piston pin adjustment, by which the wearing surface is much increased and the tendency to wear correspondingly diminished. The adjustment is of a very firm and rigid character. The side shaft is of a strength sufficient to ensure steady running, which is further facilitated by the character of the wheels employed in transmitting the motion to the governor spindle. These wheels are of the skew gear type, preventing irregularities due to wear and admitting of a very strong construction. As the governor works in a vertical position the great advantages of the dead-weight with the spring are secured, and any alteration in the speed of the engine that may be required can be made without stopping it. The exhaust valve, seating, and spindle guide are part of the main casting, thus ensuring durability and preventing damage from over-heating, as well as the fear of broken joints.

Motor accessories constituted the display made by Joseph Lucas, Limited, of Birmingham—a firm that evidently endeavours to supply everything within the range of the ordinary requirements of the motorists. These include motor lamps of good design for burning petroleum or acetylene, notably the "Lucas Headlight" and the "Petrophoto" lamp; motor horns fitted with flexible extensions, lubricators, lifting jacks, sparking plugs, valves, motor pumps, repair outfits, lubricating oils and greases, etc.

Messrs. Turgan, Foy, and Co., who are meeting with considerable success with their heavy steam vehicles in France, displayed a lorry capable of carrying a load of three tons and hauling a further three tons on a trailer. The frame, which is of strong construction, is carried by springs upon the front and rear axles. The vertical boiler, which is placed in front, is of the water-tube type, but quite different from the usual pattern, there being no water-pockets at the bottom. The steam drum has a number of water-tubes projecting downwards and outwards. The working steam pressure is 210 lbs. per sq. in. Coal is used as fuel, and is carried in bunkers at the front. The water-tank has a capacity of 800 litres of water, which will run the vehicle for a distance of about 20 miles. A couple of feed-pumps are provided, as also an injector. Each of the rear wheels is driven by means of a chain from a separate compound horizontal reversing steam-engine, access to which is afforded by doors on the sides of the vehicle. The normal engine speed is 600 revolutions per minute, the

the knees of the passengers, it should be possible to *maintain* a warmth far more effectually than by any system of *foot-warmers* and the like, while in the case of electromobiles the *interior* of the cars will be easily and effectually heated. Mr. Dowsing claims to have overcome the difficulty of obtaining a continuous current, irrespective of speed, and in fitting the dynamo to the axle of petrol cars shows an ingenuity to which we hope again to refer in a later issue. In the case of electrical vehicles, current will, of course, be supplied from the accumulators of the cars.

Le Carbone had an interesting display of electric accessories for use in connection with motor-carriages. Chief among them may be mentioned the "Sanspareil" dry battery for use with the ignition apparatus of petroleum-spirit motors. It is claimed for these cells that they give the maximum output for the minimum weight and dimensions. The cells offered for tricycles, with suitable coils, will last between 300 and 500 working hours. Le Carbone Company also makes a speciality of carbon brushes.



FIG. 38.—A TURGAN-FOY STEAM VEHICLE HAULING FOUR MILITARY WAGONS IN THE RECENT FRENCH HEAVY VEHICLE TRIALS.
(*La France Automobile*.)

engines developing 20 h.p. each. By this arrangement no mechanical change-speed gear nor differential are necessary, while, should one of the engines break down, the other is sufficient to propel the car home. The complete vehicle weighs about 4 tons. The maximum speed obtained from trials has been fourteen miles per hour. Hand and pedal brakes are fitted; steering is controlled by a horizontal hand-wheel, while the road wheels are of strong artillery type, with wide steel tyres. Fig. 38 shows a Turgan steam wagon hauling four military wagons in the recent heavy vehicle competition in France.

The first stand on entering the Hall was that of the Dowsing Radiant Heat Company, Ltd., where the well-known Dowsing Luminous Electric Radiator was on view. By this system the radiant heat, popularly known as "warm sunshine," is obtained, and we learn that the system is now being applied to the warming of automobiles. Mr. Dowsing, the inventor, is himself a motorist, and has, therefore, felt the cold associated with open-air travelling in the winter. By fitting one of these radiators in a corner of the car near the splashboard, and throwing a rug carefully over

The concern is now making dry batteries for use on large cars, done up in neat oak boxes. Paris cells and funnels were also shown. In these, the excitant is of ordinary sal ammoniac solution, and the components can be readily disconnected and renewals effected when necessary. The funnel is of a construction that enables the cells to be filled or emptied without any of the connections being disturbed.

Two novelties were shown by Mr. E. H. Seddon, one being a steering wheel fitted with an inflated rim, much like a pneumatic tyre, and giving a hard resistance, that the inventor regards as preferable to that of the ordinary wood or metal. In the "Coronation" tyres Mr. Seddon has adopted the principle of a triple air-tube, with a valve to each separate air chamber. Thus, should one be punctured, there is another ready to be blown up. The tyre has a deep and narrow tread, and metal plates are let into the rubber to protect the cover. The tyre is made for wheels of all sizes, and is easily detachable. Mr. Seddon claims that his tyre has effectually disposed of the fear of sideslip, and its adoption by motor-car makers will be watched with interest.

The exhibit of the Duryea Company consisted of two cars—a 10 h.p. Duryea phaeton (Fig. 39), seating two persons, and a 10-h.p. Duryea *tonneau*, seating six. In both cars the main features are the same. The two-seated phaeton has neat light folding top or hood, with storm apron, and weighs complete 800 lbs. The engine, which is the same in both cars, is of 10 h.p., having three cylinders $4\frac{1}{2}$ in. diameter by $4\frac{1}{2}$ in. stroke. The cranks are set at an angle of 120 deg. to each other, a supporting bearing being fitted between each. Lubrication is simple and effective. A



FIG. 39.—THE DURYEA PHAETON.

plain "pot" lubricator on each cylinder requires filling about once in 500 miles, and splash lubrication in the crank-chamber does the rest. The water circulation is on the thermo-syphon system. A float feed carburettor supplies fuel to a single induction-pipe. Ignition is by a Remy magnet, with battery in reserve, worked off the fly-wheel, and the sparking hammers are carried through the hollow stems of the exhaust-valves. The speed of the engine, which is normally 800 revolutions per minute, is controlled entirely by varying the opening of the induction-valves. This is effected on all three cylinders equally and simultaneously by turning the handle-grip, which is held by the steering hand. The extent to which this can be done is so great that change-speed gearing is virtually abolished, for although an epicyclic gear is available for use in emergencies, this gear in ordinary use revolves locked together, and transmits the power direct from the crank-shaft to the driving-wheels by a single chain. The crank-shaft carries a Crypto or epicycloidal gear, giving a four to one speed reduction and also a reverse. The efficiency of the system is claimed to be such that, with a nine-tooth sprocket, one of these cars will ascend a one in ten gradient at a speed closely approximating twenty-five miles an hour. In ordinary running the engine is used as a brake, being simply throttled down to retard the speed to the desired degree, whilst the wheels may be skidded

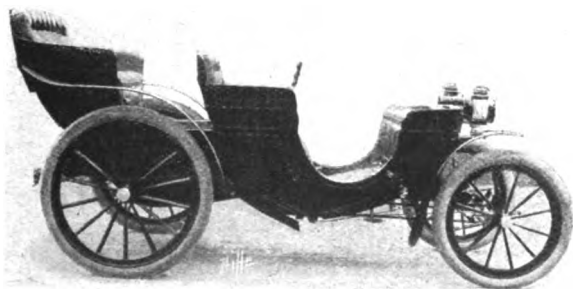


FIG. 40.—THE DURYEA SURREY.

by using the low gear. Two brakes are also fitted—one an expansion brake, acting within the drum of the balance-gear on the axle, which can be applied independently of or in conjunction with the engine, and acts with equal power in both directions; the other is an emergency brake acting on the tyres. This is provided with a ratchet, so that the car may be held on a hill with the engine free. The driving-chain is provided with felt pads, which keep the pins constantly lubricated. It is protected from dust and mud by

a light leather gear-case. Another special feature in these cars is to be found in the one-hand control. The steering is effected by a single central vertical lever, a slight pressure of which to either side deflects the steering, and directs the course of the motor-car, the steering being rendered irreversible by so setting the angles of the steering centres that no leverage against the driver is introduced when striking obstacles. The same hand which does the steering controls the speed of the car, as already described, whilst by depressing the handle upon its stem the clutch is thrown out, and a catch holds the motor out of gear. The release of this catch by finger pressure, and a further depression of the handle, tightens a band around the gear, and brings the low gear into play. A small lever pressed by the heel effects the reverse. Large road-wheels are used (36 in. and 30 in. diameter) they being shod with 3 in. tyres. The motor and driving mechanism are under the forward seat, and are readily accessible by lifting the seat or removing the foot-boards in front, so that the passengers in the rear need not be disturbed for any purpose; only the water-tank being under the rear seat. The carriage is long and low, and is fitted with long and exceedingly easy springs. The six-seated *tonneau* has the same distinctive constructional features as the phaeton, but shows the "two-handed control," which is offered as an alternative if desired. In this, one hand steers and works the throttle, whilst the other actuates the clutches.

We generally expect to find something interesting at the exhibit of Mr. Carl Oppermann, and his stand was no exception to the rule. First, we noticed an electrical victoria, finished and upholstered in a luxurious manner. It is adapted for a run of from sixty to seventy miles on one charge of the battery. Another little car on Mr. Oppermann's stand was a two-seated "Electric

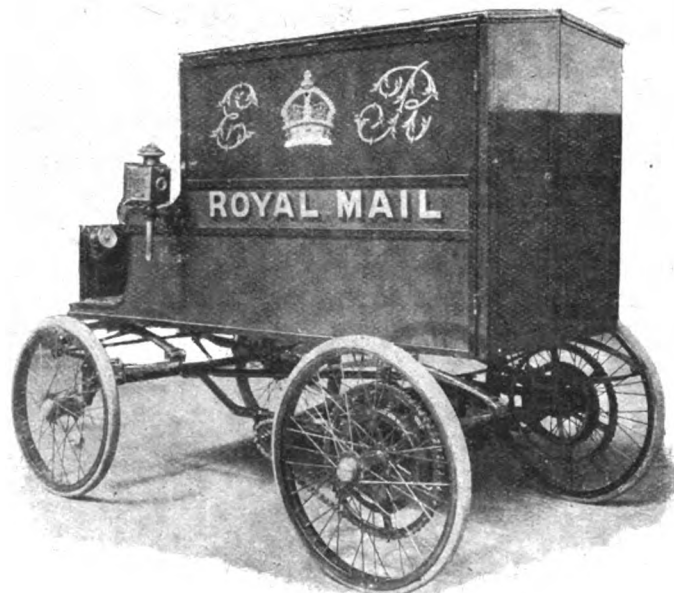


FIG. 41.—THE OPPERMANN ELECTRIC MAIL VAN.

Runabout," built to carry two persons and to run a distance of twenty-five to thirty miles with one charge of the accumulators. It is very easily managed, is absolutely silent in running, and the speed can be set to four, seven, or ten miles an hour. The wheels and axles, together with the motor and gearing, brakes, etc., are carried on a steel tubular frame, quite independent of the carriage body. The battery consists of thirty cells of the A.B.C. type. The motor is 1-h.p., and drives the hind wheels direct by means of a worm gear, which is entirely enclosed. The carriage is sent out complete with electric lamps, volt and ampere meter, mileage recorder, hand and shoe brakes, and safety catch to prevent the car running down hill backwards, etc. The weight of the car complete is 8 cwt. The novelty at the stand was the electric mail-van built for the G.P.O. through Messrs. Julius Harvey and Co. This van (Fig. 41), which has a body of the Post Office type, painted red all over, is provided with a single motor of 3 h.p.,

the transmission being by single reduction spur-gearing on to the differential on the countershaft, and from the latter to the rear axle by two chains. The motor itself is mounted on cross stays. The battery consists of forty cells of 160 ampere hours' capacity, sufficient to run the vehicle a distance of about seventy miles on one charge. The van, which is intended for the collection of letters from street boxes and conveying the same to the sorting office, will carry a load of from 5 to 10 cwt. The controller is adapted to give three speeds ahead, the maximum being twelve miles per hour. A tiller controls the steering, while a pedal actuates band brakes on the hubs of each of the rear road wheels. In all the vehicles the new A.B.C. accumulator is employed. In this the plates are firmly bolted together, and rest on small feet in the bottom of the cell. The plates are of the pasted type. The cells each contain eleven plates, and weigh complete 22 lbs. They have a discharge rate of 22 amperes for nine hours. As an example of the economy of space effected, we may mention that only half the driver's seat on the Post Office van is employed as a receptacle for the batteries used to run it. Mr. Oppermann informs us that a run of 100 miles with one charge has been made

No constantly burning pilot light is used, but a steam blast can be turned on whenever there is a heavy wind about, or when the car is standing with the fire cut down. It is claimed that the car can be left for an hour and a half with the burner only just alight with the water gauge showing three-quarters full, and that there will still be a quarter glass at the end of the time, the blast passing off any steam which is generated. The starting is effected by burning methylated spirits under a small coil. After the coil is heated a small supply of petrol is admitted through it to the burner nozzle, and sufficient heat is quickly generated to start the main vaporiser, which consists of tubing, passing three times through the boiler, and once across the fire. A very neat condenser is placed behind the front axle, and under the floor board. It consists of small straight tubes opening into pockets at each end. The steam is passed through it three times, and any not condensed is turned into the exhaust superheating tubes, of which there are ten in the smoke box, and there burnt. The touring car can be fitted with wood or wire wheels, and with either solid or pneumatic tyres. It has a wheelbase of 72 in., and completely detachable *dos-a-dos* back seat. The boiler is 16½ in. diameter and

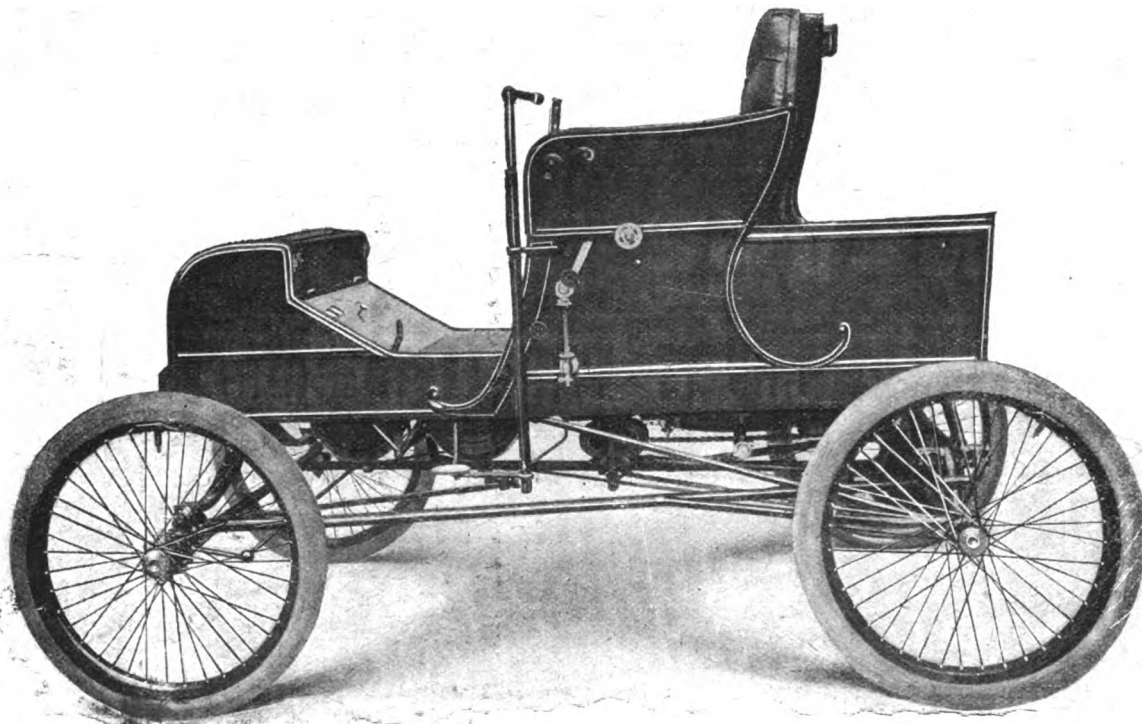


FIG. 42.—THE READING STEAM TOURING CAR.

with an A.B.C. battery weighing only 9 cwt., in one of the Oppermann carriages.

The (Reading) Steam Vehicle Company of America exhibited through Mr. John L. Sardy three steam cars on the Reading system—a two-seated Stanhope, a four-seated Surrey, and a new touring car (Fig. 42). The principal features were described at length in our report of the 1901 Show about a year ago. It will be remembered that a main point of difference between the Reading and other light American steam cars is the four-cylinder, single-acting engine with single central rotary valve, which effects the steam distribution for the four cylinders. An improvement has recently been made in the engine in the form of a simplified reversing gear. Instead of the bell crank reverse on the top spur wheel driving the valve, the vertical valve shaft is cut at about mid-length, and the drive transmitted by three bevel wheels, the central one being fitted on a quadrant, so that when the reverse handle is moved, the pinion is displaced and the top half of the valve rotated to start backwards. In the Surrey and the new touring car the engine is completely encased, and, instead of roller bearings, plain phosphor bronze bearings are now employed. Steam air and water pumps are fitted; they are of a simple kind, there being only two working parts in each pump.

14½ in. high. The car is constructed to carry twelve gallons of petrol and thirty-four gallons of water. The car is further fitted with steam water tank filler, locking brake, and auxiliary hand pump. Altogether, the new Reading cars show every evidence of careful attention to details.

The Longuemare carburettor for automobiles, previously described in our columns, was in charge of Madame Lockert, who also showed a collection of needle valves and conical joints by the same maker. In the type of carburettor specially designed for use on motor-bicycles, the spraying arrangement is always in the centre of the chamber, the sprayer being formed by a cone with saw-cuts. The joint valve is not employed, as the float keeps the liquid ready to stream from the jet when the vacuum is created, but otherwise does not permit it to flow out. A cylindrical piece directs the air to be carburated entering from the bottom towards the sprayer. It also serves as an atomising surface, so that the incoming air passes a mist of petrol spirit, being thus carburated before entering the cylinder.

A good selection of accumulators, coils, sparking plugs, and electrical accessories of every kind was shown by the General Electric Battery Manufacturing Company, who made a feature of the charging board for charging accumulators for electric light

mains, which was described and illustrated in the *Journal* on the 15th ult. By means of this device small batteries can be recharged in about six hours, and for accumulators up to seven ampere hours' capacity on a 100 volt circuit one 16 c.p. incandescent lamp is sufficient. Inspecting lanterns and test lamps, pocket volt and ampere-metres were also shown.

Unfortunately the Gainsborough Motor Engineering Company, Limited, were unable to show a finished specimen of their car as they intend to place it on the market, fitted as a *tonneau*

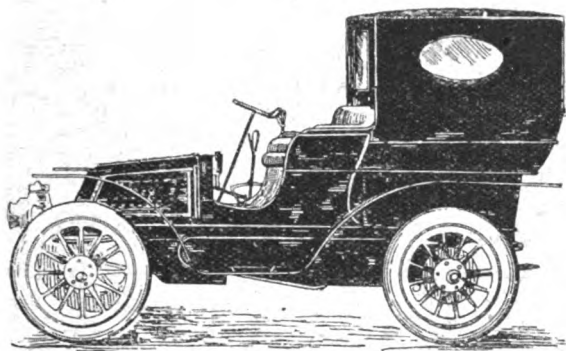


FIG. 43.—THE GAINSBOROUGH DUCHESS CAR.

and easily convertible into a brougham. By means of a model, however, the principle of their new invention was made clear. The sides, front, and top of the brougham body can be easily folded and dropped into a space about six inches wide, extending the whole depth of the vehicle. As this will externally appear as part of the panel, it will be undistinguishable from any other similar body. When fixed in position it will be kept rigid by safety clutches, while the joints are not only water-tight but dust proof. On this stand was the Gainsborough car, fitted with a horizontally-placed 16-h.p. engine with two cylinders, closed at both ends, and each containing one piston. Connecting rods outside the cylinder, and fixed to a shaft which passes transversely through the cylinder and piston, convey the power to the crank shaft. At the point where the shaft goes through the cylinder the latter is slotted, the slots being equal in length to that of the stroke. An aluminium crank shaft is fitted with an inspection plate. The power is transmitted by a Renold chain enclosed in a case. Three speeds and a reverse are provided as well as the familiar wheel steering, a float-feed type of carburettor and automatic lubrication. There are three double-acting brakes, the emergency brake being fixed to the countershaft, and a foot pedal actuating the band brakes fitted to the hubs of the hind wheels. Consequently no brake power is transmitted through the gear unless the emergency brake is brought into action. The car is mounted on long laminated springs with the bearing surface at each end bushed with gun-metal. It has a wheel-base of 7 ft. 6 in., and the pneumatic tyres are 870 by 90.

Specially designed to meet the requirements of motor-cars, the "Umpire" ignition storage batteries were shown by Messrs. Sutherland and Marcuson. These are fitted with elements of the Umpire type, held together by means of acid-resisting elastic bands, thus keeping the active material constantly under pressure and preventing it from falling away or losing contact with the grid. The "Umpire" storage batteries for carriage lighting were also exhibited by the firm. Owing to the compactness of this battery it can be placed inside the driver's box or under the seat, thus rendering it well adapted for lighting vehicles. The accumulator is of a solid character, and there being no liquid space the "washing" of the electrolyte is prevented. Hence the risk of removal of the active material from the plates is obviated. A 4-cell battery with a capacity of 30 amperes is the size recommended, this being sufficient for lighting three lamps for a reasonable time. In connection with this the "Umpire" charging board is employed. This instrument enables any form of battery to be charged from direct-current electric mains at any desired rate of charge. It also acts as a resistance, and in addition to indicating

the direction in which the current is flowing it gives an approximate indication of the amount of current passing.

Motor lamps and accessories formed the main objects of the display of Messrs. Salsbury and Sons, Ltd., special prominence being given to the Salsbury Flario acetylene lamp, which is well adapted for automobiles. The Flario tail lamp, which is securely attached to the tail of the car by a strong screw grip socket at the back, is another excellent production. This can be used as an inspection lamp by simply removing the ruby slide. A Flario side lamp, to burn paraffin, is made for big cars in two sizes larger than the Salsbury Dietz lamp, and that for very small cars in two sizes smaller. The Salsbury Search Light, the Salsbury Dietz Auto light, and the Salsbury automobile lamp, the latter to burn paraffin, were also shown. The Essaness voiturette lamp, introduced at the last Exhibition, was also on view, a special feature being that the back and front can be easily opened to gain access for cleaning. Mention may also be made of the firm's system of acetylene gas lighting for omnibuses and public vehicles. In this two lamps are employed, each giving a 30 candle-power light, and so arranged that the light is diffused equally in every part of the vehicle. This is a feature which should be seen by all interested in public service vehicles. Included among the accessories on Messrs. Salsbury and Sons' stand was the Salsbury motor spirit transfer Spout, by which motor-spirit can be poured from a motor-spirit can to the petrol tank of a motor, without any possibility of spilling. It is fitted with an air escape, and has the advantage of obtaining access to the motor where a funnel or can are impossible. Motor oil and lamp brackets for motor-cars completed a display which attracted considerable attention in the Arcade.

Messrs. G. W. Sheldon and Co., who undertake the packing and shipping of motor-cars, motor-cycles, etc., to all parts of the world, were present with full particulars of their facilities for dealing with such goods. The trade in motor-cars between various countries is not only a large but is also a growing one, a fact which encouraged the firm to have a stand at the Exhibition, thus bringing themselves before all who are likely to be interested in the matter.

The 1902 models of the Argyll cars, made by the Hozier Engineering Company, Limited, have been so recently described in the *Journal* (see issue February 15th last) that it is unnecessary for us to deal with them at length on the present occasion. Suffice it therefore to mention that four cars were shown—three *tonneaux* (Fig. 44) and a double phaeton—all fitted with 8 h.p. Simms motor magneto-electric ignition, with natural water circulation by means of the now well-known double motor bonnet tank, which

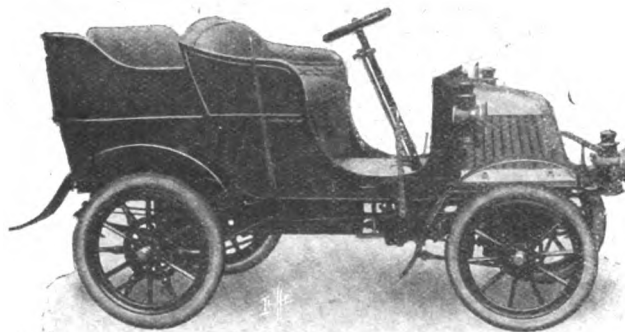


FIG. 44.—THE ARGYLL 8-H.P. TONNEAU.

forms a feature of the Argyll system. The power of the engine is transmitted through a friction cone clutch and change speed gear, giving three speeds forward and one reverse, and thence by double universally-jointed shaft to the live rear axle. The transmission gear has already been fully described, and it may be remembered that on the top speed the driving and the driven shaft, which are in line with one another, are clutched directly together, none of the gears being used to convey power. These cars appear to be well built, and have a very taking appearance.

Although this is the first time the Societe des Automobiles Delahaye have participated directly at any exhibition in England, the name of the firm, or at least of their cars, is very well known in motoring circles in this country. Altogether seven or eight cars were exhibited by this firm, ranging from 8 to 12 h.p. In our

with the transmission mechanism. For the first and second speeds, the belt is moved over on to the inner pulley (3); the latter is carried on a sleeve on which is mounted a spur-wheel, gearing with a pinion on a short forward countershaft. On the latter are also carried a couple of pinions, either of which may be

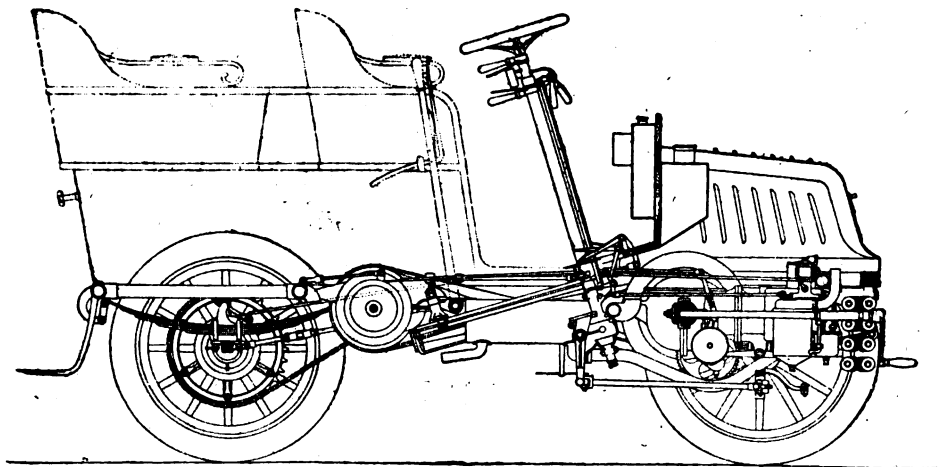


FIG. 45.—ELEVATION OF DELAHAYE LIGHT CAR.

issue of April 5th last we published a detailed description of the Delahaye 6 to 8-h.p. car, so that on the present occasion only a brief reference to the *tonneau* shown is necessary. Hitherto the motor in the Delahaye cars has always been located in the rear of the frame, but in the 1902 models a forward position for the engine has been adopted (see Fig. 45). The frame is of tubular construction, rendered rigid by a series of connecting stays. As regards the engine, the horizontal type has been retained, this having in the 8-h.p. car a single cylinder. The water circulation is maintained by a gear-driven pump and radiators. The ignition is, of course, electrical, and a novel feature is that combined with the spark-retarding device is an arrangement for opening the compression cock. Fig. 46 gives a section through the explosion end of the engine, from which it will be seen that the valves can be readily detached. The diagram also shows the water jackets to the valve-chambers, and the method of operating the exhaust valve. The cylinder is lubricated by means of the valve E, through

made to mesh with corresponding spur-wheels on the differential shaft, from which the power is conveyed to the rear road-wheels by the usual duplicate set of chains and chain-wheels. The change speed gear is enclosed in a dust-proof oil-containing case of aluminium. Steering is controlled by an inclined hand-wheel, on the pillar of which are mounted the levers controlling the motor and variable gear. The driver has three pedals under his control—one in connection with a throttle on the inlet pipe, one for shipping the belt on to the loose pulley, and one for shipping the belt and applying a powerful band brake on the differential shaft. The belt-shipping arrangement is so devised as to bring the belt on to the loose pulley from either the inner or outer driving pulley. A hand-lever at the side of the car actuates band brakes on drums

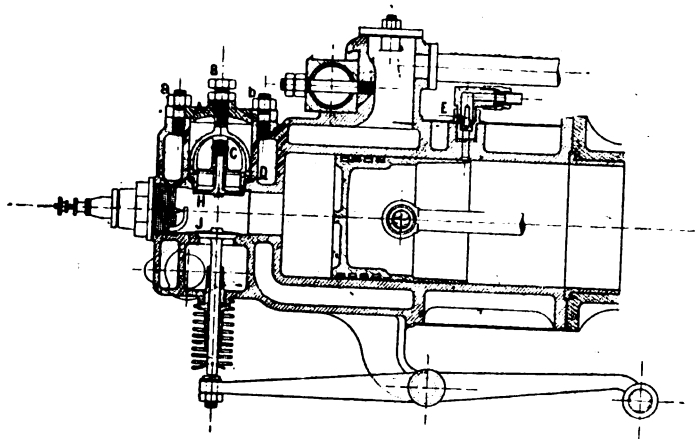


FIG. 46.—SECTION OF DELAHAYE MOTOR.

which a pre-determined amount of oil is admitted at the end of each suction stroke of the piston. Coming now to the transmission mechanism, it may be stated here that three speeds forward and a reverse motion are provided, controlled by two levers mounted on the steering column. The engine-shaft is equipped with a wide pulley, which is connected with either of three pulleys on the differential counter-shaft by a single belt. The outer of the three pulleys (1, Fig. 47) is keyed on the differential shaft, and when the belt is shipped on to it the high speed is obtained. The inner pulley (2) runs loose on the shaft, so that when the belt is on it the engine is thrown out of connection

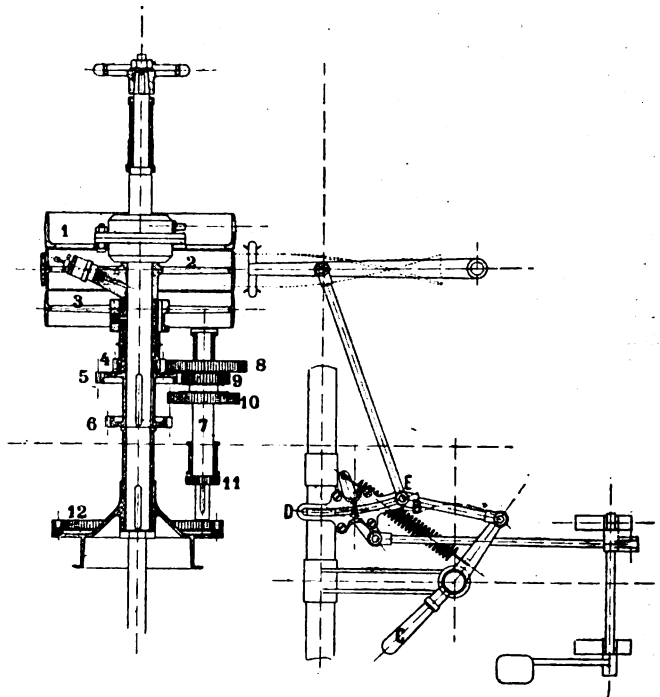


FIG. 47.—SECTION OF DELAHAYE CHANGE-SPEED GEAR.

attached to the hubs of each of the rear road-wheels. The frame is built low, and as the wheel base is long, a high speed may be attained without danger. The road-wheels are of the artillery type, all being 30 in. in diameter, and shod with pneumatic tyres. The next car we examined was a *tonneau* identical with the one above described, with the exception that it was fitted with a two-

cylinder engine developing 12-h.p. at a speed of 1,200 revolutions per minute. Of the old type Delahaye cars—that is to say, belt-driven vehicles with the engine at the rear—three were shown: an 8-h.p. single-cylinder car with *coupe* body convertible to victoria, having three speeds and a reverse obtained by means of two belts and gear wheels; a 10-h.p. double-cylinder vehicle with double phaeton body, and a 10-12 h.p. large break capable of seating six persons.

We are glad to find a firm of the standing of Messrs. Ransomes, Sims, and Jefferies taking up the construction of automobile machines for horticultural work, for, having now taken this step, it can only be a question of a short time ere attention will be devoted to self-moving agricultural machines. For some time past the firm have been experimenting with a motor lawn-mowing and rolling machine, and at the Exhibition they have on view an example of the type finally decided upon, and of which an illustration is given in Fig. 48. The machine is very simple in construction, compact in arrangement, and can easily be understood by any gardener or groundman. It consists of a 42-inch

its own length, enabling it to cut round flower-beds, etc. The machine can travel up to 5½ miles per hour, the petrol tank having a capacity sufficient for a run of six hours. The grass-box is emptied without stopping the machine by a special arrangement operated by the driver without leaving the seat. One man can work and manage the machine with perfect ease, and can get over much more work during the day than when using a horse-power lawn-mower. Not only is the horse and its consequent hoof-marks on the grass thus dispensed with, but also the man or boy required to lead the horse.

The stand of Messrs. Crossley Bros., Limited, was lighted by electricity, one of the firm's O.E. type of high-speed electric lighting engine, developing 12½-b.h.p. as a regular working load, being combined with a dynamo for the purpose. Messrs. Crossley also showed their "M." horizontal gas-engine, capable of developing 33-b.h.p., and their O.O. type of oil-engine of 6-b.h.p.

A. W. Gamage, Limited, had a varied display of motor accessories, clothing, sundries, etc., and it is no light task to select special items for mention where so many were included in the

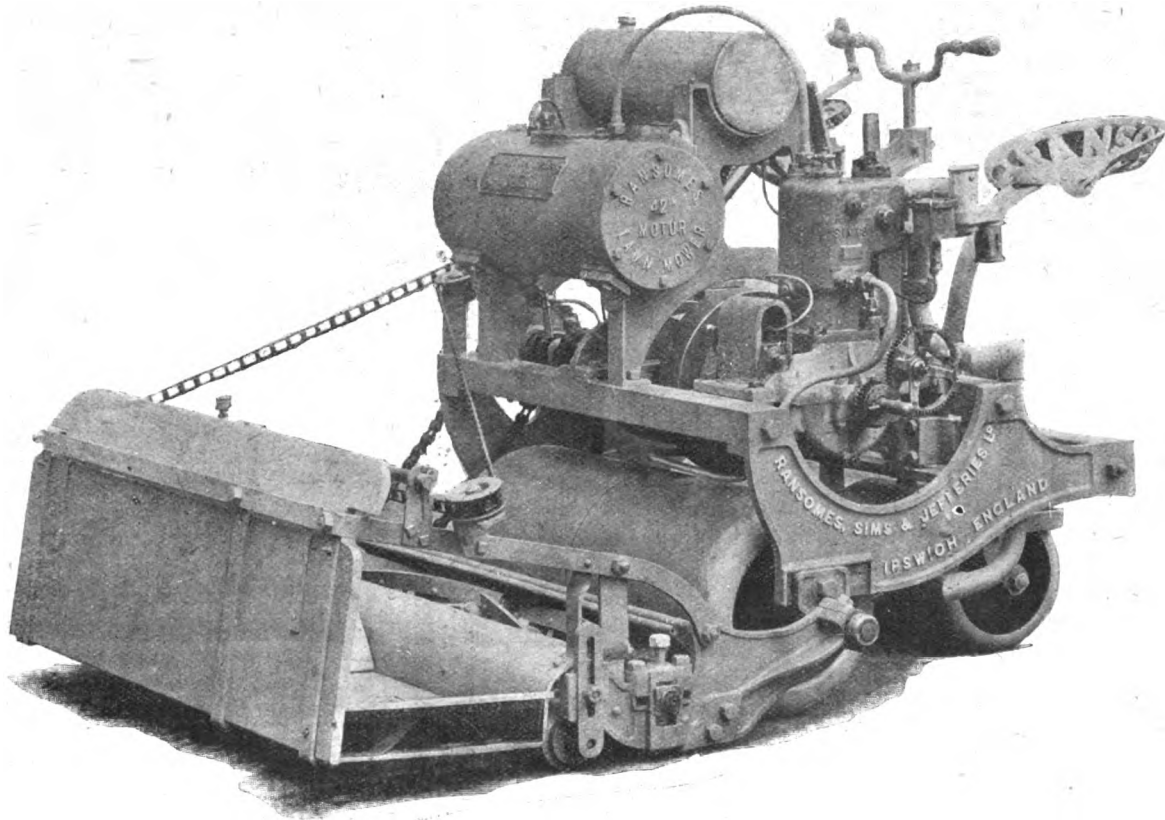


FIG. 48.—RANSOME'S MOTOR LAWN MOWER.

cutting cylinder, with patent divided knives and patent single-screw adjustment, which, with the bottom blade, front rollers and box, is carried on a separate frame, hinged to the main axle, to allow it to follow the inequalities of the ground. This cutting cylinder is driven by a 6-b.h.p. Simms' petrol motor with Simms Bosch magneto ignition, mounted on the main frame, to which the driving rollers, seat, etc., are also attached. The water circulation to cool the cylinder is maintained by a pump. The power is conveyed to the rolling cylinder by means of chain gear through a reducing arrangement, which is furnished with a simple gear for starting and stopping the machine quite independent of the motor. There is also a separate clutch for putting the cutting cylinder out of gear when it is required to roll the grass only. The driver sits on a spring seat behind the machine, his weight being carried by a pair of steering rollers. He has perfect control over every part of the machine, the handles and levers for starting, stopping, steering, and emptying the grass-box being arranged so as to be easily within reach from the seat. The steering arrangement is such that the machine can turn in

range of exhibits. Clothing was an important feature of the exhibit, comprehending everything requisite, from foot muffs to mica shields, with veils for the protection of ladies' faces when riding. Ear-guards to withstand frost in cold latitudes were also exhibited. There was a varied assortment of pumps, including one pattern fitted with nozzles adapted for different makes of valves, tool bags and baskets, the "Vincent" folding jack, odometers, oilcans, lamps, brackets, etc.

At the stand of the Auto-Lubrine Company tests were made during the Exhibition demonstrating that the speciality of the company—a motor cylinder oil known as Auto-Lubrine—remains fluid at a temperature below zero. Auto-Lubrine has a high flash point, and, while not solidifying when subject to intense cold, does not lose its lubricating properties at exceptionally high temperatures. It is free from acid, and has the advantage of not leaving any deposit on the valves or plugs. The fact that Auto-Lubrine is clean in use has been amply demonstrated by some tests we have been able to make on our own car where it has proved very satisfactory.

Messrs. Humber, Limited, exhibited one each of their new 12-h.p. four-cylinder and 8-h.p. two-cylinder cars, which are of entirely new design throughout; also a chassis of the 12-h.p. four-cylinder. Close inspection proved that the firm has made a great advance since the Exhibition of last year, when they exhibited voiturettes with $4\frac{1}{2}$ -h.p. engines. The new cars are beauti-

the water jacket above the head. The cylinders are $3\frac{1}{2}$ -inch bore by 4-inch stroke, and the normal speed is 900 revolutions per minute. Both tube and electric ignition are fitted, and a float-feed carburettor with gravity-feed is used. The exhaust valve cam shaft lies outside the crank chamber and terminates at the forward end in the governor which operates a hit and miss control on the

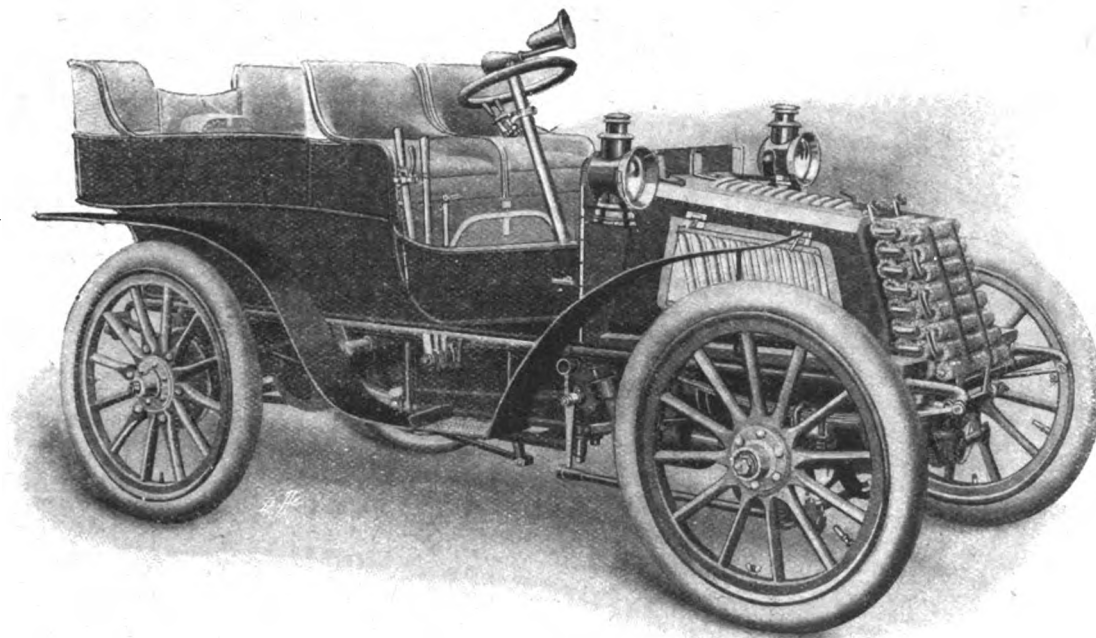


FIG. 49.—THE HUMBER 12 H.P. TONNEAU.

fully finished, and every care has been taken in designing them, all parts being easy of access. Particularly is this so in connection with those parts which require the most attention. The 12-h.p. four-cylinder car was fitted with a Limousine body and a covered-in top, making the two rear seats practically into a brougham, the front seats being protected with an overhead canopy with a glass front. The 8-h.p. two-cylinder car had a roomy and luxurious body of the *tonneau* type, with extra baskets at the sides for carrying spare parts, etc. The 12 h.p. chassis was

exhaust valves. A semi-rotary pump is fixed beneath the crank chamber and is worked by a crank pin on the end of the cam shaft. The regulation of the speed of the engine in traffic is effected by a throttle valve on the admission operated by hand. The valves can be readily removed by simply taking off two nuts. The carburettor has a neat and effective means of removing the cover to inspect the vaporising chamber, the loosening of the thumb screws at the side being all that is necessary. The

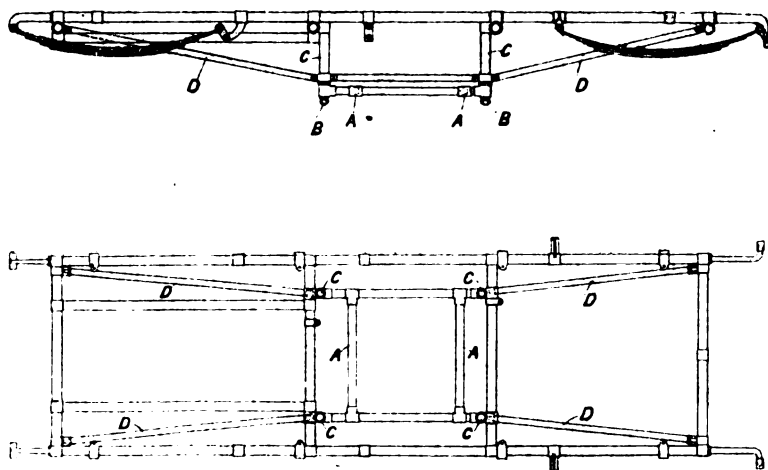


FIG. 50.—ELEVATION AND PLAN OF FRAME OF HUMBER CAR, SHOWING GEAR-CASE CRADLE.

shown as an example of the quality of material and work put into the cars. The wood wheels were left the natural colour, and most of the metal portions were also finished up to the point of receiving their first coat of paint. All the working parts of the engine, gears, brakes, etc., were open to view, so that intending purchasers could see the interior workmanship. The motor (Figs. 51 and 52) comprises four cylinders, in two pairs, each pair being last in one piece, but having an aluminium plate to form the top of

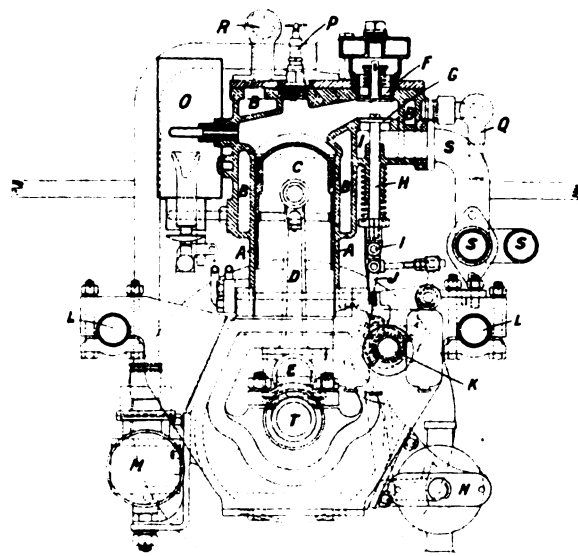


FIG. 51.—SECTION OF HUMBER MOTOR.

friction clutch is made of aluminium, leather lined, the power being transmitted through it to a change-speed gear which furnishes four forward and one reverse speeds, all actuated by one lever, although an extra lever is fitted, so that the intermediate spur wheel for the reverse can be thrown out altogether, if required. The first motion shaft, which is placed in the centre

line of the frame, carries the sliding pinion, and the second shaft driven by it is in the same horizontal plane on the left-hand side. The power is then transmitted through a universally-jointed shaft and bevel gearing to the live rear axle. The universal joints are made with steel pins of large diameter, having phosphor bronze centres, completely enclosed in a dustproof case with oil bath. A double-acting band brake, actuated by a foot pedal, is fitted on the second motion shaft; it is made of a series of blocks of hard phosphor

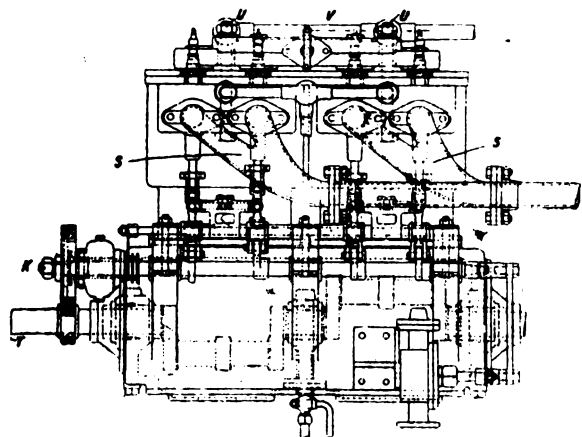


FIG. 52.—ELEVATION OF HUMBER FOUR-CYLINDER MOTOR.

bronze, which press upon a malleable iron drum. The band brakes on the hubs of the rear wheels are brought into play by a flexible steel cord, passing from one brake round a pulley mounted on the brake lever, to the other side brake, and thus giving a compensating action between the two double-acting brakes. Artillery wheels, fitted with 32 by 3½ in. Michelin tyres are used. The ends of the live axle on which the driving wheels are mounted are square in section. The tubular frame (Fig. 50) is on the girder principle, the design having been registered. In connection with it there is also an arrangement whereby the gear case is fitted in a cradle so as to be readily removed when necessary. After disconnecting the longitudinal shaft and removing four bolts, the cradle, with the gear box, can be removed bodily from the car. The engine is designed to lie low in the frame, enabling a rakish bonnet to be fitted. The latter is hinged from the dashboard, and simply by undoing two spring attachments it can be flung up and the whole engine exposed to view. In conjunction with this, also, the firm use their hinged radiator, which swings down in front of the car, leaving the whole of the engine, carburettor, water tank, pump and other working parts easy of access for any

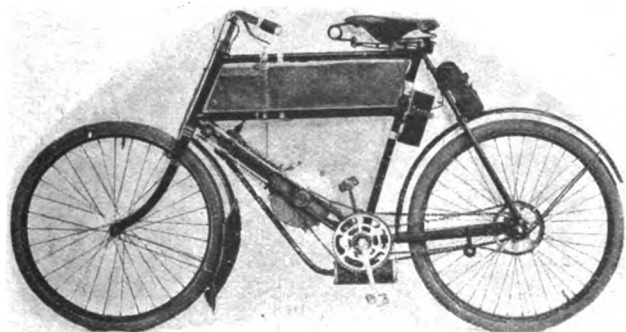


FIG. 53.—THE HUMBER CHAIN-DRIVEN MOTOR-BICYCLE.

attention required. Another point to which reference may be made is an open steering wheel, which only has one arm instead of the three or four generally used. By this means the controlling levers are placed within a few inches of the driver's hands and can be readily manipulated. The wheel base of the 12-h.p. car is 7 ft., and the weight about 17 cwt. The general arrangement of the 8-h.p. car is identical with the one above described, the only difference being that it is fitted with an engine having two cylinders 4 in. diameter by 4 in. stroke. It weighs, complete, about 15 cwt.

The Humber Company also displayed two types of motor-bicycles, one being chain-driven (Fig. 53) and the other belt-driven. The first is fitted with a 2-h.p. motor, which is so constructed as to form a portion of the frame, being let into the tube which runs from the head to the bottom bracket. The power is taken from a small chain wheel containing a cushioning spring clutch on the engine shaft, to the crank bracket, and thence by a separate chain on the left-hand side to the driving wheel. The usual foot driving chain is retained on the right-hand side. Free wheels are fitted, which permit the machine to run downhill without using the motor, and without the cranks revolving. The machine can be pedalled, when necessary, as an ordinary cycle. The petrol tank and carburettor, as also the lubricating oil tank, are carried within the main frame. A pump is connected to the latter tank, to permit the motor to be lubricated without the rider having to dismount. The engine develops about 2-h.p. at a speed of 1,500 to 1,800 revolutions per minute. Another special feature in this machine is that there is a small pawl working on a ratchet wheel, which can be disengaged by the foot without dismounting, enabling the machine to be pedalled as an ordinary cycle. This is especially useful in the case of running short of petrol, etc., there being no need to disconnect any part of the motor or chain to pedal the machine easily. The machine is controlled by a small button-topped rod and screw regulator, placed on the top tube in front of the rider. The left-hand button regulates the mixture of petrol and air, and the right-hand rod controls the speed of machine, regulating the half compression for starting and the forward ignition for speed. The current is switched on or off by the brake lever, on the right-hand side of the handlebar. By slightly pulling this lever the circuit is broken, and by a further pull a rim brake is applied on the front wheel. A new departure was to be seen in a motor-tricycle, which as regards engine and frame follows the lines of the Humber chain-driven motor-bicycle, a pair of wheels and balance gear being attached to the rear frame in place of the bicycle's back wheel and forks. This makes a light and easily-pedalled tricycle, which is furnished with substantial footrests, and a band brake on the balance gear applied by depressing a pedal lever. The "Beeston-Humber" belt-driven bicycle with Minerva 1½-h.p. engine was also shown, but this is too well known to need description at this time.

A new motor-bicycle, of Swiss design and construction, was to be seen at the stand of the Geneva Motor Company. Illustrations of the machine are given in Fig. 54. The motor, which is of the air-cooled type, developing 1½-h.p., is supported by a hinged joint from the crank case to an extension of the bottom bracket. On the engine shaft is a leather-faced pulley which drives the tyre of the rear-wheel by frictional contact. A long lever is provided,

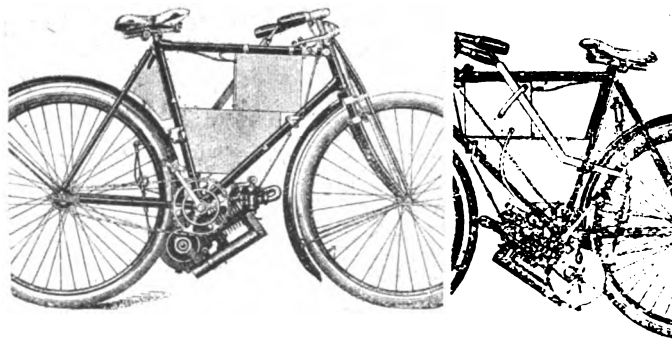


FIG. 54.—THE GENEVA MOTOR-BICYCLE.

by means of which the whole engine can be moved through a small distance, and the leather-faced pulley moved away from, or put in contact with the tyre. A spray type of carburettor is used. The frame of the machine is of strong construction, duplicate front forks being used. The petrol tank contains 6 pints, said to be sufficient for a run of about 120 miles. The oil-reservoir contains one litre (1¾ pints), the crank chamber being filled with lubricant by means of a pump. The machine complete weighs about 85 to 90 lbs.

A useful display of axles, ball and roller bearing hubs, frames and gears was made by Mr. J. R. Churchill. Conspicuous among other exhibits was the *chassis* of a car for goods conveyance, fitted with axles, artillery wheels with solid-rubber tyres, ball and roller bearings, hubs, inclined screw steering gear and ball joint connections. He had also on view a frame with a "bee-line attachment" for the driving wheels of vehicles. Each driving wheel is carried by a pivoted link of special design. The links can swing independently on an axis parallel with that of a transverse countershaft, and also with the axes of the driving wheels. The wheels run loose on axles forming part of the links. By this device Mr. Churchill claims to prevent all side stresses from reaching the springs, thus securing resiliency and easy running. The combination ball and roller bearing hub, described and illustrated in our issue of the 12th ult., was also shown.

Although Messrs. Carless, Capel and Co. made a display similar to that with which they attracted notice in 1901, it proved attractive to practical motorists visiting the Exhibition. Of course, samples of petrol were prominently placed, including a 700 sp. gr. petrol, specially suitable for tropical countries, while information was given daily with regard to the other mineral spirits specially prepared for use in spirit motors. A

the idea has been, by adopting an angular rim in combination with the formation of the rubber, to obviate the breaking away of the tyre. The rubber is not pinched by the edges of the rim, and it cannot get cut on them. The lines of force from a side pressure strike the angular rim and rebound, wedging the tyre more securely in the rim in proportion to any strain put upon it. Specimens shown included 2½ and 3 inch Buffer tyres, as well as a set for use on motor-cars destined for public service around Johannesburg. These tyres are now being fitted for some of the fast cars, including the Napier, and also on the driving wheels of voituresses. We hear that the president of a provincial automobile club has recently adopted the Buffer tyres on his Serpollet car.

Peugeot cars form the whole of the exhibit of Messrs. Friswell, Limited. Naturally, the new models with the engine in front instead of at the rear were given a prominent place. First we examined the Baby Peugeot, of which a description and illustration was given in our issue of January 25th last. This little vehicle is meeting with a large sale among those requiring a two-seated car at a moderately low price. The motive power is supplied by a vertical single-cylinder engine of 5-h.p., carried under a bonnet under the fore part of a tubular frame. The cylinder has a dia-

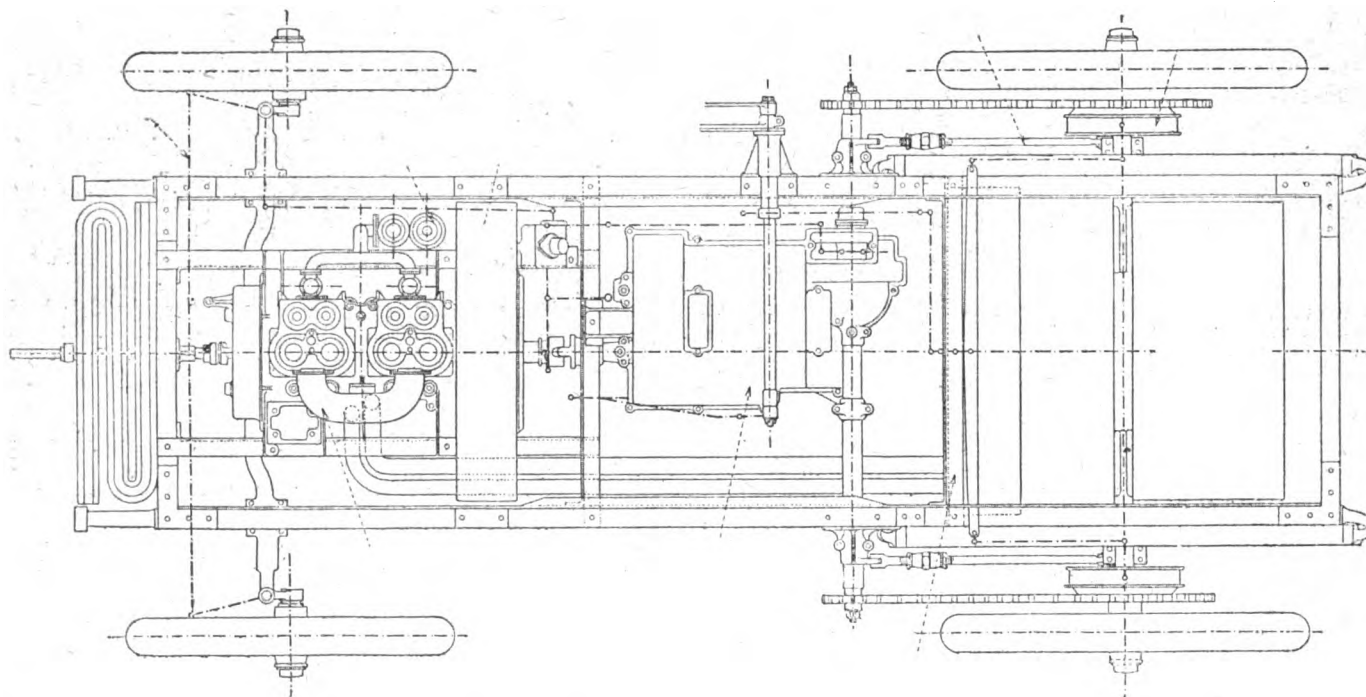


FIG. 55.—PLAN OF PEUGEOT 10-H.P. CAR.

speciality shown was Carline, an oil of great viscosity and high flash point, suitable for high-speed motors and air-cooled engines. Lubricating oils, lubricating grease, gear-case oil, spindle oils, etc., were also shown. Other special features included the firm's petrol storage tanks and receptacles for the conveyance of petrol, oils, etc. One of the attractions at this stand was a patent benzine safety lamp suitable for lighting motor-car houses, or for use in any buildings where inflammable materials are stored. The lamp is constructed on the principle of the Davy safety lamp, which is the interposition of a fine wire gauze between the internal flame and the external atmosphere, the action of the wire gauze being to radiate or dissipate any heat from the flame, and so reducing the temperature much below that necessary for the firing of an explosive mixture of air and petrol vapour. The burner consists of a double wick raised and lowered from below, and it is ignited by the flame produced by striking a portion of prepared cotton which is carried in a small metal box; the lamp can thus be lit without opening it to the outside air—an undoubted great advantage.

The first tyres seen in the Hall were the patent Buffer tyres of the Sirdar Rubber Company, Limited. In designing these

meter of 3½ in., the stroke being 3½ in. The ignition is electrical, while the water circulation is maintained by pump and radiators. The governor acts both on the admission pipe and the ignition. Two speeds forward and a reverse motion, controlled by a single lever at the side, are provided. The engine is connected by a friction clutch to the gear box, while from the latter the power is conveyed to the rear "live" axle by a universally-jointed shaft and bevel gear. A pedal, located close to the driver's foot, actuates a powerful band-brake on the differential gear; while there are hand-operated band-brakes on drums connected to the hubs of each of the rear road wheels. Inclined wheel steering, equal-sized road wheels of the cycle type, pneumatic tyres (650 × 65) are other features of the little car, which weighs complete about 5½ cwt. Of the 8 h.p. Peugeot cars two were shown—a *tonneau* and a double phaeton. This is fitted with a double-cylinder engine, which is set in the fore part of a low-built channel steel frame, under a Mors-like bonnet. The engine, which runs at a normal speed of about 750 revolutions per minute, is fitted with duplicate ignition arrangements—incandescent tube, and the Simms-Bosch magneto-electric; pump and radiators maintain the water circulation, a feature of the gear-driven pump being

its location in such a position that it cannot be damaged. As regards the transmission, three speeds forward and reverse motion, controlled by one lever, are provided, the arrangement adopted being very similar to that of the Panhard and Daimler systems—that is to say, the engine transmits its power to the rear road wheels through the medium of a friction clutch, gear box, differential countershaft, and the usual duplicate set of chains and chain wheels. The car, which weighs complete about 14 cwt., is fitted with inclined wheel steering, pedal and hand-lever operated

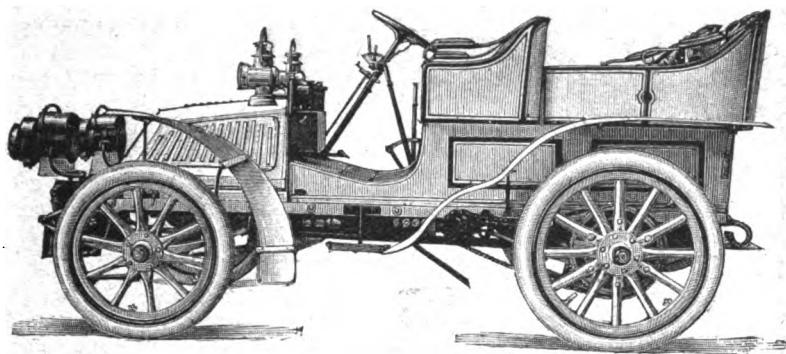


FIG. 56.—THE 10-H.P. PEUGEOT CAR.

band brakes, equal-sized artillery type road wheels, and 90 mm. pneumatic tyres. The leading novelty on Messrs. Friswell's stand was a new 10-h.p. Peugeot *tonneau* (Figs. 55 and 56), the first of the kind in this country. This car has a four-cylinder motor which is normally rated at 10-h.p., but develops up to 15-h.p. The inlet valves do not depend on the suction stroke of the piston, but are mechanically operated. The water circulation is maintained by a gear-driven pump and radiator, the water tank being located under the bonnet. The transmission follows the lines adopted in the 8-h.p. cars, but four speeds and reverse motion are provided, all controlled by one lever. The change gear is not of the sliding type, the gears being always in mesh, any one pair being made to drive by means of a sliding feather. The road wheels are of the artillery type, equal sized, and shod with stout pneumatic tyres. Three double-acting band-brakes are provided. The car, which weighs complete about 15½ cwt., is unusually quiet in operation. Finally, we may refer to an 8-h.p. landaulet with the engine at the rear, a type of car which is largely used in France.

Messrs. Th. Botiaux and Co., who are well known in France as builders of motor-car bodies, had an example of their workmanship on view in the shape of a well-finished *tonneau* body. Considerable interest was also shown in the Rassiner brake for motor-cars, of which it may be remembered we published a description with illustration in our issue of March 22nd last. The feature of the brake is the adoption of rolling friction instead of plain sliding friction. The device is composed of an annular ring, fixed either to the hub or to the spokes of the rear wheel, a bracket bolted to the axle and a lever, which is fulcrumed on a short shaft to press the rollers against the surfaces of the ring, which turns between them. The brake is certainly extremely simple, and appears to be effective; it is claimed that it cannot "fire," and that neither grease nor mud can affect its efficiency.

The old firm of Hurst and Lloyd has changed its title to Lloyd and Plaister. Their exhibit in the Gallery consisted of a couple of well-finished petrol motors. First we noticed a four-cylinder engine having cylinders 4 in. diameter by 5 in. stroke, and developing 18-h.p. at a normal speed of 900 revolutions. The two-cylinder motor is of similar dimensions as regards the cylinder diameter and stroke. The cylinders and heads are cast in a single piece, and the two to one gear, which operates the exhaust valves, is enclosed in the crank case. The latter is provided with a large manhole to afford access to the cranks and connecting-rods.

The "Still" system of electrical vehicles, exhibited by the Canadian Electric Vehicle Company, has already been dealt with at length in these columns. We first examined a 10-h.p. sporting

dogcart to accommodate four persons, and finished in two-coloured natural woods. It is fitted with an 80-cell (8-plate) Ideal battery for 200 volt circuit. A handsomely finished 10-h.p. landaulette to carry four persons inside and two outside was next inspected. This car is fitted with a battery of forty 16-plate Ideal cells, and has five speeds forward and reverse. The third car on the stand was an 8-h.p. electric wagonette to accommodate nine persons, finished in royal blue and black, picked out with old gold. This vehicle is specially constructed for country work or as a shooting car. Its battery and general arrangements are similar to the landaulette referred to above. The motor employed is of the well-known Still type, in which the fields revolve in one direction and the armature the other. This enables the motor to be made considerably lighter than usual, and also gives a differential action, so that no differential gear is required. In addition to the cars an example of the Still 4-h.p. 50-volt duplex electric motor was shown; also an 8-h.p. motor of the same type, and one of Still's patent six-speed reversible controllers. On the same stand was displayed a number of "Ideal" accumulators, for which Messrs. Shippey Brothers, Limited, are sole selling agents. They are put up in sets of 80, 100, 120, 150, and 200 ampere hour capacities, and 100 and 200 volt charging circuits. The feature of the "Ideal" battery is the use of an expansion plate, by means of which the cells are claimed to be able to withstand a heavy discharge rate without depreciation. A special light-weight set of accumulators is made by the firm for sparking coils, while an 8-volt set was shown specially adapted for the lighting of motor and other carriages.

Mors and Renault cars formed the exhibit of the Roadway Autocar Company, Limited. Of the former, one was a 10-h.p. "all-weather" car; the second was of the same horse-power, but fitted with *tonneau* body and landau top, while the third was a 6-h.p. *tonneau*. The Mors vehicles have already been dealt with at length in the *Journal*, but it may be mentioned that in the small size the power is supplied by a two-cylinder water-cooled engine, the cylinders being placed opposite to one another across the front of the frame, so that the two piston rods work on to a central crankshaft. The ignition spark is furnished by a magnet, while a governor and radiating coil are also provided. Three speeds forward and a reverse motion are available, the engine transmitting its power through a friction-clutch to the variable gear box, located towards the rear of the frame. From the

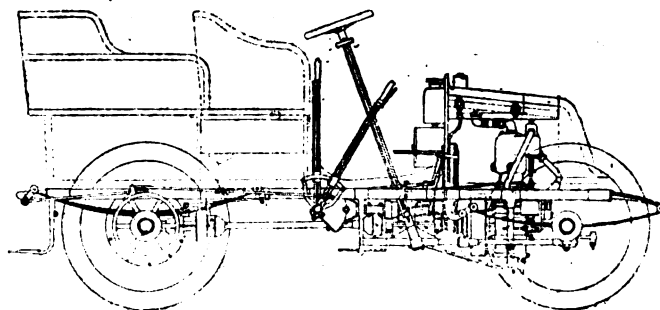


FIG. 57.—ELEVATION OF 8-H.P. RENAULT CAR.

differential countershaft duplicate sets of chains and chain wheels convey the power to the rear road wheels. Ample brake power is provided, there being altogether three brakes. Considerable interest was shown in the 4½-h.p. Renault car fitted with a light wickerwork top, converting the vehicle into a handy little parcels delivery van. Of the 8-h.p. Renault cars (Fig. 57)—the 1902 model—only a *chassis* was staged, but this attracted considerable attention. A description of this vehicle will be found in our issue of December 28th last.

Celluloid cells were the main feature of interest to motorists on the stand occupied by Messrs. Greenberg and Sons. This firm make a speciality of celluloid goods of every description, and, in addition to cells, have a celluloid separator for the plates of batteries.

In order to emphasise the fact that they only supply the trade, the East London Rubber Company modestly enclosed their stand from the gaze of the casual observer. Within was a complete selection of motor-car tyres, Aster, De Dion, and Kelecolm engines, coils, batteries, sparking plugs, accumulators, gear-boxes, lamps, horns, etc. Motor clothing was also on view, as well as a motor under-carriage. The company have a considerable business in automobile accessories.

Accessories, oils, etc., were shown by Messrs. G. Skudder and Co., whose specialities include "Gripolene" belt cream and "Skudderlene" lubricant. Oils for water-cooled motors, gear-boxes, and chains, bearings, and cylinders were also on the stand, as well as a selection of rotary pumps, valves, spanners, jointing, and rings, and motor-car requisites generally.

The exhibit of Mr. C. T. Crowden was of a varied character, and included a two-cylinder water-cooled motor with governed exhaust, a pair of strongly-built artillery wheels, and renewable gears for Daimler change-gear sleeves. Amongst other features

In conjunction with a 14-foot boat, Messrs. Lister and Sons showed a 2½-h.p. "Popular" motor, others of the "Popular" petrol marine motor at the stand being a 2½-h.p. and also a 4-h.p. engine. These are of the two-cycle type, with water-jacketed cylinders and cylinder heads. The 2½-h.p. motor will work at 500 revolutions per minute, and the whole weight is 165 lbs.

A general selection of cylinder, valve, engine, and lubricating oils, together with lubricators, oilers, and grease cups, etc., was shown by Messrs. W. H. Wilcox and Co., Limited. The Penberthy injectors for the boilers of steam vehicles and the ejectors for lifting and delivering the water supply were also on view. Messrs. Wilcox and Co., Limited, have a large selection of lifting jacks and screwing tackle for motor-cars, and general engineering stores and sundries completed their varied display.

The largely-used Benz motor-cars are kept well to the front by Messrs. Hewetson, Limited, who had nearly a dozen cars of different types on view. As announced in our issue of the 8th March last, the 1902 models have undergone a considerable



FIG. 58.—THE BENZ 10-H.P. DOUBLE PHAETON.

of this exhibit were a steering joint, and one of Mr. Crowden's cooling radiators, both of which have been described in the *Journal*.

The Carlton Motor Company had a varied exhibit of small motors, motor parts, and accessories, prominent among which was the carburettor which we described and illustrated in a recent issue. It will be remembered that it is a mixing device combined with the inlet valve. The Carlton 5-h.p. vertical motor is on De Dion lines. The cylinder is water jacketed, the whole being cast together with the valve chest in one casting of special pot metal mixture. The inlet valve and its seating is made detachable, and when removed from the cylinder casting permits the exhaust valve to be removed from its position. The water jacket extends all round the valve chest, so as to keep the valves as cool as possible. Each bearing is provided with an oil cup so arranged that the oil, which is contained in the crank chamber, and is splashed about by the fly wheels and crank shaft during revolution, is caught by the oil cups, thus automatically lubricating the main bearings.

change, the engine being now located under a bonnet in the fore part of the frame. In the issue mentioned we gave a fairly complete description of the new arrangement, the comprehension of which will be facilitated by the sectional elevation and plan of the 15 h.p. car given herewith (Figs. 59 and 60). The cars in question vary from 10 to 20 h.p., a chassis of the latter being exhibited. All very closely resemble each other in disposition. The engine is in all its essential features the same as the former type, consisting of two cylinders, the piston rods of which work on to a central crank-shaft, the valve boxes being arranged at the side of the ends of the cylinders, and the exhaust valves operated by double-jointed levers from a double cam on the half-speed shaft. The electric ignition can be advanced or retarded by a lever controlled from the driver's seat in the ordinary way. Two trembler coils are provided, one for each cylinder. With the exception of the 20-h.p. car, the new Benz vehicles are not provided with governors, but are controlled by a hand lever arranged under the driver's seat, which acts upon a throttle on the admission pipe. On the 20-h.p. car a governor is employed to perform

this operation automatically, while at the same time it can be cut out in order to accelerate when required. A further new departure is the employment of inclined steering pillars instead of the vertical form that has hitherto been adopted. A further peculiarity of the engine on the 20-h.p. car is

and is adapted to carry a load of 25 cwt. At this stand was also to be seen the Hewetson 1½-h.p. motor-bicycle, which has already been illustrated and described in these columns. The frame is of special strength, and the machine has an extended wheel base, which enables a long driving-belt to be employed. A special

feature is the attachment of the driven pulley, which, instead of being secured to the spokes of the rear wheel, is built up from a separate and independent hub, so relieving the spokes from strain.

Two interesting little cars were to be seen at the stand of Garages, Limited. One of these is the Oldsmobile, of which an illustration and description have already been given in the *Journal*. It may be mentioned, however, that the motive power is supplied by a 4-h.p. horizontal motor. Electric ignition is employed, the timing being effected by a small lever on the right-hand side of the seat. The petrol and water tanks are arranged at the rear, side by side with the silencer, which is of very large dimensions. Two speeds forward and a reverse motion are provided, the power being transmitted through a gear of the Crypto type and a chain, the latter working on to a chain wheel over the balance gear on the enclosed live axle. The low speed is thrown into action by tightening a band round the Crypto, the power on the high gear being transmitted direct. The body is mounted on long spring arms, the extremities of which are connected with the

front and rear axles. The rear wheels run on roller bearings, and the front wheels on balls, and all four are shod with single-tube pneumatic tyres. The petrol tank holds four gallons, which supply is said to be sufficient for a run of 100 miles over average roads. The base of the steering lever is connected with the front wheels through a spring, which absorbs all vibration caused by irregularities in the road. The motor is started, while sitting in the carriage, by means of a stationary crank at the end of the seat. The

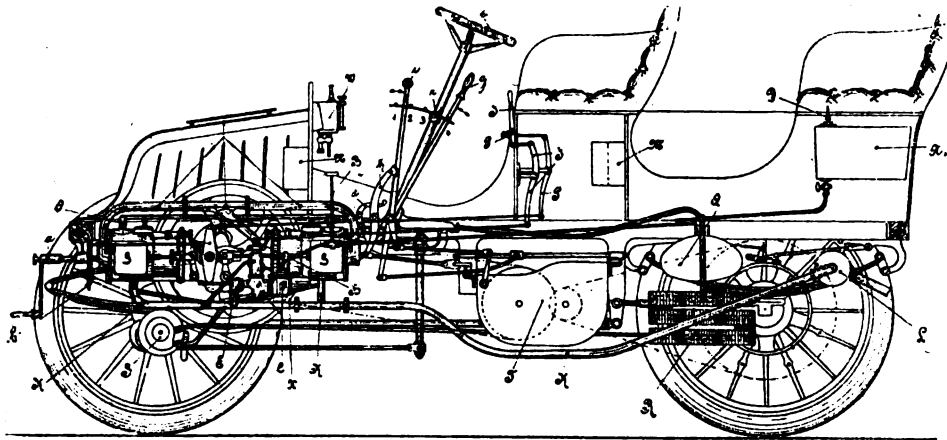


FIG. 59.—ELEVATION OF 15 H.P. BENZ CAR.

- | | |
|----------------------------|--------------------|
| A. Petrol tank. | N. Induction coil. |
| B. Petrol supply cock. | P. Ignition lever. |
| C. Carburettor. | Q. Water tank. |
| F. Induction pipe. | R. Cooler. |
| H. Throttle. | S. Pump. |
| I. Throttle control lever. | T. Countershaft. |
| K. Exhaust pipe. | U. Loose pulley. |
| L. Exhaust box. | V. Fast pulley. |
| M. Accumulators. | W. Multiple oiler. |

that the half-speed shaft is worked from the crank shaft by side skew gearing, and operates the exhaust valves directly instead of through the intermediary of double-jointed levers operated by a double cam, as in the case of the smaller cars. In all the cars the valves are mounted so as to be separately detachable, and can be got at and removed without interfering with any other essential part of the motor. The transmission is by belt drive with fast and loose pulleys from the engine shaft to a countershaft, which forms part of an enclosed change-speed gear of the Panhard type arranged transversely, from the second shaft of which the power is conveyed to the rear road wheels by the usual duplicate set of chains and chain wheels. The belt with the fast and loose pulleys takes the place of the friction clutch in other types of car, and arrangements are made by which the belt is thrown on to the loose pulley by a foot lever when the change-speed gear is to be operated by the lever. Four speeds forward and a reverse motion are provided, while a pedal actuates a band-brake on the countershaft, and a hand lever double-acting band-brakes on drums attached to the hubs of the rear road wheels. Of the 10-h.p. size, a chassis was shown in addition to a complete tonneau and a double phaeton (Fig. 58), while a similar car to the latter, but with 15-h.p. engine, was also staged. The 10-h.p. car weighs about 15 cwt., the 15-h.p. 19 cwt., and the 20-h.p. 21 cwt., the latter being able to attain a speed of 42 to 44 miles per hour on a good level road. Another vehicle on the stand was fitted with a 7-h.p. double-cylinder engine, located at the rear of the frame, while later in the week a 7-h.p. lorry of the type illustrated in the *Journal* about a year ago was brought into the Hall. This is fitted with a single-cylinder motor in the fore part,

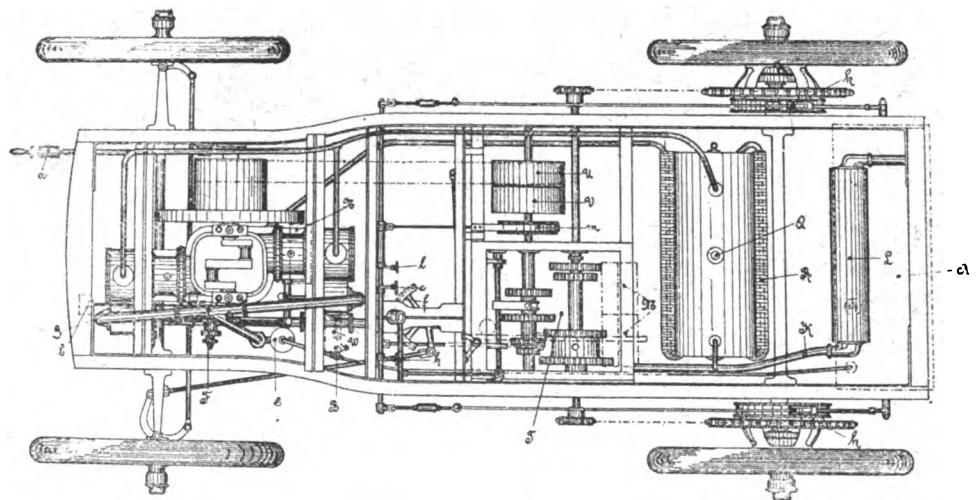


FIG. 60.—PLAN OF 15 H.P. BENZ CAR.

- | | |
|------------------------------|------------------------|
| A. Starting handle. | G. Change-speed gear. |
| C. Beltstriker. | K. Band brake. |
| F. Steering pillar quadrant. | L. Countershaft brake. |

speeds are controlled by one lever, which is moved forward for the forward speeds and backward for the reverse. The highest speed is obtained by increasing the speed of the motor; this is accomplished by means of a foot lever, which acts upon the governor, and also by varying the time at which the ignition takes place.

The second car was a Baker two-seated electrical phaeton, also of American construction. The frame is of tubular construction, the motor being supported at about the centre, and driving the rear live axle by means of a centrally-located chain. The motor, which is of the multipolar type, is constructed with special windings, and will, it is claimed, stand any load the battery will

fitted as desired. The petrol tank has a capacity sufficient for a run of 170 miles. The machine appears to be of sound construction, and we shall probably give an illustration of it at a later date.

Considerable interest was shewn during the week in the chassis of the new four-cylinder car of the New Orleans Motor Company, Limited. A brief description of this vehicle has already

been published in the *Journal*, but it may be mentioned that the motor is carried under a bonnet in the forepart of a tubular frame. (See Fig. 63). The engine has four separate cylinders, mounted on a single crank chamber. The cylinders are 100mm. in diameter by 105mm. stroke; a governor, which acts on the admission, is provided, it being located in an independent gear case filled with oil. The water circulation is maintained by a gear-driven pump and radiator, while the carburettor is of the Sthenos float-feed type. The engine transmits its power through a pedal operated friction clutch to the change-gear box and thence by a universally jointed shaft and bevel gearing direct to the rear axle. The change gear wheels are of exceptional width, while the shafts of the same run in long and well-lubricated bearings. The forward

speeds are controlled by a lever at the side, a separate handle being provided to control the reverse. One of the chief features of the change-gear is that a change from any one speed to another can be made without the other two speeds being passed. For instance, speed can be changed from the fourth speed to the first, missing the third and second gears. The rotation of the clutch is checked whenever the speed is changed by the primary application of a

furnish without "burning" out. The controller, which is simple and practically non-sparking, is adapted to give three speeds, the maximum being 16 miles per hour. A battery is provided having a capacity sufficient to run the vehicle a distance of 40 miles on one charge. The car, which is fitted with cycle-type wheels and pneumatic tyres, weighs complete about 8 cwt.

A new four-seated *vis-a-vis* car—the Ilford—made its first public appearance at the Show at the stand of the Ilford Motor Car and Cycle Company. It is propelled by a 5-h.p. M.M.C. motor set in the fore part of the frame, and driving the rear axle through a friction clutch, gear box, and bevel gearing. Three speeds and a reverse motion are available, a lever controlling the forward and a pedal the backward motion. The water circulation is maintained by a chain-driven pump and a radiator. An inclined hand-wheel controls the steering; ample brakes are provided. The road wheels are of the artillery type, shod with Clipper-Michelin pneumatic tyres. The Ilford Company also staged a Regina motor-tricycle, fitted with a 1½-h.p. engine arranged vertically in front of the bottom bracket, the frame of the machine being of special construction. The rear pulley is secured to the rim, and motion is transmitted by a wide flat belt.

The latter is adjusted by the rear fork-ends, and the chain by means of a jockey pulley. The machine has a triple head, switch on the left handle, Bowden exhaust valve lifter, sight-feed pump lubricator, and Roubeau spray carburettor. The front brake acts on the rim, and at the back either rim brake or back-peddalling can be

leather lined brake on the end of an extension of the gear-shaft at the rear end of the gear box. Adjustable ball joints are fitted to the steering rods. Equal sized road wheels of the artillery type are employed. As to the brakes, a pedal controls one of the band type on the rear end of the longitudinal shaft, while a hand lever

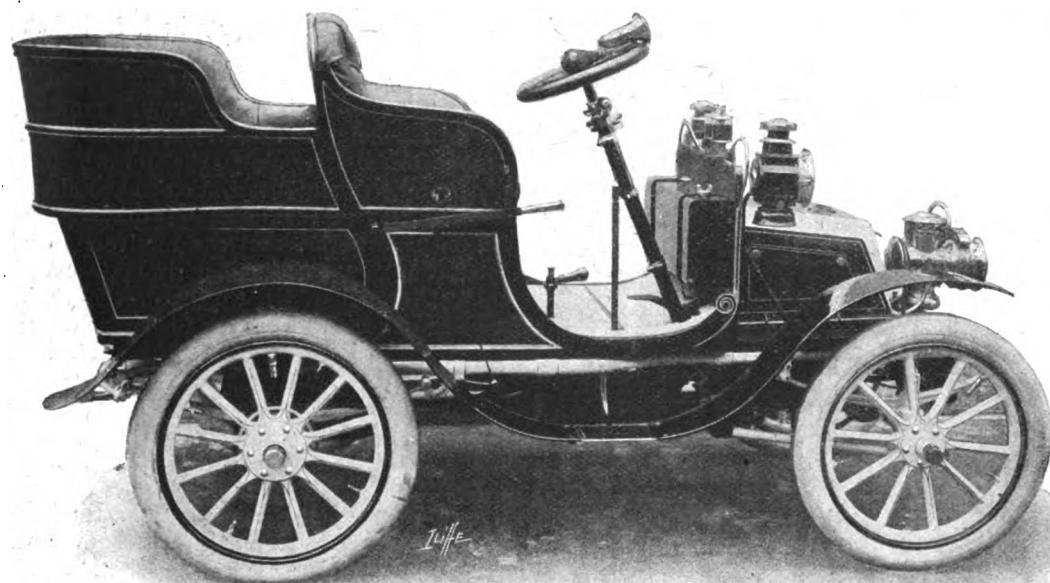


FIG. 61.—THE NEW ORLEANS 9-H.P. TONNEAU.

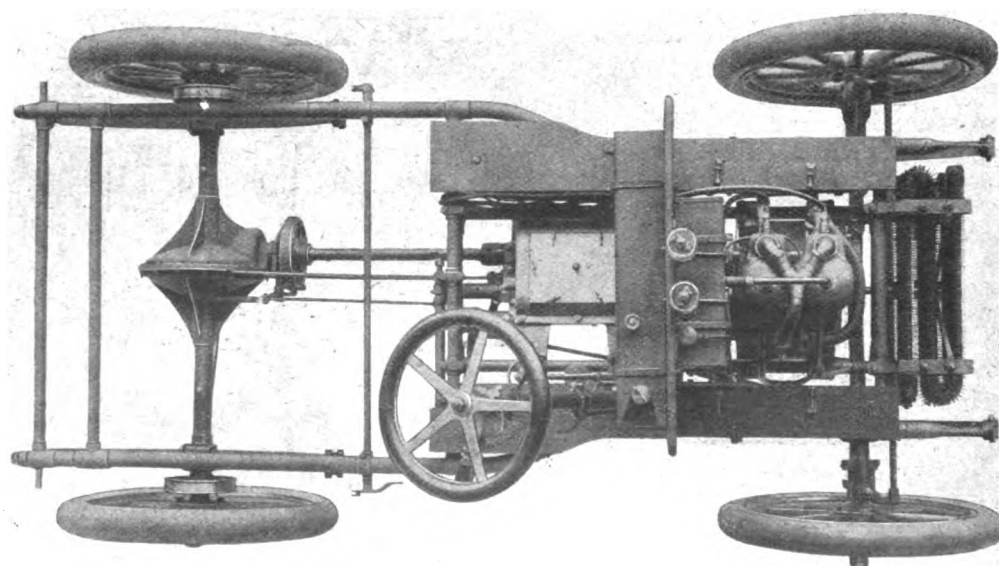


FIG. 62.—PLAN OF NEW ORLEANS 9-H.P. CAR.

at the side actuates band brakes on each of the hubs of the rear road wheels. Altogether the car appears to have been well thought out, the workmanship being of the highest order. A four-seated *tonneau* on similar lines, but fitted with a two-cylinder motor, developing 9-h.p., was also staged, Figs. 61 and 62. In this vehicle three speeds and a reverse are provided, the car complete weighing about 10 cwt. Another *tonneau* had a 8-h.p. two-cylinder motor, while finally we may mention the well-known

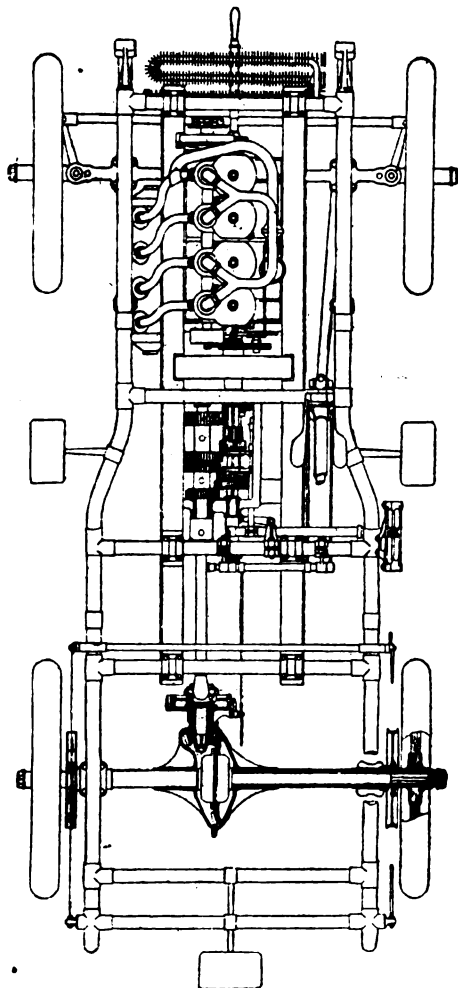


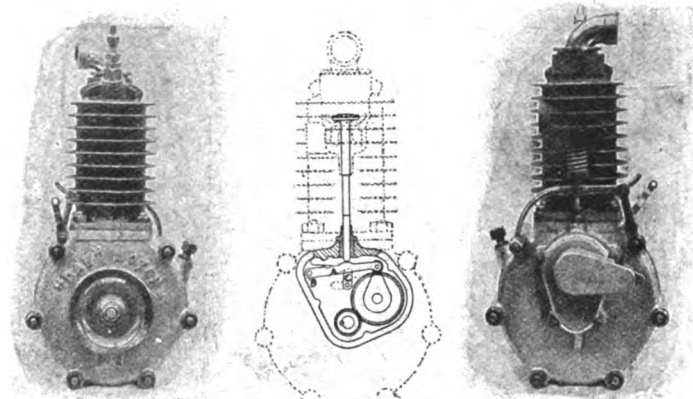
FIG. 63.—PLAN OF NEW ORLEANS FOUR-CYLINDER CAR.

3½-h.p. two-seated *voiturette*, of which a large number are in use up and down the country.

Messrs. J. W. and T. Connolly had a good collection of wheels fitted with their "Ideal" rubber tyres. These can be applied to all existing rims, and have been adopted by some of the leading motor-car firms with great success. The tyres are held on the rim by means of two electrically-welded wires in such a way that it is claimed that the tyres cannot come off the rims or creep. The tyres are now being made in sizes for heavy vehicles. Samples of the tyres were shown fitted to both wood and steel wire-spoked wheels. The firm also made daily demonstrations of their system of electrical welding.

Messrs. Dalton and Wade made a first appearance at the Motor-Car Exhibition, introducing a new petrol motor known as the "Daw." It is intended for motor-bicycles, and is of 1½-h.p., fitted with large valves, and having a large bearing and wearing surface. A rocking arm operates the exhaust valve stem in place of the cam commonly employed. The "Daw" combined exhaust valve gear and lifter was also shown, the idea being to thus increase the durability of the valve gear, which has to withstand more shocks and wear than any other part of the small petrol motor. The general arrangement of this device will be seen from Figs. 64, 65, and 66. When the cam C is in position, as shown dotted, the exhaust valve is opened and closed in the ordinary way through the lever A, which pivots about B. By raising C into a

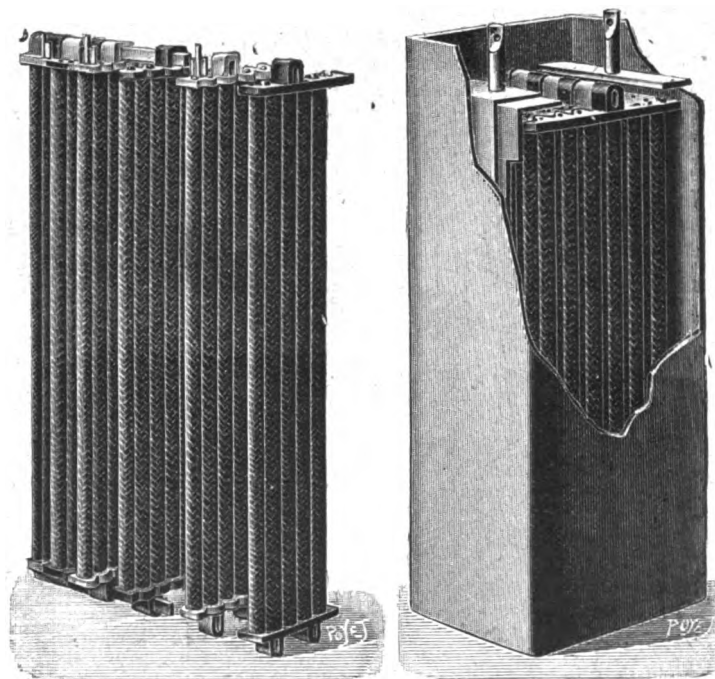
vertical position the lever A is prevented from falling and the exhaust valve thus kept open. Other exhibits on Messrs. Dalton and Wade's stand included a brush-spraying carburettor. Different types of steering wheels, aluminium and phosphor bronze castings



FIGS. 64, 65, AND 66.—ELEVATIONS OF DAW MOTOR, SHOWING EXHAUST VALVE LIFTER.

for motor-cars, and also a selection of cylinder castings, of which line the firm seem to be making a speciality, completed the display.

A new electrical accumulator or storage battery known as the "Max" was exhibited by the Société des Accumulateurs Electriques "Max" (Ruphy and Co.), who inform us that it has been adopted by the French Ministry of Marine, after a series of very severe tests at the Central Laboratory in Paris. The special feature of the accumulator is the cylindrical form of the electrodes, which are made of a core of lead wire laminated with antimony, surrounded by active material, and protected by a covering or coating of asbestos, which prevents the disintegration of the active material. These electrodes are held vertically by pieces of ebonite and lead, of serpentine shape, associating one with the other, so



FIGS. 67 AND 68.—THE "MAX" ACCUMULATOR.

that a positive always finds itself surrounded by negatives and *vice versa*. The electrodes are entirely manufactured by mechanical processes which ensure a uniformity of production. The battery is claimed to possess all the requisite qualities, such as high capacities, long duration, lightness and cleanliness. It is made in a wide range of sizes, the 1,800 ampere-hour battery discharging at the rate of 50 amperes for 36 hours, the weight being about 400 lbs.

Lubricators of various kinds were shown by Messrs. Hunt and Mitton. These included a needle syphon with clear glass body and gun-metal mountings, improved positive feed plunger and sight feed injector lubricators, and polished brass oil distributing boxes.

The Gobron-Brillie cars exhibited by Messrs. Botwood have a

ratchet actuated by a hit-and-miss lever on the governor shaft, in such a manner that absolutely no more petrol is consumed than the exact quantity required. There are certain peculiarities in the construction of this feed which enable the user to employ either ordinary petrol, alcohol, benzoline, or any inflammable spirit without alteration. It is also stated that in case of emer-

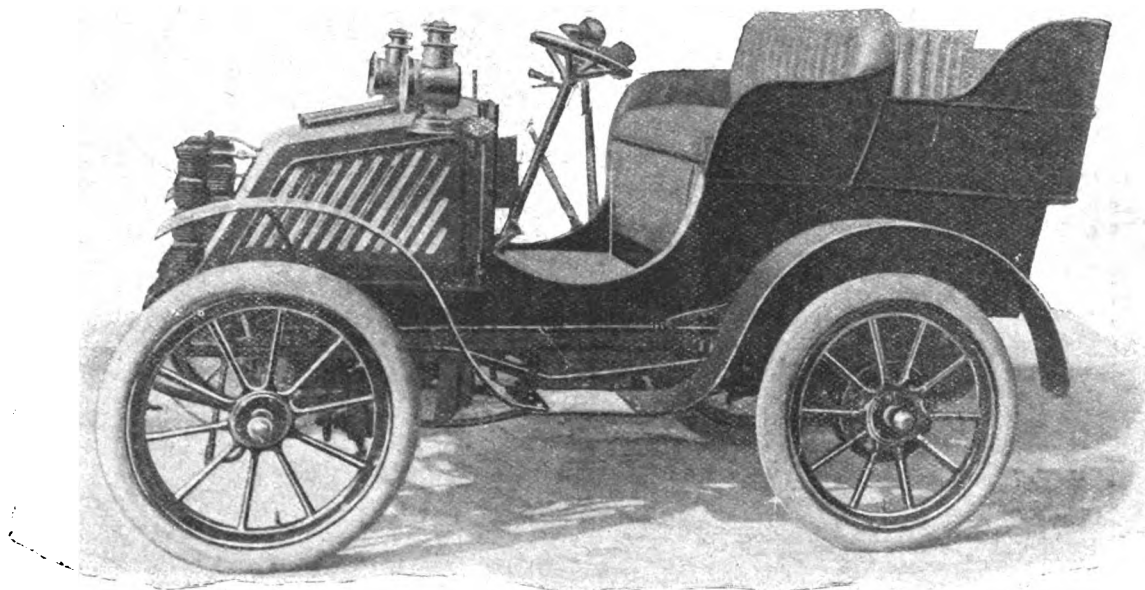


FIG. 69.—THE GOBRON-BRILLIÉ 12 H.P. TONNEAU.

well-earned reputation, which, judging from the vehicles displayed, should be well maintained by the 1902 models. The leading novelty was the new 12 h.p. car, with the engine under the bonnet in the fore part of the frame (Fig. 69). To enable visitors to inspect the details they wisely included in their exhibits a complete chassis without body, in which the motor and mechanism can be readily inspected. The engine (Fig. 70), which is located at the front end of the frame, is of the vertical type; while there are only two cylinders there are four pistons, the explosions taking place between them. The piston rods of the

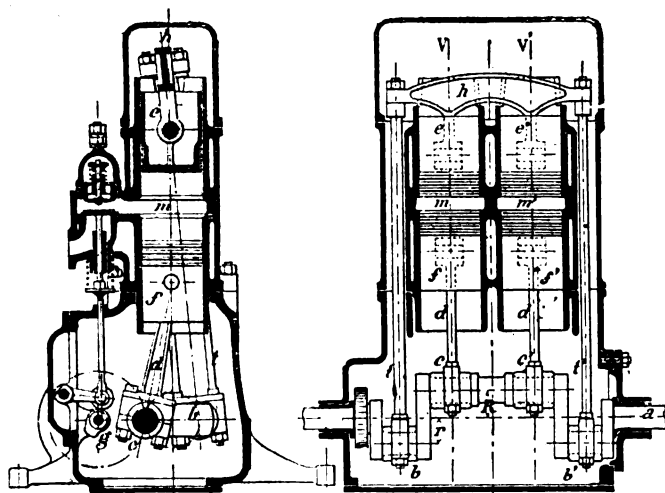


FIG. 70.—SECTIONAL ELEVATIONS OF GOBRON-BRILLIÉ MOTOR.

upper pair are attached to a cross-head *h*, which in turn is connected by side levers to the crankshaft below, the arrangement being claimed to overcome the difficulty of vibration. Electrical ignition is adopted, while the ordinary carburettor is replaced by a cone, on the face of which are cut out a number of small buckets or "aveoles"; this cone is seated into another cone in which the first revolves in such a manner that the buckets are filled with petrol, which is drawn into the explosion chamber at a further portion of the revolution. This measurer is rotated by a small

agency even gin, brandy, whiskey, etc., or a mixture of any of these, can be used without giving heed to what fuel may remain in the tank. A governor, which can be acted upon by a small handle, is also provided, regulating not only the air supply and advance of electric spark, but also controlling the supply of the petrol through the positive feed. All the working parts of the motor are securely enclosed in an aluminium dust-proof box. The speed of the motor may be regulated by the aforementioned handle on the steering pillar to any speed between 250 and 1,300 revolutions per minute. The cylinders are water-cooled, a pump and radiator being fitted. The inlet and exhaust valves are situated one above the other, and by removing a single bolt the two pairs of valves can be quickly taken out. Three speeds forward and a reverse motion controlled by a single lever are provided. The engine transmits its power through a pedal-operated friction-clutch to the change gear box, in which are a train of sliding gear-wheels, any one of which can be made to mesh with corresponding pinions on the countershaft. The gears are generally calculated for speeds of thirty, eighteen, or eight miles per hour with the motor running one thousand revolutions per minute. Bevel gearing connects the countershaft with the differential cross-shaft, from which the power is conveyed by a duplicate set of chains and chain wheels to the rear road wheels. The frame of the car is of a special form, built of steel tubing. Steering is controlled by an inclined hand-wheel. There is a powerful brake located in the rear of the frame (Fig. 71), and an 8 h.p. four-seated wagonette. These cars were dealt with at length in our report of the 1901 Exhibition at the Agricultural Hall, so that it will suffice to mention that, as regards the transmission, a large spur-wheel on the engine shaft gears with a pinion on a countershaft, which carries, in an oil-containing box, a train of spur-wheels, any one of which can be brought into gear with corresponding wheels on the parallel differential shaft, from which two chains

transmit the power to the rear road wheels. The reverse motion is obtained by means of a small pinion which can be interposed between the two gears giving the low speed. Finally, we may refer to the 8 h.p. Duc tonneau, on the same system as the new 12 h.p. car, the principal difference being that instead of using chains, the power is transmitted from the gear-box direct to the

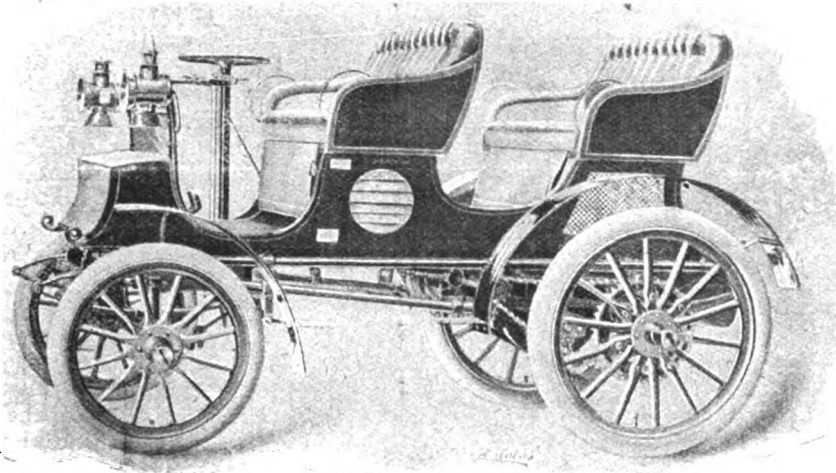


FIG. 71.—THE GOBRON-BRILLIE 12-H.P. CHAR-A-BANC.

rear axle by a universally-jointed shaft and bevel gearing. As for the carriage work of all the vehicles staged, this is of the highest class.

"Charette" cars were well to the fore on the stand of the International Motor Company, they being shown in phaeton, spider, *tonneau*, and double phaeton. The general arrangement of these cars has already been described and illustrated in the *Journal*, but it may be mentioned that they are fitted with a 6 h.p. vertical motor placed in the front of the car. The water-cooling is maintained by a pump and radiator. The power is transmitted by wide and long belts from the engine to a small countershaft at the extreme rear of the frame, and thence by gear to the live axle. The frame is channel steel and tube, and the wheels are tangent, metal spoked, built up on ball bearings. A new pattern that the International Company has lately put on the market is the "Armstrong" *tonneau* (Fig. 72). This is driven by an 8 h.p. single-cylinder, slow-speed engine, the water-jacket extending around the valve chambers as well as the cylinder. Both the inlet and exhaust valves are mounted on the top of the explosion chamber, and are arranged that they can be readily taken out when necessary. The water circulation is maintained by a chain-driven pump and an Accles-De Veulle radiator. The carburettor is of the Comiot float-feed type. The engine is set in the fore part of a channel steel frame, and transmits its power to the gear-box through a pedal-operated friction clutch. The gear-box is connected with the rear live axle by a universally-jointed shaft and bevel gearing. Three speeds forward and a reverse motion are provided, a feature of the change gear

being that on the high-speed none of the gear wheels are in use, the engine driving the rear axle direct, the latter running on four ball bearings. Steering is controlled by an inclined hand wheel, while both hand and foot brakes are provided. The road wheels are of the cycle type, all 30 in. in diameter, and shod with pneumatic tyres. The *tonneau* body has high backs, and is both roomy and comfortable. On this stand was also to be seen an example of the "Mountaineer" motor-bicycle, the 2 h.p. motor of which is attached above the bottom bracket with the engine inclined forward. It has rectangular radiators for cooling the cylinder; the sparking plug is placed in the centre of the combustion head, and the exhaust valve is raised by the same lever as retards the sparking, a ratchet being furnished to hold the lever wherever it may be placed. The carburettor is of the surface type, and has needle valve communication with the reservoir. A gravity feed lubricator is carried on the right hand side of the head. The left handle twists to make and break the circuit. The frame is of strong construction, especially as to the front fork, and both wheels are fitted with large tyres and hand-applied rim brakes. The power is conveyed to the rear wheel by a special flat-belt built up of three layers of leather riveted together. The front pulley has oblique transverse grooves, and the back pulley is fixed to the rim of the wheel by means of independent spokes.

Costumes for ladies who indulge in motoring attracted many to the stand occupied by Mr. Charles R. Base, whose enterprise in catering for automobilists is being recognised in an expanding business. Fur coats for motorists were a special feature of his display, and neat liv-ries for the servants of automobilists were

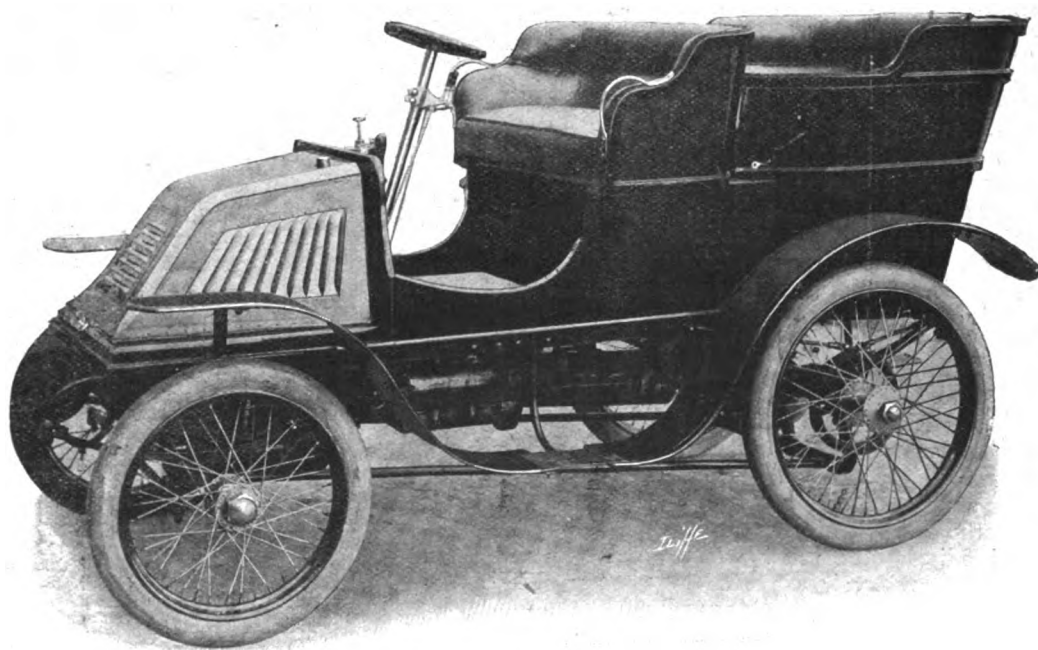


FIG. 72.—THE "ARMSTRONG" CAR.

also on view. Double-breasted leather Chesterfields with Melton collars and wool lined, leather-lined suits of waterproof tweeds, and lined with brown calf or lamb skin, a dust coat for summer wear, gentlemen's leather vests of sheepskin with or without sleeves, caps with mud shields, and gloves provided other features of interest shown by Mr. Base.

Quite a new steam car to the English market is that shown by M. E. Chaboche, whose system has been in use in France for some years past. Fig. 73 shows the 6-h.p. car, seating two or four persons, in which the boiler is located at the rear, ordinary petrol being used as fuel. An automatic device is fitted to regulate the fire, while a large condenser is provided, which enables a run of sixty miles to be made without it being necessary to refill the

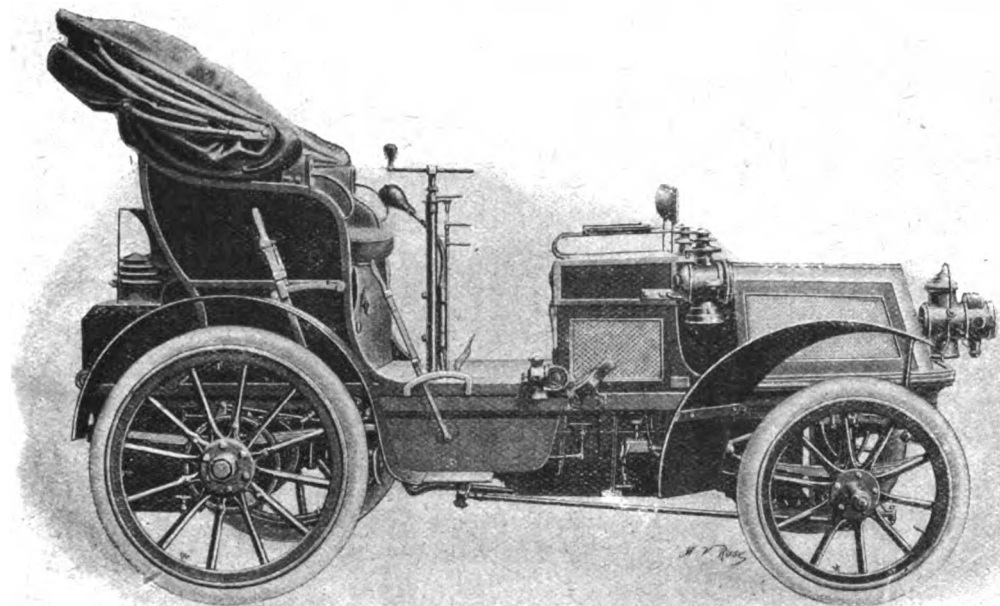


FIG. 73.—THE CHABOCHE 6-H.P. STEAM CAR.

water tank. A horizontal double-cylinder enclosed steam engine, developing 6-h.p., is located about the centre of the frame, and is connected to the rear axle through a two-speed gear, universally-jointed shafts, and bevel gear. Fig. 74 shows the Chaboche *tonneau*, to seat six or eight persons. The general arrangement in this vehicle is similar to the steam delivery van illustrated and described at length in our issue of January 18th last, so that a lengthy reference is unnecessary. We may mention, however, that the vertical boiler is of the semi-flash type with two coils of water-tubes. It has four square metres of heating surface. Situated in the front part of the vehicle, it is contained in a neat box or bonnet sufficiently low to offer no obstruction to the view of the driver. The feed water is injected by air pressure. Under the driver's seat is an iron cylinder into which air is pumped to a pressure of 10 kilos. above piston, and water is then pumped below the piston until the pressure is raised to 20 kilos. The cylinder or reservoir communicates with the boiler by means of a valve, and when the pressure in the boiler falls below 20 kilos. the water is forced into the generator, this action being practically continuous. The feed pump meanwhile is sending water into the cylinder until the normal pressure is reached and the surplus passes back into the tank. It is fired with coal, which is stored in small paper bags on each side, the capacity being sufficient for a run of 120 miles, that of the water tank sufficing for 30 miles. The *tonneau* is propelled by a two-cylinder double-acting engine of 12-h.p., inclined slightly out of the horizontal and situated under the driver's seat. The engine is bolted to the side of the

frame, with the crank shaft in a longitudinal position, and gear-
ing by a two-speed gear on to the countershaft, which in turn is connected to the rear axle by a centrally-located chain. Forced lubrication is employed for all the working parts, this being done by a hand wheel screwing down on a piston. The engine and gear are enclosed in a dust-proof box.

A single example of the Allard light car formed the exhibit of Messrs. Allard and Company. It was fitted with a double phaeton body, and was provided with a 9-h.p. single-cylinder motor, located in the fore part of the frame. The explosive mixture is furnished by a Comiot float-feed carburettor, while the water circulation is maintained by pump and radiator, the latter being of the Julien type, of which an illustrated description was given in these columns a few months ago. Three speeds forward and one reverse are provided, the engine transmitting its power through a pedal-operated friction clutch to the change gear box, and thence by a universally-jointed shaft and bevel-gearing to the rear axle. A noteworthy feature of the change-gear is that none of the gears are used on the top speed, the engine driving the rear axle direct. The car, which is steered by an inclined hand-wheel, is

provided with two double-acting brakes, actuated respectively by pedal and hand lever. The road wheels are of the artillery type, equal size, and shod with pneumatic tyres. The vehicle has a neat appearance, and weighs complete about 12 cwt.

A roadside tyre repair outfit known as the "L. K." was shown by the Nottingham Cycle Company, Limited. The feature of this special shield is also known in connection with cycling, and its adaptation in a larger and stronger form for motor-cars is a

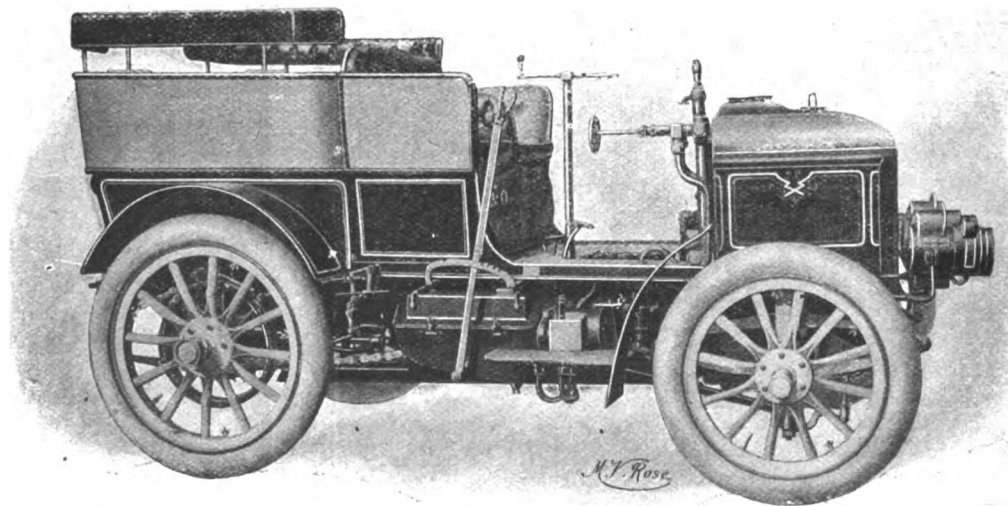


FIG. 74.—THE CHABOCHE 12-H.P. STEAM TONNEAU.

matter of interest. Hooks on the edge of the shield secure a permanent attachment.

Motor chains from half-inch to three-inch pitch were exhibited by the Coventry Chain Company, Limited. In one type, that of 2½ inch pitch, for heavy vehicles, special lubricating arrangements are provided, the pins having detachable screws at one extremity, giving facilities for properly lubricating the chain bearings.

Messrs. Shippey Bros., Limited, had a large stand, on which a couple of the well-known Milwaukee steam cars were well displayed. These vehicles, which were described at length in our report of the 1901 show, have been brought up to date. They are equipped with a new type 5-h.p. (nominal) engine; shell steel boiler tested up to 1,000 lbs. cold water pressure; Kelly burner and generator lighted by a match; automatic pump; water alarm; side steering; sight-feed lubricator; feed-water heater; water lifter; Klinger gauge glass; and electric gauge glass lights. The petrol tank has a capacity of 6 gallons, and the water tank 30 gallons. The engine has no ball bearings. All the main bearings, including the crosshead and wrist pin, are adjustable for wear, and can be easily renewed when worn. All bearings are steel, running in bronze, no bearing having both surfaces composed of the same metal. The crosshead and wrist pin are oiled from a reservoir on the crosshead. Messrs. Shippey also displayed a 5-h.p. standard engine, a 5½-h.p. new 1902 model engine with outside eccentric cylinders, 3 in. diameter by 3½ in. stroke, a Milwaukee 16½ in. by 14 in. tubular boiler, containing 350 copper tubes, a 16 in. Kelly burner and generator as used on the Milwaukee cars, and a general assortment of American steam car sundries.

The Collier twin tyre for motor-vehicles was shown by the Collier Twin Tyre Company, Limited. In this tyre the canvas walls of the tyre parts are carried underneath and vulcanised in the usual way. Part is used to form an arm on each side, or tread to hold the rubber in its place. These arms are then laced together by ligatures passing right through the rubber tread. Consequently, the rubber tread is helped by a triple

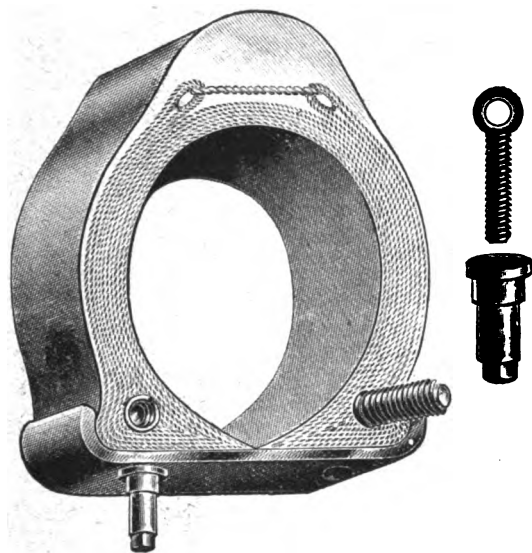


FIG. 75.—SECTION OF COLLIER TYRE.

force, viz., the vulcanisation to the canvas, the arms, which terminate in a beading, and the ligatures, which pass through the rubber tread from one arm to the other. It is claimed that in this combination of a pneumatic and solid tyre the narrow tread makes the tyre a fast one, and results in very little dust being made, whilst skidding is greatly minimised. The special form of fastening adopted prevents creeping, thus removing the chief cause of the bursting of the inner tube. At this stand were the tyres from the car "Antrona," whose recent trips in the west of England have been recorded in the *Journal*. These have been run 3,500 miles over roads of every description, and the condition in which they were exhibited was testimony to their strength and durability. The Collier Tyre Company showed for the first time a new patch for repairing holes in tubes. This is composed of red rubber, to which is attached an outer skin of grey rubber.

Messrs. Mack Bros. came from Surrey to show their double-breasted ulsters and Norfolk, admirably designed with a view of protecting the chest when motoring. Neatly lined with serviceable tweed, and well waterproofed, the coats proved attractive to many visitors.

Garlio is becoming known as a useful duster cloth for the machinery of automobiles, in fact for all kinds of engineering purposes. It absorbs oil, grease, etc., in much the same way that ink is absorbed by blotting paper, its constituent being a specially prepared silk. Not only was it to be seen on the stand of the makers, but elsewhere in the show we saw it actually in use by exhibitors. The material is made up into squares of 15 and 25 inches, and supplied in three qualities.

Quite a new departure in motor pneumatic tyre construction

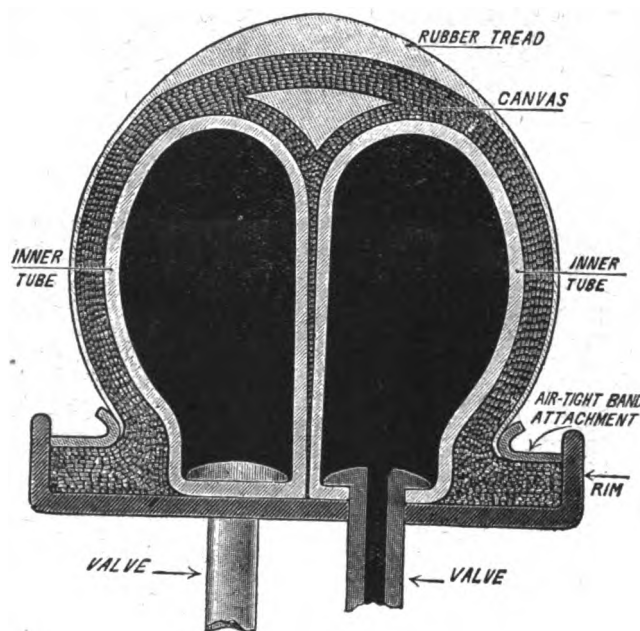


FIG. 76.—SECTION OF JACKSON'S DUPLICATE TYRE.

is that which is being introduced by Jackson's Duplicate Tyre Syndicate, Limited. The illustration showing a cross section of the tyre (Fig. 76), together with a diagram of the band attachment (Fig. 77), will sufficiently explain its construction. The advantages claimed by the Syndicate are: In the event of a puncture, the second tube taking the place of the punctured one is inflated, and the repair left until home or a stop is made. Should the second tube subsequently puncture, the outer cover can be repaired, and the tube or tubes inflated, as it is claimed that the attachment is perfectly air-tight. Other claims made are special wearing qualities, narrow tread, impossibility of detachment, and long life. The tyre, which is to be made in all sizes, is held in position by means of two bands, one on each side, secured by a screw and bolts. To withdraw the inner tubes it is only necessary to release the band-screw, and take out the bolt on one side only. The double inner tube arrangement is said not to interfere with the resiliency of the tyre—rather the reverse. There can be no doubt that durable motor tyres are the question of the hour, and if the claims made for the one under notice are fully borne out in practice, it should have a big future. A set of the Jackson tyres

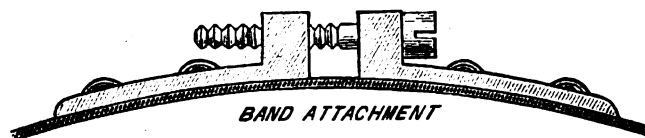


FIG. 77.—ATTACHMENT OF JACKSON'S TYRE.

has been in use on a car for some time past with, we are informed, successful results.

Aluminium motor castings formed the bulk of the display made by the Birmingham Aluminium Casting Company, Limited. This company is making a special feature of motor castings in aluminium, and is apparently well equipped for the purpose, a report on tests of its aluminium joints by Mr. P. L. Renouf, circulated at its stand, giving a very high opinion of its work.

(To be continued.)

EXHIBITION ECHOES.

On Friday Mr. Loxton Hunter arrived at the Hall from his End to End trip, having come from Doncaster on that day.

ONE great improvement on exhibitions held in London was the prohibition by the promoter of the sale of papers by boys and others perambulating the hall. Thus there was an absence of noise and turmoil that is often a feature of such shows, and, as the regulation was respected in practically every case, the rule was doubtless appreciated by exhibitors.

IN the gallery the *County Gentleman* had a stand whereon was a collection of country sketches of considerable interest.

ON the last day of the Show, nearly fifty of the workmen from the Coventry works of the Daimler Company visited the Exhibition. A large number of the employees of the Lanchester Company were also brought up to the Show. These firms are to be congratulated on thus endeavouring to educate their employees as to what is being done in the motor-car industry.

ONE lady of solemn visage called at a stand and said she wanted a car just to potter about in—to go at not more than three miles an hour. The attendant suggested a bath chair.

ON Saturday the Locomobile Company exhibited cards recording orders from the Marquis of Salisbury and Sir George Newnes, Bart.



Photo 191

"LE PASSE PARTOUT" AT THE EXHIBITION. DR. LEHWEß AT THE WHEEL.

Argent Archer.

As the week wore on the appearance of the yard at the Barford Street entrance grew in animation, and, at times, recalled the busy scene that was witnessed last year when the presence of the arena seemed to attract a large number of cars. Some enterprising exhibitors arranged for duplicate cars to be in the vicinity of the Hall, so that they could give trial trips to interested inquirers on the actual road—far more conclusive and satisfactory tests than are possible on gravel walks or grassy slopes.

IF retail firms were satisfied with the business they did, the wholesale houses were gratified by the number of good inquiries they received—a dual proof of the splendid business results achieved.

SIR THOMAS LIPTON has entrusted Mr. Oliver Stanton with an order for a 22-h.p. Daimler car. We understand that it will be delivered early in July.

ABOUT six o'clock on Saturday evening the Hall resounded with the hooting of horns as Dr. Lehweß drove out on *Le Passe Partout*—to begin the first stage of his long journey, interest in which was considerably accentuated by the announcement in last week's *Journal* as to the Argyll challenge.

THE attendance was well maintained to the last, and on Saturday a large number of distinguished people were present. Just before the evening dinner hour more than a dozen titled people were in the hall, and over a score of carriages bearing armorial crests were waiting outside.

As we mentioned last week, the visit of the Prince of Wales on Wednesday during the Show proved a very popular incident in the week's display. His Royal Highness was much interested in the Exhibition, and at the close of his inspection expressed his gratification at what he had seen. Mr. E. Manville had the honour of explaining the details of the King's car

to the Prince of Wales, whose adhesion to the ranks of owners may be anticipated ere long.

"THE Prince of Wales, attended by Commander Godfrey-Faussett, visited the Motor Car Exhibition, at the Royal Agricultural Hall, Islington." Such is the entry in the *Court Circular*, relative to the visit of his Royal Highness, on the 23rd ult.

IN the course of a chat with Mr. Belcher, he informed us that the motor department of Messrs. Humber, Limited, will shortly be removed from Coventry to Beeston, where new works especially intended for the construction of motor-cars are being established.

LAST week we published a list of distinguished public men who visited the Exhibition. A supplementary list we have prepared includes the following: The Prince of Hesse, the Earl of Derby, Lord Enfield, Lord Suffield, Earl Craven, Lord Robert Cecil, Baron Leopold de Rothschild, Sir Redvers Buller, Right Hon. Sir J. H. A. Macdonald, Sir Thomas Lipton, Sir E. Jenkinson, and Mr. Lionel de Rothschild.

AMONG M.P.'s whose adhesion to the ranks of motorists was made known at the Show are Lord Willoughby de Eresby, Sir George Newnes, Sir J. Dixon-Poynder, and Colonel H. McCalmont. But the greatest tribute to the progress of automobilism is the fact that a steam car was ordered for the Marquis of Salisbury by Lord Robert Cecil.

THE horses of the Prince of Wales seem well accustomed to the presence of motor-cars. During the hour that His Royal Highness remained within the hall, the horses were in the yard surrounded by "all sorts and conditions" of automobiles. They never murmured nor gyrated in an emotional fashion, but affected an indifference which fitted in well with their princely dignity.

ONE of the best articles which has appeared in the London daily papers on motoring was published as a leader in the *Daily News* on the 24th ult.—being called forth by the Exhibition at the Agricultural Hall. Thanks to the publicity accorded by the Press, the Exhibition has had a wonderful effect in educating the public.

MRS. LANGTRY was amongst the well-known visitors to the Exhibition on the day the Prince of Wales attended. Mrs. Brown Potter, too, not only visited the Exhibition, but also purchased a car.

THE Agricultural Hall presented a busy yet changed appearance on Monday, when it was being cleared of the motor-cars, ready for another exhibition. From the Minor Hall several of the heavy steam vehicles marched away under steam, but one or two of them required the aid of horses, which, eventually, they will largely replace.

ONE of the gossip topics among the exhibitors at the Show was the metamorphosis two well-known members of the trade had undergone. *Sans moustache*, one hardly recognised them!

A SATISFACTORY feature of the Show was the promptitude of the stand attendants in the early morning. Almost as soon as the gates were opened all the stands were uncovered and dusted, ready to receive visitors. By 10.30 on several mornings we noticed would-be clients going through the details of the chassis displayed.

WHILE the Prince of Wales was visiting the Exhibition an amusing passage at arms took place between an attendant at one

of the stands and the Hon. C. S. Rolls, who, in answer to a query of His Royal Highness, mentioned that up to the present French tyres had proved the most satisfactory. "Excuse me, sir," said the stall attendant, "have you ever tried our tyres?" "No," said the Hon. C. S. Rolls. "Then, sir," came the sharp reply of the Irishman, "you have yet to learn who makes the best tyres." The Prince laughed heartily, and the Hon. C. S. Rolls promised to try a set of the suggested tyres on one of his cars.

BETWEEN Thursday evening and Friday mid-day a Salisbury search lamp was missed from Le Passe Partout at the Exhibition. Seeing that it had not the proper fittings, and is therefore useless to anyone, its loss is hardly to be understood. Messrs. Salisbury and Sons will be glad to hear from anyone who can trace its present whereabouts.

AUTOMOBILISTS to the number of 653 have been licensed by the municipal authorities of Philadelphia, U.S.A.

THE Austrian Automobile Club is organising a hill-climbing competition from Neuwaldegg to Exelberg for the 8th May.

THE municipal authorities of Milan have just granted licences for fifteen electric cabs to ply for hire in that city.

CARPETOPOLIS—generally known as Kidderminster—has a local supplier of petrol, etc., in Mr. R. Jenkins, of the Bull Ring.

THE City Council of Hartford, Conn., U.S.A., have decided to purchase an electrical motor ambulance from the Electric Vehicle Company.

MR. P. A. WAGNER has been appointed manager of the new motor-car and accessories department lately established by Harrods, Limited, in Brompton Road, S.W.

FROM his depots at Lancaster, Kendal, and Morecambe, Mr. W. Atkinson is able to supply accessories, spare parts, etc., for motorists visiting that part of the country.

GENERAL ALEXANDER, of Boothby Hall, Burgh, Lincolnshire, is the latest addition to the ranks of motorists, he having just purchased a 10-h.p. Georges Richard limousine from Messrs. Mann and Overton.

THE New York Tyre Company, Limited, have sent us a copy of a new booklet they have just issued. It contains particulars of the New York tyre, and full instructions as to the fixing and repair of the same.

THE SIMMS MANUFACTURING COMPANY, LIMITED, inform us that the Daimler Motoren Gesellschaft, of Cannstatt, are not now using the Bergmann magneto electric machines for ignition purposes, but only those of the Simms-Bosch system.

MOTORING tourists in North Wales will be glad to learn that special provision for motor-cars has been established at the Oakeley Arms Hotel, at Tan-y-Bwlch, one of the most romantic parts of the country. Within easy distance there are many famous places of historic note.

MESSRS. CARLESS, CAPEL AND LEONARD have just issued a new edition of their little handbook on "Petrol, What Petrol Is, and Where it May be Obtained." Over three hundred names and addresses have been added to the list of firms keeping a stock of petrol, so that motorists would do well to write for a copy of the booklet.

MRS. LEWIS WALLER, who is at present playing "Zaza" at the Croydon Theatre, is finding the motor-car very useful in getting to and from her house in Regent's Park and the theatre. She is using a car made by Messrs. Bradbury Bros., of Croydon, and has been able to get home, after the play, in much less time than by train.

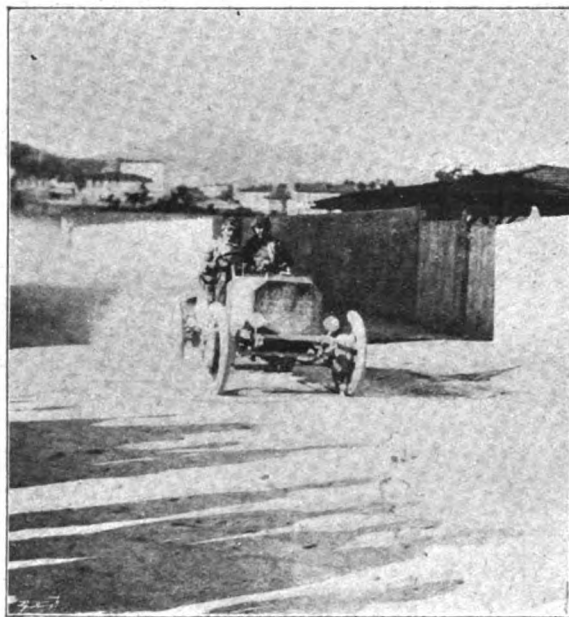
TENDERS are being invited by the War Office until the 31st of July next for the supply of a self-propelled lorry for military purposes, driven by an internal combustion engine using oil of not less than 100 deg. F. flash point (Abel's close test) as fuel. Specifications of the required vehicle can be obtained on application to the Director of Army Contracts, War Office, Pall Mall, London, S.W., to whom tenders are to be sent.

CONTINENTAL NOTES.

BY AUTOMAN.

WHILST the Exhibition question is interesting to the motor world in England, it may be useful to refer to the position of affairs in Belgium, where rival exhibitions have been held this spring. In the first place, it is necessary to explain that for nine or ten years a company called La Societe

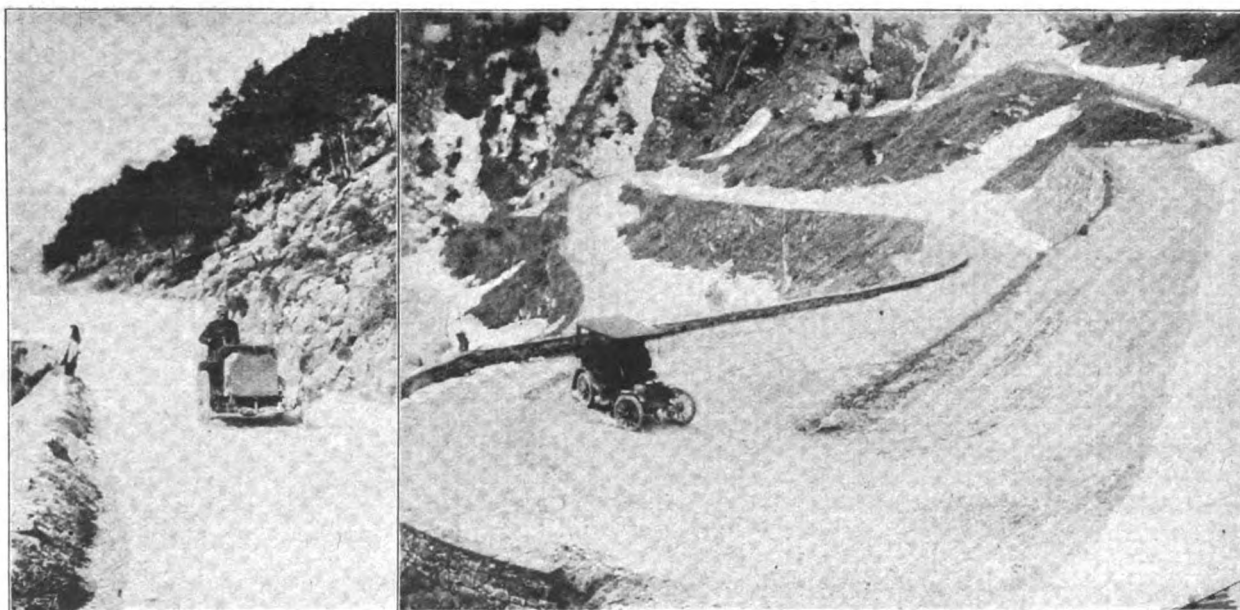
show, which was held, as far as my memory serves me, in the month of March, 1901, the Automobile Club of Belgium and the Chambre Syndicale de l'Automobile, considering that these exhibitions had developed entirely into motor-car shows, wished to join in and have some control over them. The Societe Auto-Velo met them with a refusal, so the A.C.B. and the Syndicate organised a rival show. A building was taken, far more suitable, in that there was more space, and there was a part contiguous



THE ARRIVAL AT NICE OF HERR PORSCHE ON THE LOHNER-PORSCHE COMBINATION PETROL-ELECTRIC CAR.



M. LEMAITRE ON 40-H.P. MERCEDES IN THE NICE-LA TURBIE RACE



M. WERNER ON 40-H.P. MERCEDES IN THE NICE-LA TURBIE RACE.

ON THE ROAD BETWEEN VENTIMIGLIA AND CUNEO.

THE NICE WEEK.

[Allgemeine Automobil Zeitung.]

Royal Auto-Velo has held exhibitions which were originally cycle shows, but which within the last few years have developed into motor-car shows with a few bicycles added. These shows were held in Brussels, and of late years in a public building called the Po'e Nord which has become inadequate, as far as space is concerned, for the requirements of the trade. After last year's

in which the cars could be run. Now, with all these conditions, the natural inference would be that the new exhibition would entirely eclipse that organised by the older body, but that is just where the peculiar part of the story comes in. The Automobile Club, the Chambre Syndicale de l'Automobile, and the manufacturers had not reckoned that one very important element,

namely, the public. The public was accustomed to the Pole Nord exhibition, which was not quite so far away from the centre of the city as the other one. The two exhibitions were held just about the same time, and, though undoubtedly the better and more representative of the two was that held by the recognised automobile authorities, there was no crowd of visitors to admire it, the public going in a mass to the show they were used to, and making it an unqualified success.

A BANQUET was given at the Hôtel de Russie, in Paris, last week to M. Leon Serpollet, to celebrate his record run at Nice. The well-known motorist, in recounting the details of the ride, said that he was "a little nervous before the start, because I had not been able to test my machine over the course beforehand. I knew the car was all right, and I knew how to get the maximum out of it. I was quite calm at the moment of departure; a second or two later I was conscious of a sensation of speed that can only be called fearful. In all my previous experiences I have been able to fairly well calculate the speed at which I was going by the whistling of the air in my ears, but this time I heard and saw nothing."

PRECISELY because the "Northern Circuit" is being organised officially by the French Government, some doubts had been lurking in the minds of motorists as to whether the contest would provide a really genuine high-speed race. Uncertainty reigned at first with regard to certain conditions of the contest, which might, it was thought, hamper the fast cars; but this has been explained away. The Northern Circuit programme has been divided into three distinct events. These are a "consumption contest" for tourist vehicles, a second competition of a similar kind for vans and luggage carriers, and, thirdly, a race properly so-called. The various regulations regarding the estimation of the quantities of alcohol consumed apply only to the two first contests. The third is to be run according to the ordinary racing regulations of the French Automobile Club, with the sole extra stipulation that methylated alcohol, not petrol, is to be used in the engines. The legal limit police enactments will, of course, be suspended in favour of competitors in the race, though, apparently, this will not be the case, in theory, at all events, with the two other contests. There is every prospect, therefore, that the Northern Circuit speed competition will provide as good a race as the Paris-Bordeaux of past years.

THE promoters of the "Northern Circuit" contest are benefiting by the prohibition of the Nice-Abbazia race. The event arranged by the French Ministry of Agriculture for May 15th, 16th, and 17th next will indirectly derive increased importance from the action of the Italian authorities. All the principal French and German makers had built numbers of new vehicles specially for Nice-Abbazia. These are now being entered for the Northern Circuit, which accordingly promises to be a much larger event than was at first expected.

BARON HENRI DE ROTHSCHILD is reported to be having built a special motor-car built on a plan drawn up by himself. His object is to construct a motor-car which shall be a distinct improvement on all existing models, combining the advantages of the Mercedes and the Panhard. It will be of 30-h.p.

M. DUPUY, the French Minister of Agriculture, has given a subsidy of £140 for the construction of an apparatus to be used in the international motor-car competitions. This is the first remarkable proof of official recognition in such matters. The apparatus is for the precise determination of the motive power of the motor-cars, and with its assistance it is expected that absolute regularity will be ensured in gauging results as to speed.

IN PRAISE OF THE MOTOR-CYCLE.

I toil 'mid the steam and the smoke,
And machinery encompasseth me round;
My hands and my face are made black,
In my ears a buzzer-like sound.
While only a few miles away
Old Nature is lovely and green;
The landscape is wooing me now
To gaze on the beautiful scene.
In the ev'ning, when labour is o'er,
I walk down the hard flagg'd street,
And hard is the clatter of wheels,
And hard are some faces I meet.
Oh, how can I roam in the fields,
And pursue my own work in the town?
How can I my country explore,
And visit the scenes of renown?
Hurrah, now for science and skill!
Profound is the work of the mind—
They're building a steed for me now
Excelling the speed of the wind.
I simply will sit on a wheel,
My feet and my legs all at ease,
The engine control with my hands—
The speed will be just as I please.
My form will resemble no more
The shape of a big letter G,
But bolder and straighter shall I
Sit and ride on my motor gee-gee.
Then here's to the hills and the dales—
The upgrade's as easy as down;
Here's fifty miles off in the morn,
And fifty miles back to the town.

Cramlington, Northumberland.

MARK DONEY.

A MOTOR-BICYCLE race meeting will be held at Coventry on Whit-Monday.

THE suggestion made for a series of motor-car runs to Wolverhampton, in connection with the great Exhibition which has just been opened in that town, has been declined by the authorities in London, but the Wolverhampton and District Automobile Club should work for the movement by developing the idea as far as the Midlands are concerned.

SINCE the beginning of the present year the Bavarian postal authorities have been using an electrical motor-tricycle for the collection of letters from the street letter boxes in Munich. The results have been so successful that a second machine has been ordered for the transport of mails between the Munich G.P.O. and the railway station. Furthermore an accumulator-charging plant has been put down at the G.P.O.

THE first meeting of the season of the Aero Club of the United Kingdom will take place at the Crystal Palace to-day (Saturday) about mid-day, when two large balloons will ascend (weather permitting). The members making ascents will probably be Mr. Roger W. Wallace, K.C., the Hon. C. S. Rolls, Sir Vincent Kennett-Barrington, Mr. C. F. Pollock, and Mr. F. H. Butler. The second meeting will be held at Ranelagh on Saturday, the 31st May.

MR. ALEXANDER FISCHER, through M. Ernest Cuenod, vice-president of the Automobile Club of Switzerland, now in New York, is reported to have arranged to take practically the entire output of the George Richard factory at Paris. Two hundred cars are, it is said, to be delivered before August 1st.

PRESIDENT SHATTUCK, of the Automobile Club of America, has sent a letter to the members, based on the report of the Law Committee, urging observance of the present eight miles an hour limit. The letter says that effort will be made to have the limit raised by ordinance for unbuilt portions of New York.

HERE AND THERE.

AMONG the establishments catering for motorists on the Brighton road is Trevor Rest, at Burgess Hill.

A COMPANY has been formed to provide a club house for the use of motorists and cyclists in the Birmingham district.

MESSRS. CHARLES BINKS, Ltd., has been registered with a capital of £5,000 to carry on business as manufacturers of motor-cars, etc.

MOTORISTS journeying to Brighton are warned that the police are adopting spying methods in the neighbourhood of Reigate and Redhill.

THE Alpha Motor-Cycle Club has been organised at Brooklyn, N.Y., with nineteen members. It is the first club of the kind in the United States.

A MEETING of the shareholders of the Aberdeen District Motor Service Company, Limited, will be held on May 21st to receive an account of the winding up.

A LARGE dairy firm of Delaware County, Pa., is about to make trial of a motor vehicle for transporting its products from Concordville to Philadelphia, a distance of thirty miles.

WITH a capital of £2,000 the firm of David J. Smith and Company, Ltd., has been registered to carry on dealings in motor-cars, etc., at 5, Great Arthur Street, and at Baver Street, London, E.C.

AT Talbot House, Lichfield, Messrs. Jones and Co. stock petrol, charge batteries, execute repairs, supply spare parts, and have a garage with accommodation for a score of motor-cars.

THE Oxford Automobile Agency, 16, George Street, Oxford, inform us that they are stocking petrol, oil, grease, and spare parts, and that they are in a position to undertake repairs to any make of car.

THE General Motor-Car Company, Limited, has been registered with a capital of £1,000, to carry on the business of manufacturers of and dealers in motor-cars, electrical and mechanical engineers, etc.

WE hear that the Thornycroft Steam Wagon Company, in addition to their heavy steam vehicles, are taking up the construction of light delivery vans, propelled by internal-combustion motors.

CAPTAIN THOMAS, head of the Liverpool Fire Brigade, has expressed himself as being desirous of finding a suitable body for adoption in connection with a motor fire-engine, a fact of which manufacturers will probably take note.

MOTORISTS touring along the Suffolk coast may be interested to note that Messrs. P. W. Watson and Sons, of Lowestoft and Diss, undertake immediate repairs to axles, springs, and in fact anything that comes in the coachmaker's line.

SOME Birmingham motor-cyclists had a run to Peterborough the other day, when the presence of several trailers gave interest to the trip. At Peterborough the party was met by two riders from London, one of them being Mr. Hooydonk.

MESSRS. CHARLES S. ROLLS AND Co., in addition to their new works at Lillie Hall, Earls Court, expect shortly to open a garage in Down Street, Piccadilly, at the back of the Automobile Club's new premises, which will be open day and night.

UNDER the name "Lucabide," Messrs. Joseph Lucas, Limited, of Birmingham, are introducing a new carbide of calcium for acetylene lamps, the feature being that the carbide has a protective coating to moderate the generation of gas.

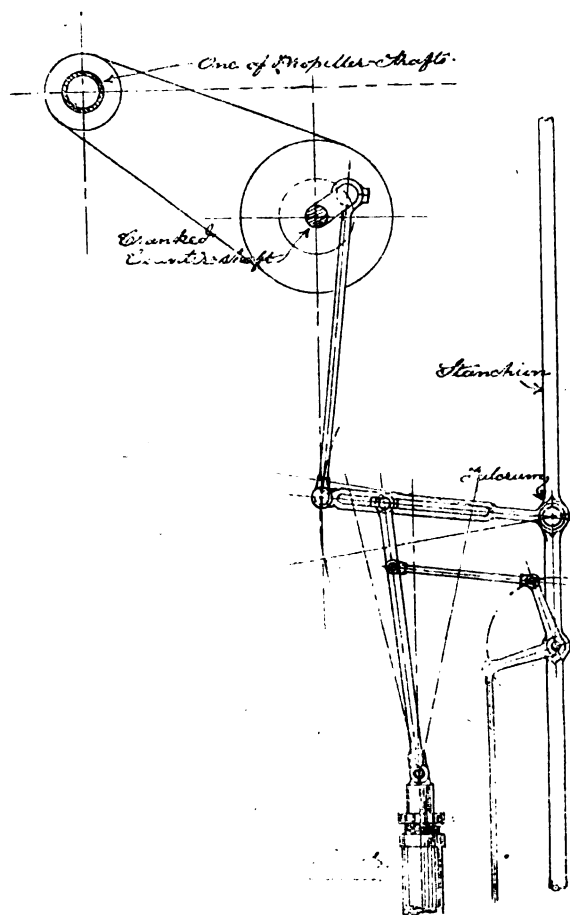
MR. CECIL EDGE started on Monday to drive a 9-h.p. Napier car 200 miles a day. This he intended to do for not less than ten days in order to demonstrate that an English-built car will run that distance every day for a period without repairs of any kind. Unfortunately, however, a failure of the steering gear on the road, near Mansfield, on Tuesday, brought the trial to a temporary close. A fresh start is to be made in a few days.

CORRESPONDENCE.

MECHANICAL FLIGHT UP-TO-DATE

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Responding to the inquiry of your "New Reader," the variable-stroke feed-pump I mentioned in Chapter V. of the above series was actuated as shown in the accompanying sketch, from which also the



method of varying the length of the stroke will be observed. There is nothing new about this piece of mechanism, as it has long been used in engine valve-gears, and for varying the feed in several machine tools. The automatic mechanism of these pumps, however, I do not feel wholly at liberty to describe.—Yours faithfully,

SIDNEY H. HOLLANDS.

A SUGGESTION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With regard to "W. H. R.'s" letter in the last issue of the *Journal*, I suggested the same thing some months ago in the *English Mechanic*, and should like to see it tried. Some method of preventing freezing (owing to the cold produced by the expanding air) would have to be provided, as in the old "Mekarski" locomotives on the Wantage tramway.—Yours truly,

A. S. L.

A QUERY re PETROL MOTORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should be glad if some of your readers with experience would tell me why small explosions keep occurring in the hot-air inlet to the carburettor. When these explosions occur the engines misfire. I have examined the inlet valves, but find they are all right, and the joints are also in order, but still these explosions occur.—Yours truly,

S. J. C.

CRACKED WATER JACKETS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice in the last issue of the *Journal* that Mr. Cook explains another way of repairing a cracked water jacket. I have seen this done on stationary engines, and have no doubt it makes a good sound job, but very clumsy and ugly to look at. I scarcely think a motorist who takes any pride in the appearance of his car would care to show it with a big lump

of cast metal stuck on the cylinder. I think most men would prefer a new cylinder if the crack was situated in a place impossible to repair with a plate. I see Mr. Cook thinks that a crack repaired by fitting a plate over it is likely to leak owing to vibration. From experience I have not found this to be so, but I can quite believe that unless the work was very well and carefully done it would be certain to cause trouble after a little time. I have known cracks in gas engine jackets to rust up and give no further trouble, but owing to the excessive vibration, I doubt if this would be possible in the case of an engine on a motor-car.—Yours truly,

J. WALES SMITH.

ENGLISH-BUILT MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Would it not be a very good thing if you could arrange with your advertisers that where they are selling an English-made car they should state so? My reason for mentioning this is that recently, in making some enquiries for a car, I found one or two, advertised as if they were English-made cars (advertised by English companies), to be really wholly or partly foreign. It was only after some difficulty that I was able to elicit the fact that they were not English-built motor-carriages.—Yours truly,

GEO. WEBSTER.

GRADIENT WANTED.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should be glad to learn from any of your readers the gradients of Garbold Hill, which is situated about four miles from Burscough Junction on the road to Wigan. My attention was first called to this hill by a gentleman at the Liverpool Motor Show, who stated that the hill was a mile long, and parts of same were 1 in 5. He offered to purchase a quadricycle on the sole condition that it carried two persons up Garbold Hill unaided by pedalling. I have motored over most of the roads in Lancashire, and from Liverpool to London, and I have not yet (to the best of my recollection) found so severe a test for a motor. It is somewhat similar to the long rise from Grateley Station to Bulford Camp, Salisbury Plain. I have looked in the Contour Road Book, and find no reference to Garbold Hill, and am informed that no other quad with passengers had ascended it previous to my attempt.—Yours faithfully,

WILLIAM JOHNSON.

WARNINGS TO MOTORISTS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should like to warn all motorists who are likely to be on the Leels road, between Stanmingley and Bradford, against going anything more than the legal limit, as one or two motorists, including myself, have lately been fined £5 and costs. A constable seems to lie in wait during the best part of the day, and I can speak for his capabilities in bringing up witnesses who make astounding statements, which are backed up by himself. He stands at a street end and times the motorist until he rounds a bend in the road which he states to be 400 yards distant. This slipshod method of timing, together with his witnesses' estimate of the speed of the car, is taken as quite sufficient to convince the court. In my case the witness consisted of a farm labourer, who estimated my speed at thirty miles per hour, and stated that a horse in a light trap had jumped on to the pavement, that the constable had shouted for me to stop, that the man in the trap had put up his hand for me to stop, and that I had rushed on blindly through the town of Stanmingley at thirty miles per hour, and would take no notice of anyone.

Is there no justice to be had for the motorist?—Yours truly,

T. SCRIVEN.

SIR,—While driving my car in the neighbourhood of Rye House, Herts, I was directed to take a private road running through Netherfield Park, and owned by Mr. H. Lawrence Prior, and where, I was told, there would be a threepenny toll. I took the road indicated and found it a led one, loose flints all over the track making one tremble for the tyres. But my disappointment in the road was as nothing to my disgust when at the end of the park I found a keeper waiting to mulct me in toll to the sum of 1s. 6d. Noticing that the charge for a horse-drawn vehicle was 3d., I demanded to see his authority to charge me 1s. 6d., and was shown a letter in Mr. Prior's handwriting.

You might warn other motorists of this little trap, as there is no notice at the entrance to the park. It shows the attitude of some folks to the automobile when they charge six times as much for a pneumatic-tired car as they do for a horse with four iron shoes and four iron wheels pounding up the road.—Faithfully yours,

CHAS. T. CUTLER.

PUNCTURES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In a recent issue of your journal you very frankly told us of the "inevitable puncture" on your 12-h.p. car, although it was but newly shod with a fresh set of tyres. Now, although we are so frankly assured that punctures are all a matter of luck, there must be causes at work to predispose to these accidents, and I think we might, perhaps, arrive at some of them if the circumstances attending the puncture were more systematically investigated. Those who are familiar with such mishaps might assist by telling us (a) the weight of the car; (b) the number of passengers carried;

(c) the quantity of luggage; (d) the size of tyre; (e) whether the tyre was well inflated or not; (f) whether all cuts in the outer tube had been closed up; (g) which wheel had the puncture; (h) what was the condition of the surface of the road at the moment of puncture; (i) was the exact cause of the puncture detected.

It is possible that by a collective investigation on some such lines we might arrive at some reduction in the frequency of punctures, and also might manage more correctly to make a tyre suit the weight of a car. Could not a plebiscite of readers give us their ratio of punctures, according to (a) miles run, (b) weight of car, and (c) age, make, and size of tyres?—Yours truly,

Doc.

THE BRITISH MOTOR TRACTION COMPANY, LIMITED, v. FRISWELL.

ON Wednesday last week an application was made to the Second Court of Appeal, composed of the Master of the Rolls, and Lords Justices Stirling and Cozens-Hardy, in this action, asking that the plaintiffs might be ordered to give security for the costs of their appeal. Mr. T. Terrell, K.C., for Mr. Friswell, said the case was a patent action, and it was tried before Mr. Justice Farwell on July 29th, and judgment was given for the defendant. The costs of the action were taxed at £787 15s. On April 7th a writ was put in the hands of the Sheriff, who returned *nulla bona*, and on the 12th of the month a petition was presented to wind up the company. In the meantime, the plaintiffs offered to pay the defendant £200 down, and the balance by bill. The learned counsel asked that the plaintiffs should give security for the costs of the appeal, which would be heavy. He suggested that £100 was a fair sum. An affidavit had been filed in which it was stated that so far as the deponent was aware the company had nothing with which to pay the costs. Mr. Bucknill, for the British Motor Traction Company, said his clients had not had time to answer the affidavit. The petition for winding up was presented by the defendant after he had refused the offer to pay £200 down and the balance by a properly secured bill. At the end of the affidavit a great point was made that a large number of other actions had been prosecuted by the plaintiff company, but, as a matter of fact, all those actions had been stayed until after the hearing of this appeal. The plaintiffs were ready to give security for £50. The Master of the Rolls said he did not think security for £100 was too much, and that sum must be given. On the application of Mr. Terrell, the costs of the application were ordered to be costs in the appeal, which would stand out of the paper until security was given.

MOTOR MANUFACTURING COMPANY, LIMITED.

In their report to the shareholders at the extraordinary general meeting on Thursday last, the directors (Messrs. Roger Wallace, K.C., F. E. Beadle, and M. H. Buckea) said:—The delay in issuing the report and accounts has arisen partly through prolonged negotiations with the directors of the Daimler Company, with a view of amalgamating the two companies, and, when these negotiations had definitely fallen through, further delay naturally occurred owing to the necessity of formulating a good scheme for the future working of the company. The amount of cash obtained when the company was formed in 1900 was £37,300, and in round figures £36,920 was spent in paying off the old company's debts and purchasing new machinery, tools, etc. From May 30th, 1900, to May 30th, 1901, a loss of £7,410 15s. 1d. was incurred, but from May 31st to October 31st last the loss was £470, a very marked improvement. A considerable amount of money had to be expended during the period covered by the accounts in improving the company's motor vehicles, but it is believed that the company's present standard types will be saleable for some time to come. These types will, of course, always be kept quite up to date in order to meet current demands. The standard types are as follows:—The M.M.C. single cylinder voiturette, the M.M.C. 7 h.p. light car (two cylinders), the M.M.C. 10-h.p. car (two cylinders), the M.M.C. 12-h.p. car (four cylinders). The sales during the twelve months ending March 31st, 1902, show an increase of 68.53 per cent. over the previous similar period. The total orders from January 1st, 1902, to March 31st were £29,076 16s. 9d. These figures will give a very good idea of the extent of the business which the company is now doing. The Board are of opinion that it is absolutely essential that further capital should be raised, and in November last they called together all the chief shareholders and carefully explained to them the company's position. At that meeting a committee was appointed from the shareholders present. Since that time several meetings of the committee have been held and many schemes discussed, and the committee and your directors, after mature consideration, have arrived at the conclusion that the only satisfactory way of dealing with the position is to permanently place the company on a thoroughly sound commercial basis by considerably reducing the present large capital of £300,000. It is therefore proposed to form a new company with a capital of £80,000, divided into 320,000 shares of 5s. each. Every existing shareholder will be entitled to receive one 5s. share, credited with 3s. paid in the new company, for every share held in the present company. It is proposed that the first mortgage debt of £15,000 should be continued. This arrangement ensures a sum of £25,296 12s. cash to be received by the new company; this will be available as follows:—1. To repay the £6,000 temporarily advanced by Messrs. C. and F. E. Beadle. 2. To erect a new smithy and assembling shop at the works at an estimated cost of about £3,200. The balance, less the expenses of reconstruction, will be available for increased working capital; under these conditions, and with the present outlook, the directors confidently

expect that the company will speedily become a dividend-paying concern. The new company will also have available 67,034 shares for future issue, and some of these it is proposed to issue as soon as possible. The directors have to report that on December 14th, 1901, Mr. John H. Gretton, resigned the chairmanship of the company and his seat on the board, and Mr. Roger W. Wallace, K.C., on January 1st of this year, accepted the chairmanship of the company.

THE AUTOMOBILE MUTUAL PROTECTION ASSOCIATION, LIMITED.

THE annual general meeting of this Association was held on Thursday, 24th ult., at the Agricultural Hall, Islington, when there was a good attendance of members. The chairman (Mr. J. J. Mann) reported on the satisfactory work done by the Association, and detailed the services rendered to a large number of its members, who had claimed its assistance by way of advice in matters involving trade questions, including the alleged infringement of patent rights, and in other matters which come within the scope of the objects. He drew attention to the part taken by the Association in undertaking the defence in the action, in which a member of the Association was the defendant and the British Motor Traction Company, Limited, were plaintiffs. The case arose out of the claim which the latter set up to a monopoly of the Maybach carburettor patent. The result of the action, which extended over three days, was a triumphant victory in the interests of the trade generally, many of whom would have been several hundred pounds a year poorer in respect of royalties they would have had to pay had the case terminated otherwise. Special attention was also drawn to the work done by the Association in connection with the Exhibition question, and the protection of members in respect of advertising in new trade journals, and other work of similar importance. The accounts and report were adopted by an unanimous vote, and satisfaction was expressed at the successful manner in which the secretary had kept down the office expenses.

The following gentlemen were unanimously elected additional members of the committee: Mr. A. E. Hodgson, President of the Gardner Serpollet Chief Depot; Mr. E. Shrapnell Smith, of the Road Carrying Company, Limited; Mr. Henry Spurrier, Junr., of the Lancashire Steam Motor Company. Other formal business was transacted, and the meeting terminated with a vote of thanks to the chairman.

At a meeting of the General Committee of the Association, held on Saturday last, the secretary (Mr. Geo. R. Helmore) stated that he had expressed to Lord Shrewsbury the unanimous desire of the Committee that he would accept the presidency of the Association, and that Lord Shrewsbury had kindly intimated his willingness to accept the office. It was thereupon unanimously resolved, on the motion of the chairman (Mr. J. J. Mann), and seconded by Mr. E. Shrapnell Smith, "that the Right Honourable The Earl of Shrewsbury and Talbot be and is hereby elected president of the Automobile Mutual Protection Association, Limited."

ATTACKING A JEWELLER'S SHOP.

LAST week we reported the first hearing of a charge against O. E. Lord, of Arundel Mansions, Fulham, S.W., at the Marlborough Street Police Court, of furiously driving a motor-car, with being in possession of a loaded revolver while drunk, and with causing bodily harm to Henry Meirach, a Russian Pole. At the adjourned hearing police-constable Hadden deposed that he saw the car run into No. 91, Regent Street, smashing the shop front to pieces. After further evidence, the case was remanded for a fortnight, bail being allowed in two sureties of £100 each.

HILL-CLIMBING AND CONSUMPTION TRIALS.

On Saturday next, the 10th inst., an important trial, open to all vehicles, is to be held by the A.C.G.B.I., principally with the object of giving makers and agents an opportunity of subjecting their vehicles to official trial at an early date in the spring. The trial is open to all vehicles. The vehicles entered for the trial will have an opportunity of endeavouring to make two non-stop runs of about thirty miles each, in connection with which the consumption of fuel will be measured, and also of proving their hill-climbing efficiency, and the consumption of fuel during a hill ascent amounting to four miles in all. The vehicles will assemble at 9.0 a.m. at the Belgravia Garage, close to Victoria Station, when the fuel tanks will be filled and the cars and cycles weighed. At 10.0 a.m. a start will be made for a non-stop run of 33 miles, via Ealing, Southall, Uxbridge, Beaconsfield, High Wycombe, to the thirty-third milestone at the foot of Dashwood Hill. On arrival at this point, contents of fuel tanks will be drained into measures by official observers, the consumption over a run of 33 miles being thus ascertained. At 1.0 p.m. the fuel tanks will again be filled by official observers. At 1.30 p.m. the trials up the steep portion of Dashwood Hill (a measured distance of 1,173 yards) will be commenced. At the top engine may be stopped. The descent to be made by gravity; the car to be turned at the bottom, engine to be restarted, and the ascent to be repeated. When the ascent and descent have been made six times, fuel to be drained from fuel tanks into measures. The consumption over a run uphill of 4 miles, representing a total ascent of 1,300 feet, will thus be ascertained, and the average speed will be arrived at by taking a mean of the time-records of the six ascents. The fuel will again be measured into the tanks prior to the start of a return non-stop run to Norland Mews, 33 miles. The consumption

over a run of 33 miles will thus be ascertained, and a mean will be taken between the consumption on the outward run and that on the homeward run in order to arrive at consumption over an average road. The consumption of a vehicle will not be measured if it arrives at Dashwood Hill on the outward journey later than four hours after its departure from the Belgravia Garage, or on the return journey later than four hours after its departure from Dashwood Hill. It is to be noted that no vehicle will be admitted to the trial unless its fuel tank be fitted with a tap or other arrangement at the lowest point of the tank by which the contents of the tank may be entirely drawn off in reasonable time. The passing of one competing vehicle by another whilst both are descending gradients or within towns or villages is prohibited, and the vehicle of any driver who may break this regulation may be disqualified. The usual regulation as regards speed in towns, villages, etc., will be in force.

ACCORDING TO DESCRIPTION.

In the King's Bench Division, before Mr. Justice Ridley, the case of Simpson, Strickland and Co. v. Richardson was heard on the 23rd and 24th ult. The plaintiffs sought to recover from Mr. Richardson the balance of a sum of £255 due for a motor-car of the Darracq type, sold by the plaintiffs to the defendant. The defence was that the car was sold as a new 8-h.p. car, and that it turned out to be a second-hand one of only 6-h.p. The defendant counter-claimed for £85, deposit paid by him. The onus being on the defendant his case was opened first, by Mr. Foote, K.C., who said the defendant alleged that the car did not answer the description, and therefore he rejected it. There was also a counter-claim for damages the defendant had incurred by reason of the car failing to answer its description, which amounted to six guineas. In May, 1901, the defendant wrote to the plaintiffs asking for a quotation for a motor-car. The plaintiffs replied that they could supply a new 8-h.p. Darracq car for £240 nett. This was described as an 8-h.p. Darracq motor-car, with a tonneau body. As a matter of fact, what they supplied was a 6-h.p. car, which was not a new, but a second-hand one. He did not suggest that the plaintiffs sent the wrong one maliciously, but thought a mistake had been made. Mr. J. C. Crowdy, of Swindon, said with proper care the electrical part of the car ought to have lasted for 2,000 miles. When he examined the car he found many parts of it nearly worn out. Mr. Frank Wellington, motor-car expert, said he had examined the car in question. In his opinion, it was a car of only 6-h.p. It had been worn and repaired, and had been run at least 5,000 miles. For the plaintiffs, Mr. W. Worby Beaumont, C.E., gave evidence to the effect that the car was a new one, and that it had not run 5,000 miles. There were no traces of the wear alleged by the defendant. There were tool marks on the piston which would only disappear after a run of 2,000 miles. He found traces of overheating and damage for want of lubrication. When the bearing was run without proper lubrication, the parts seized, and two rough surfaces resulted. There was no real standard of horse-power for light locomotives. His Lordship inquired if he bought an 8-h.p. Darracq, did the car in question fulfil the description? Witness replied not as regarded the cylinder, but it did in the body of the car. The cylinders were made larger now. At the conclusion of the evidence judgment was given, the judge saying that if it were a case of breach of warranty, the remedy of the defendant would have been to sue for damages. But it was not such a case. It was a case of sale by description. The motor-car was sold as an 8-h.p. new car. It was proved by the weight of the evidence to be neither, and, that being so, judgment must be for the defendant. Judgment was entered for the defendant, who counter-claimed, for £93 17s. 6d., and costs.

ANOTHER move in the campaign in the United States against alleged infringers of steam vehicle patents has just been made, suit having been brought by the Whitney Manufacturing Co., of Boston, against the White Sewing Machine Co., of Cleveland. It is understood that the suit has the same basis as the one now pending against Stanley Bros., of Newton, Mass., viz., the alleged infringement of a large number of patents held by the Whitney company.

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COMMENTS.



IN connection with the next Motor-Car Exhibition at the Agricultural Hall, from March 21st to the 28th, 1903, the inquiries for space have been so numerous as to warrant the management in making arrangements for covering the courtyard. Fully three-fourths of the ground floor space of the Great Hall has been applied for, and it is evident that the show of motor-vehicles in 1903 will be even larger than during the recent Exhibition. The gallery spaces, too, will be fully occupied.

Trials of Electric Vehicles.

THE date of the Automobile Club's trials of electric vehicles has been fixed for July 7-12 next. The trials will last five days, and cars may be entered in either of the following classes:—(1) Town carriages. (2) Country carriages weighing over 30 cwt., including accumulators. (3) Country carriages weighing under 30 cwt., including accumulators. The following routes have been selected:—(a) London to Brighton. (b) Brighton to London. (c) London to Sandown and back. (d) London to Windsor and back. (e) London to Ascot and back. (f) Special route for observations. Special optional routes will be selected for town carriages. In order to enable the Trials Committee to make efficient arrangements for the charging of cars, manufacturers of electric carriages are requested to state, as early as possible how many cars they propose to enter in the trials, and to state in respect to each car:—(a) The charging voltage at the beginning and end of charge. (b) The average current during charge. (c) The approximate time required for charging. Statements of the particulars now asked for do not bind manufacturers to enter the cars for the trials.

The Lincolnshire Club.

THE Lincolnshire Automobile Club is doing good work for the movement in the Fens, and we hope its proposed brake and hill climbing trial will prove as successful as the various other gatherings it has organised from time to time. There are sixty private members of the Club, ten of whom are doctors, and at the recent meet at Folkingham, near Sleaford, six magistrates for the county were present. The hon. secretary lately attended a meeting of the Highways Committee of the Kesteven County Council, and urged the views of automobilists with regard to the regulation of the speed of motor-cars by the Local Government Board. Such representations, if made by other local bodies and persistently followed up, will do much to guard the interests of owners of automobiles throughout the country.

The Maybach Case.

THE trade will be interested to learn that the appeal of the British Motor Traction Company in the case against Mr. Friswell has been withdrawn, the company paying costs, partly in cash and partly by bill. The patent rights in the Maybach carburettor are now a dead letter, and this result, for which the trade has anxiously waited, will be regarded as a distinct gain to the industry. The history of the litigation has been interesting, and we would congratulate the Automobile Mutual Protection Association on the part they have played in the matter. A word of praise is also due to Mr. Staplee Firth, whose conduct of the affair has added another to the many legal services he has rendered to the automobile movement.

The End of the Matter.

THE case was heard last July, in the Chancery Division of the High Court of Justice, when the British Motor Traction Company, Limited, was represented by Mr. Fletcher Moulton, K.C., while Mr. Friswell was defended by Mr. T. Terrell, K.C., and Mr. Roger Wallace, K.C., on behalf of the Automobile Mutual Protection Association. After a patient hearing, Mr. Justice Farwell delivered a judgment (fully reported in our issue of August 3rd, 1901), the conclusion of which was that the plaintiffs' claim had failed, and the action was consequently dismissed with costs. Since then there have been many rumours as to the intentions of the parties in the suit. Notice of appeal was given by the British Motor Traction Company, and it was announced that the Association was prepared to go to the House of Lords if necessary in support of a contention which they regarded as correct. Events have justified the view they took, and the trade will now probably recognise the value of an organisation whose efforts have been directed to freeing the industry from monopolies calculated to restrict the development of automobilism.

The Aero Club.

At the Crystal Palace, on Saturday, the Prince and Princess of Wales attended the first meeting of the Aero Club, when two balloon ascents were made by Messrs. C. F. Pollock, F. H. Butler, and R. W. Wallace. Twelve members have already subscribed their quota to the first balloon to be purchased by the Club, these including the Hon. C. S. Rolls, Messrs. F. H. Butler, Paris Singer, Mark Mayhew, Ballin Hinde, and Dr. F. W. Hutchinson. The second meeting of the Club will be held at Ranelagh on the 31st inst., when Mr. Patrick V. Alexander will place his balloon at the service of the Club. In connection with aeronautical matters, it may be of interest to remind members of the Aero Club that an international aeronautical meeting will take place at Berlin in Whit-week.

The Road Carrying Co., Ltd.

ON Monday the statutory meeting of the Road Carrying Company, Limited, was held at Liverpool, when the chairman, Mr. G. H. Cox, made reference to the tare question. When it was altered, as it must be ere long, the company will have the advantage of an organised traffic on which to work. In addition to the work of carrying traffic, the company is opening a light car department, and in our report on another page some of the agencies which have been acquired are set forth. With careful management the company should have a prosperous future.

The Brig o' Doon.

"THE old Brig o' Doon" has seen some changes since the day when Robert Burns went "crooning to himself" along the river bank, and composed "Tam O'Shanter," which the poet regarded as the best of all his poems. Burns was born in a little cottage about two miles to the south of Ayr, within a very short distance from Alloway Kirk and the Auld Brig o' Doon localities, immortalised in the famous poem. Our illustration shows the bridge, but the presence of the motor-car



is evidence of the changes that have been wrought since the spot was frequented by Burns. Recently Mr. Walter Creber, a well-known Scottish automobilist, took a trip in Ayrshire, and here he is shown on his Albion car.

Motors and Mongrels.

JUDGE GWILYM WILLIAMS, who presides over the Swansea County Court, has been investigating a case occasioned by the inquisitiveness of a dog belonging to Mr. D. Owens. The said dog attacked a motor-cycle, upon which Mr. R. Gold was riding, in such a way as to damage the machine (£10 15s. was the declared extent of the damage), and cause the rider to dismount with uneasy celerity. In the course of his evidence, Mr. Gold, who summoned the owner of the dog for the recovery of

damages, said he had been bitten three times by dogs, and that he had kicked off at least six dogs since Christmas. The defendant objected to his canine pet being declared guilty of a savage disposition, but all to no avail. The judge awarded damages as the plaintiff claimed, and added insult to injury by suggesting that the dog, which was a black one with white spots, was a mongrel. No wonder decent dogs do not like motors!

The Bexhill Trials.

MUCH interest is being taken in the motor-car races and speed trials to be held at Bexhill-on-Sea on Whit-Monday. Below we give the programme of events, and would refer readers to our issue of April 12th for particulars as to the definitions adopted by the Automobile Club with regard to the classification of cars, etc. Among the special vehicles which are likely to appear on the track are Mr. Alfred Harmsworth's 40-h.p. Mercedes, which was one of the features at the recent show; a steam car driven by M. Serpollet; Baron Henri de Rothschild's 40-h.p. Mercedes car, and a Wolseley car intended for the Gordon-Bennett Race. Baron Rothschild and Mons. and Madame Serpollet will stay at the Sackville Hotel during the week.

The Programme.

ENTRIES for the Automobile Club's meeting at Bexhill on Whit-Monday must be made before the 15th inst., and are restricted to members of the Club or members of clubs affiliated thereto. The programme for the tourist section will commence at 11 a.m., and includes contests for motor-bicycles, motor-tricycles, voiturettes, light cars, cars of 18 cwt. and over, tourist steam vehicles and electric tourist vehicles. At 3 p.m. the speed section will begin with a race for electric vehicles; after which will follow motor-bicycle, motor-tricycle, voiturette, and steam car races as well as contests for cars of 800 to 1,000 kilogs. For the car having the best appearance a forty guinea challenge cup, to be won two years in succession, is offered by members of the House of Commons. Other prizes include cups offered by Earl de la Warr, Mr. Mark Mayhew, L.C.C., Mr. Paris Singer, Mr. Henry Edmunds, Mr. E. J. Pape and others. The course is a kilometre long.

Forthcoming Fetes.

THE possibilities of the motor-car for floral decoration have been demonstrated on the Riviera, but they have had tardy recognition in this country. Some amend is to be made under the organisation of Mr. Imre Kiralfy, who is arranging an automobile battle of flowers to take place on June 13th in connection with a fete at Earls Court, for the benefit of certain French charities in London, under the patronage of the Prince and Princess of Wales. The suggestion has also been made that decorated cars might form a feature of a floral carnival to be held at Canterbury under the auspices of the Chamber of Trade of the ancient city. The Whitsun meeting of the Automobile Club will also comprise some new features, including an automobile masked ball, when—we quote from the official club notice—"prizes will be offered of a substantial nature for the best dominos . . . masks with ladies and gentlemen are compulsory. . . . The prizes will be given away during the evening."

The Clubs at Buxton.

WHILE the Bexhill meet of the A.C.G.B. & I. will attract motorists from the Metropolis and the South of England, there will be a large gathering of provincial automobilists at Buxton for Whitsun. A conference of the northern clubs was held at Manchester last week, under the chairmanship of Mr. W. E. Rowcliffe, Chairman of the Manchester Automobile Club, at which the Yorkshire and Manchester clubs and the Liverpool Self-Propelled Traffic Association were represented. Buxton was selected as the *point d'appui*, where members taking

part will assemble on the evening of Saturday, the 17th inst. It is intended that the programme for the other days shall be arranged when those participating have assembled at Buxton. Intimations should be sent to the local honorary secretaries by members of the various clubs who intend to take part in the run.

Highway Administration.

A FEW weeks ago we dealt at length with the question of "Highway Administration," emphasizing the necessity not only for improvement in the maintenance of the principal highways, but also for uniformity in place of the present chaos owing to county divisions. We now learn that the Leader of the House of Commons is being approached with a view to the Government granting a public inquiry into the existing system of highway administration, with special reference to its bearing upon the housing and transport questions. The view is gaining ground that "tubes" and trams are more or less expensive and unsatisfactory substitutes for broad trunk thoroughfares. No new main roads out of London, for example, have been built for many generations, although population and traffic have increased many times. At the same time the advance of the automobile has made clear the necessity for dealing with the main roads of the country in order to give fair play to the new industry in helping to solve some pressing social problems.

New Trunk Roads.

THAT the matter is likely to receive the earnest attention of legislators is pretty well assured, and the support of M.P.'s throughout the country should be enlisted for a motion which the Hon. A. Stanley, M.P., has placed upon the Agenda paper of the House of Commons. This is to the following effect:—"To call attention to the entire suspension of road building activity in England and Wales since the abolition of the Turnpike Acts; to the congestion of traffic and of population in the large towns by reason of the fact that no new trunk roads through and out of them have been constructed for several generations; to the growing difficulty and increasing cost of transporting goods by road, and their serious effect upon the industrial efficiency of the nation; and to move that, in the opinion of this House, immediate steps should be taken to facilitate the construction of new trunk roads, both by private enterprise and public authorities."

Work for Local Bodies.

THIS is a matter which should be watched with keen interest by County Councillors and all concerned with local government. Much can be done by such gentlemen to improve local conditions. In some places this has already been done, and Councillor Flynn, of Cleator Moor, is suggesting to the Cumberland Council that a suitable stone bridge be built across the Esk at Eskmeals, to enable the public to use uninterruptedly the level road along the coast between Cumberland and Lancashire from Whitehaven to Barrow. He also proposes that a joint bridge should be built across the Duddon river between The Green in Cumberland and Foxfield in Lancashire, thereby shortening the distance between Millom and Barrow by nearly six miles and more than an hour in time by avoiding some of the worst gradients in Cumberland and Lancashire. In adopting such practical ideas as are suggested by Councillor Flynn, County Councils can do useful work of national importance as well as of local value.

Automobiles at Weddings.

RECENTLY we recorded the first Society automobile wedding; now we have to chronicle the use of the motor-car as a substitute for the horse-drawn vehicle and the train for the honeymoon trip. The marriage of Mr. B. Bathurst, M.P., with Miss Ruby Spencer-Churchill was a great affair; but from our point of view the going away was even more notable.

For, instead of being restricted to the time of trains, the newly wedded pair were able to spend some time with friends before they drove, in Lady Cairns' motor-brougham, to Kenry, Lord Dunraven's place on Kingston Hill. One advantage of the automobile is that farewells can be said in a less hurried fashion than when it is generally known that time and train wait for none—not even newly-married couples.

Coach Builders and Motor-Cars.

THE discussion still continues in many quarters as to whether carriage builders should seriously interest themselves in making motor-cars, and at the annual meeting of Messrs. Forder and Company, Limited, of Wolverhampton, the chairman said that the company had been considering as to whether they should take up the business. When they were satisfied that there was a real demand for motor-cars for business or pleasure, they would have no hesitation in entering into competition with other makers. Had this gentleman been in London two or three weeks ago he would probably have realised that the manufacture of motor-cars has developed into a real substantial industry in this country. Mr. T. C. Clark suggested, at the meeting referred to, that carriage builders might very well give attention to motor-car bodies, and several speakers echoed his remarks in their application to Messrs. Forder and Company. There is no doubt that those coachbuilders who give the subject close attention and take the matter up seriously will reap a good reward in the end.



ON THE RIPLEY ROAD. A HALT AT COBHAM.
[Mr. W. C. S. Suther.]

Scottish Meets.

THE eastern section of the Scottish Automobile Club held its second run of the season on Saturday. The cars assembled in St. Andrew Square, Edinburgh, creating the usual interest among the passers-by. The programme was to proceed to West Linton, where the members lunched together at the Gordon Arms Hotel, and thereafter the run was extended to Biggar or Peebles as individual members desired. One of the features of the run was the appearance of Dr. Dawson Turner's new car, a 6-h.p. Delahaye tonneau. Among the other members taking part in the run were:—Mr. John Wilson, on his Decauville; Mr. James W. Hunter, on his Daimler; Mr. John Macdonald, on his 7-h.p. Daimler double phaeton; and Mr. J. H. Irons, on a Daimler victoria. Mr. James Ballantine, on his Daimler; and Mr. Ralph Moore, on his 6-h.p. Daimler double phaeton were expected to join the run at East Howgate. The Rossleigh Cycle and Motor Company, Limited, had out their Canstatt waggnette and Daimler dog-cart for the benefit of non-car-owning members of the Club. The western section of the Club had a run from Glasgow, their destination being Lanark. Ten cars, carrying over thirty

passengers, took part. The roads were in first-class condition, and the run through the Clyde valley was very much enjoyed. The now well-known Kirkfieldbank Hill was safely negotiated by all the cars. After tea at the Clydesdale Hotel the party returned homewards. The following took part:—Messrs. Henry Napier's De Dion, Rankin's Albion, Prosser's Wolseley, Kingsbury's Panhard, Worton's Argyll, Lamont's Albion, Morton's De Dion, Govan's Argyll, Fox's Gladiator, and Burns's Daimler.

The First Exhibition in England.

THE success of the Motor-Car Exhibitions at the Agricultural Hall being now so well assured, it is interesting to recall that the first public exhibition of automobiles in this country was held in October, 1895, at Tunbridge Wells. Sir David Salomons, who was Mayor of that town at the time, organised the exhibition to attract public attention to the new movement, and also to assist the Bill which was then in Parliament for removing the "man with the red flag." There was a large attendance of legislators, journalists, and others at the display (as a reference to the illustration on another page will show), with the result that their sympathies were evoked, and in the following year the Bill passed through Parliament. In 1896 a collection of motor-vehicles was an attraction at the Imperial Institute, and in that year Mr. Cordingley organised at the Agricultural Hall the first purely trade exhibition. The recent show demonstrated the success that has been achieved in this line, and all goes well for its repetition at next year's exhibition.

The Exhibition Question.

A MEETING of the General Committee of the Automobile Mutual Protection Association, Limited, was held at the registered offices, Jessel Chambers, 88, Chancery Lane, London, on Friday, the 2nd inst., and amongst those present were the President (the Earl of Shrewsbury and Talbot), Mr. J. J. Mann, Mr. E. Shrapnell Smith, Mr. A. E. Hodgson, Mr. C. Friswell, Mr. R. Moffat Ford, Mr. T. W. Staplee Firth, and Mr. G. R. Helmore (treasurer and secretary). A large amount of important business was dealt with, and the following resolution was carried unanimously:—"That in the opinion of the Committee of this Association the course adopted by the Automobile Club in allowing the trade to be led into a contradiction of their resolution of June 11th, 1901, has brought about the multiplicity of exhibitions, and that had the Club refused to encourage a disturbance of the arrangement which has been loyally adhered to by the Automobile Mutual Protection Association, Limited, exhibitions other than the Automobile Club's Agricultural Hall Exhibition would have been extinguished before the question could have been re-opened legitimately."

The Manchester Automobile Club.

THE first run of the season of this club took place on Saturday last to Tarporley, a well-known Cheshire village situated within about ten miles from the city of Chester. It was anticipated that at least twenty cars would participate in the run, but, no doubt owing to the roughness and uncertainty of the weather, only eleven put in an appearance. Promptly at four o'clock, the time named, Mr. Fred Smith with his Daimler, and Mr. J. Whittaker driving a 10 h.p. Wolseley, arrived "neck and neck" at Budworth to visit Oulton Park. Fortunately at this period the weather was fine, and the drive down the winding shady walks of the Park to the Hall was very much enjoyed. A number of members were then conducted, by the kindness of Sir Philip Egerton, through the Park and the gardens and greenhouses, and afterwards they visited the beautiful old mansion. The journey was then continued to the "Swan" Inn at Tarporley, where tea was taken. Immediately afterwards the cars proceeded to Portal Lodge, the residence of Mr. Marshall

J. Brooks. The members were met by Mr. Brooks, and the pleasure of the visit was greatly enhanced by the genial welcome extended by him, and by his personally conducting them round the grounds, and calling their attention to all the various points of interest. Soon after seven o'clock the cars dispersed, some members returning home, while the remainder ran on to Chester with the intention of staying over the week-end. It was hoped that an invitation would have been received from the Earl of Haddington to visit Arderne Hall, but the Club were not fortunate enough to obtain this. By a curious coincidence, while Mr. W. E. Rowcliffe, the Chairman of the Committee, was delayed by reason of the ignition on his car having become defective, a gentleman kindly offered to send him assistance, which Mr. Rowcliffe, however, found himself able to dispense with, seeing that there was nothing seriously wrong. Subsequently, in the course of the conversation which ensued, it appeared that the gentleman in question was none other than Lord Haddington himself, who at once invited the Club to visit the Hall and grounds. Unfortunately it was then too late in the afternoon, owing to the delay caused by the inclemency of the elements, for the Club to take advantage of the invitation extended to them. Lord Haddington expressed a hope that the Club would on some future occasion pay him a visit, when they would receive a hearty reception.

Motor-Vehicle v. Tramcar.

MESSRS. BASS, RATCLIFF, AND GRETTON brought an action to recover £21 13s. 6d. from the Newcastle-on-Tyne Corporation for damages caused to plaintiffs' steam motor-vehicle through a collision with a tramcar. The motor-wagon was returning one evening from Gosforth, and when it reached a point on the road about fifty yards north of the road leading to St. Andrew's Cemetery, the vehicle was stopped to get up steam. After stopping perhaps a couple of minutes for this purpose, the driver suddenly heard a whistle from behind, and almost before he had time to turn his head, a collision occurred with a tramcar. The result was that the motor-wagon, which was laden with empty barrels, was damaged in the rear, all the barrels were thrown on the road, and a general blockage on the highway took place. The claim was for repairs, and the loss incurred through the motor being seven days in the repairing shop. The witnesses for the plaintiffs included a cyclist, who declared the car was travelling at the rate of twenty miles, but the driver of the car declared that he was only proceeding at the rate of six or seven miles an hour. For the Corporation it was submitted that the plaintiffs had been negligent themselves, first of all, in obstructing the road when they might have gone to the side, and, secondly, by not showing a light, although there were five men on the wagon who could have kept a look-out. His Honour said he did not see why the brewery-wagon should not have been moved to the side of the road, where it would have been out of the way of the tramcars, which were continually passing. Tramcars and those who ran them had no greater liberty in respect to the road than any other person driving or riding on the road; at the same time they were under no greater liability, and it must be borne in mind that tramcars had not the power of moving to the right or to the left to avoid a collision. Here, in the dark, the plaintiffs' driver sat down on the tram-line, knowing that the cars would be coming along sooner or later. Having sat down, he took no steps to indicate to the drivers of the cars where the vehicle was standing. Judgment was therefore given for the Corporation.

COPIES of *The Motor-Car Journal*, containing the first instalments of our report of the Motor-Car Exhibition, having been sent to His Royal Highness the Prince of Wales, we have received an acknowledgment from the Equerry-in-Waiting, who "is desired by the Prince of Wales to thank Messrs. Cordingley and Co. for the copies of *The Motor-Car Journal*."

A MOTOR-CAR club has just been formed at Barcelona with the title *El Automovil Club de Espana*.

CONTINENTAL NOTES.

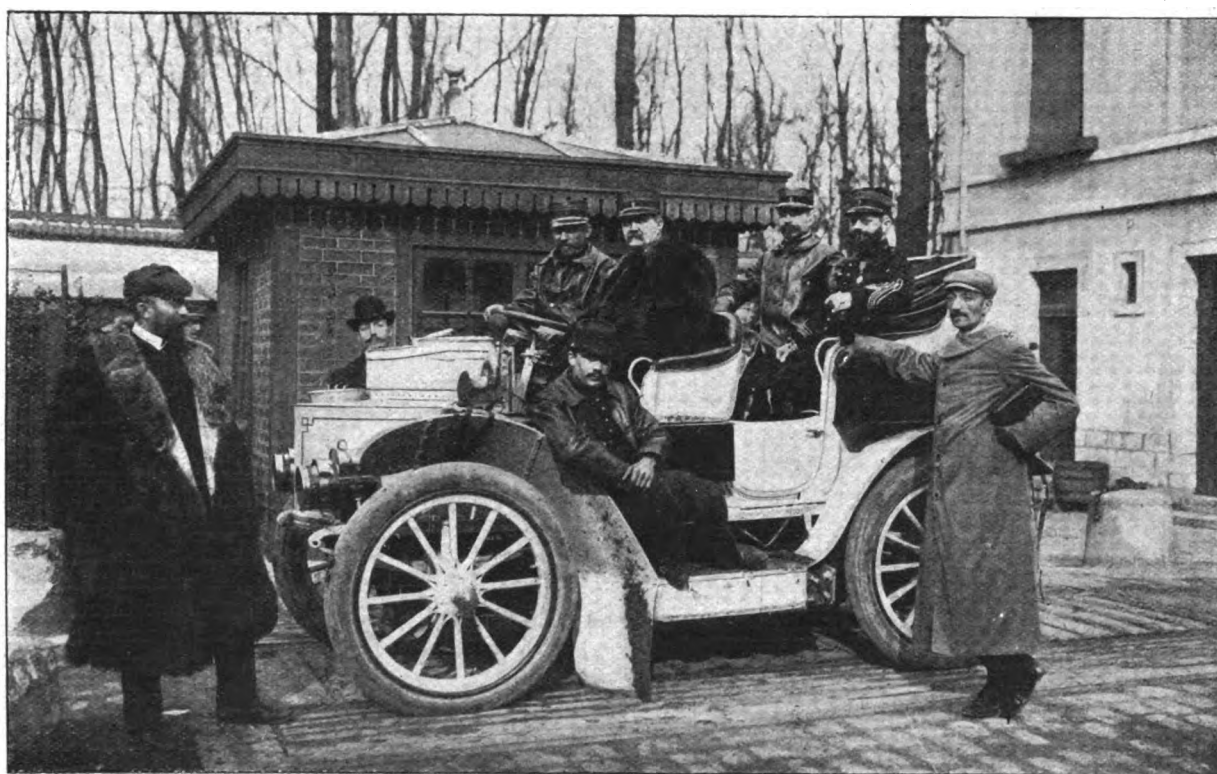
BY AUTOMAN.

IN a recent issue I gave M. Leon Serpollet's figures by which he estimates the maximum effort of his 20-h.p. racing-car during the 29½ seconds in which he accomplished the record kilometre on the cemented path of the Promenade des Anglais, at Nice. M. J. Ravel, an engineer of some distinction, in enlarging on these data in *La France Automobile*, gives some astonishing figures, which bring clearly before the mind the great difficulty of obtaining speeds much in excess of those already attained. It is well known that the resistance of the air increases as the square of the speed.

TAKING M. Serpollet's figures as a basis, that is to say, four cylinders (single-acting) 75 mm. in diameter by 90 mm. stroke and 1,220 revolutions per minute, with a steam pressure of 53 atmospheres or 795 lbs. to the square inch, the horse-power

offers the least resistance to the air. M. Ravel, notwithstanding the figures in favour of steam in its lead over petrol, affirms that he is *mathematically certain* that petrol will yet catch up, and even surpass steam in this direction.

I HAVE not yet seen any notice taken of this subject of air currents. It will be patent to everyone that in record-making, where the resistance of the air becomes such an important factor, to have trustworthy results it will be necessary in future to bring into the calculation the speed and direction of the wind during the contest. The difference in air resistance between a head and stern wind will make a difference of miles per hour in the results, and the competitor in a record contest who happens to get into a favourable lull in a head wind or a favourable puff in a stern wind will have a considerable advantage over the rest. The only true test will lie in an instrument, a kind of anemometer, carried by each car, which will register the speed with due reference to the air currents.



THE FRENCH HEAVY-VEHICLE COMPETITION—THE MILITARY COMMISSION, ON SERPOLLET CAR, WHICH ACCOMPANIED THE COMPETING VEHICLES.

developed by the engine would be 106 at the speed attained, namely 121 kilometres (75 miles) per hour; the resistance of the air takes up four times the power required for the traction. The power may, therefore, be divided as follows:—Overcoming mechanical friction, 26-h.p.; overcoming resistance of the air, 64-h.p.; overcoming tractional resistance, 16-h.p.; total, 106-h.p. Applying the same calculations to the Mercedes, on which M. Degrais accomplished the speed of 100·580 kilometres (about 62 miles), the results give:—Overcoming mechanical friction, 9-h.p.; overcoming resistance of the air, 30 h.p.; overcoming tractional resistance, 8-h.p.; total, 47-h.p. Thus, in order to increase the speed by 13 miles per hour, the horse-power has been more than doubled.

REMEMBERING, however, the axiom that the air resistance increases as the square of the speed, it becomes evident that to beat M. Serpollet's record by ever so little will require an enormous increase of power, and the only factor worth studying in the design of a racing machine resolves itself into the one which

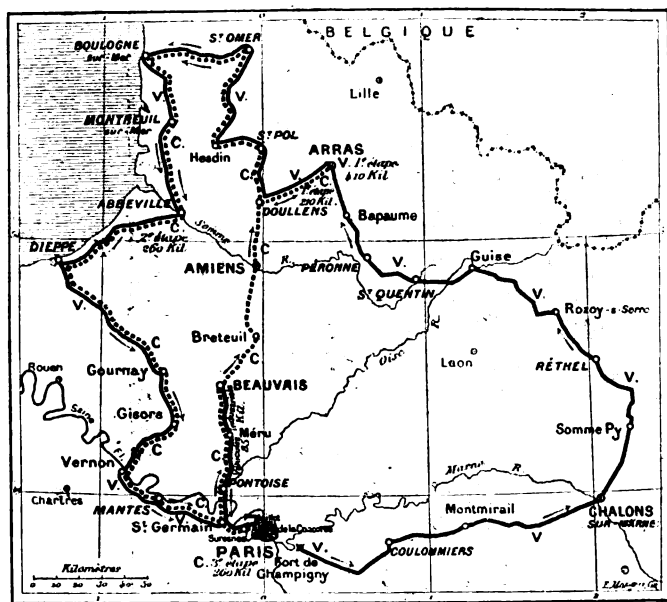
ONE cannot help regretting that the 50-h.p. Napier, did not figure in these interesting trials at Nice, so that an official record could have been obtained of its maximum speed; for, whatever may be the merits or demerits of the records already made by it, they are certainly never taken into consideration on the Continent. Bexhill will, it is to be hoped, fill the *lacune*.

THE new racing Mors cars are out. An improvement in the transmission mechanism consists in a direct drive on the fourth speed, without any intermediate pinions between the motor and the differential. The idea, no doubt, originates with the well-known and now almost generally adopted principle applied to motor-cars on the universal-joint system, which have for some time had direct drives on the top speed. To apply this principle to chain-driven cars is what Mors has set himself to work to accomplish, and he has done it in a very ingenious way. In the gear-box there are the usual two parallel shafts, with the square movable sleeve carrying the different pinions for the first three speeds. For the sake of clearness I will call the shaft in a line

E

with the engine-shaft the driver, and the intermediary shaft between the driver shaft and the differential the driven. At the end of the driven shaft there is the usual bevel-pinion, which gears into and drives the differential shaft, and through this wheel the power is transmitted for the first three speeds. The fourth speed, however, is transmitted direct from the driver shaft to the differential by means of a spur-wheel, which is out of gear during the first three speeds. When the fourth speed is required the lever forcing back the driver shaft leaves the driven shaft out of gear, and brings the pinion at the end of the driver shaft into gear with the differential. The axles are hollow, with a tapering cavity. An arrangement for releasing compression by the starting handle, which is automatically thrown out of gear when the motor starts, is also a feature, while the counter-shaft brake is of the jaw pattern, and the sprocket-brakes admit of the removal of a wheel without dismounting them.

THE boom in motor-cars is greater in France than anywhere, notwithstanding the multiplicity of the makers and their extensive means of production. Some returns for the provinces show an ever-increasing demand. One Department alone shows an increase of 131 motor-cars since January 1st. Prices, too, are



THE FRENCH ALCOHOL COMPETITION—ROUTE MAP.

Black line indicates route for racers; dotted line that for touring cars, and the double line to Beauvais that for industrial vehicles.
La Locomotion.

going up. Decauville issued a new list a short time back, and now Georges Richard has increased the price of his light cars by about 15 per cent.

RECORD BREAKING still continues to be a favourite pastime for Continental automobilists, and on Saturday last, despite the bad weather, Messrs. W. K. Vanderbilt, jun., David Wolf Bishop, and Henri de Rothschild amused themselves on the Ablis-Chartes road in their automobiles. Messrs. Tampier and Gaudichard, the official timekeepers to the A.C.F., were in attendance. After several attempts Mr. Vanderbilt succeeded in lowering the record, and covered the kilometre in 32½ seconds, at a speed of 110 kilometres (68 miles) an hour. Mr. Vanderbilt now holds, therefore, the record for the kilometre with a flying start for petrol cars.

THE Parisians are to have another navigable balloon to enliven the season, and keep all the curious with their noses in the air. M. Severo has practically completed his air-ship, and is only waiting for fine weather to make his trial trip. On Sunday last his balloon was inflated and tested as a captive, and within the limits of its bonds it seemed to manoeuvre with the greatest ease. I described the new air-ship last year, and I need only mention that there are two motors and six propellers, or rather six fans

—two in front to prevent the air resistance being too great, two behind to propel the ship, and two at the sides to steer with.

READERS will remember that a few months ago, when Fournier sailed for America to take up the management of the Fournier Searchmont Automobile Company, I expressed a doubt as to whether he would remain on the other side of the "silver streak." My predictions have been soon verified, for Fournier will know America no more. He has been engaged by Rabourdin, the proprietor of the Paris Automobile Garage, to undertake the management of the business. As to the fate of the Fournier-Searchmont Automobile Company I have no particulars.

THE Association Générale d'Automobile is about to organise some important excursions, amongst which is a tour in the South of England. I hope that this journey will be carried out and well attended. It will be a good opportunity for the automobile world to give an ovation to their French brothers, and to repay somewhat the kind receptions which English motorists have so frequently received across the Channel.

How slowly the world moves, and how motor-cars are pushing it along and burning red tape by the mile, is exemplified by the fact that the A.C.F. is about to petition that certain Custom-houses in France shall not be closed from twelve to two for the dinner-time of the officials. Just imagine arriving at a frontier at two minutes past noon in a hurry to keep an appointment some few miles on the other side, and to be stuck up for two hours while the officials smoke their cigarettes and finish their coffee!

M. GASTON STIEGLER, a writer on the *Matin*, and M. de Cuverville, a retired naval officer, now editor of the magazine *Armée et Marine*, left Paris, on Friday last week, in a De Dietrich car, for St. Petersburg, to follow the fêtes which will be held there during M. Loubet's visit. Their route as far as Berlin will be the same as that of the tourists' cars during the Paris-Berlin race last year.

THE "Circuit du Nord à l'Alcool," or the French Ministerial motor-car race, will be held on the 15th and 16th inst., and, as already mentioned, the manufacturers who were not able to show the merits of their various machines on account of the refusal of the Italian Government at the last minute to sanction the race from Nice to Albazia, are looking to the Circuit du Nord for a test of their prowess. All the leading firms are sending cars, and there are already over one hundred entries, including motor-bicycles, tricycles, voiturettes, light cars, racing cars, and touring cars. Very complete arrangements have been made along the whole of the route, and all under the direction of the Minister of Agriculture, but with the advice and assistance of the A.C.F. The race ought to be a great success, and will cover about 1,000 kilometres in the North-west of France, passing by Boulogne and Dieppe. There are altogether eighty-three entries for the racing contest, including eight Panhards, nine Mors, eight Darracqs, six Decauvilles, four Renaults, eight Clements, four Gardner-Serpollets, and two Georges Richards. A Mercedes has been entered by Vanderbilt, and amongst the names of *chauffeurs* who are driving cars I notice those of Fournier, Antony, Jarrott, Rolls, Foxhall Keene, De Knyff, Maurice Farman, Pinson, Chauchard, Berteaux, Teste, Augier, and De Caters.

AUTOLITE, LTD., has been registered with a capital of £25,000, to acquire inventions relating to the generation of acetylene gas.

WE hear that some experiments are shortly to be made with a special form of spring road wheels which are being fitted to a 16-h.p. Napier.

AT Herne Bay, motorists can be supplied with petrol by Messrs. Root and Clarke, of Station Road, who have been appointed official repairers by the Automobile Club. They have a large garage, and also undertake repairs.

FROM END TO END.

THOSE who have not experienced the ride from Land's End to John o' Groat's can have little conception of the fatigues and troubles of the journey. It is no mere holiday picnic, but a serious undertaking that requires nerve, pluck, and a patient persistency that seems lost in this rushing age. The first intrepid travellers to do the run this year have lately returned to town. To be exact, they arrived at the Agricultural Hall, Islington, N., during the Exhibition, and within five minutes one of the party—Mr. Loxton Hunter by name—was being interrogated on behalf of the *Motor-Car Journal*.

The trip was undertaken on a M.M.C. car, the intention being to demonstrate the reliability of a new pneumatic tyre; and this, it must be noted, behaved admirably, as the condition, when exhibited in the Hall, on the last day of the show, clearly proved. As he dismounted Mr. Hunter appeared the personification of health and vigour.

"Yes," he replied to our inquiry, "I feel well—far better than when I started from London to Cornwall a few days ago. In fact, there is nothing better as a recuperator than a good motor-ing trip, and the continual changes of climate through which I have passed have certainly had a good effect on my health. In fact, as a journalist, who often feels jaded in London, I have determined to join the ranks of the motorists, being so convinced of the reviving effect of the sport."

"Now, Mr. Hunter, just tell us your impressions as to the reception accorded your car as you went through our English counties."

"Well, to tell the truth, we were regarded as ordinary common-place sort of travellers. Speaking generally, the villagers are well accustomed to automobiles nowadays, and it was only in Cornwall that I felt we were being regarded with suspicion. Many people journey to Land's End with the idea of making the journey to the Highlands. They sign the book and depart—never to be heard of at the other end. Hence the critical view of the local people as they see motorists going seaward, and talking boldly about the perils of the journey north. But still the motor-car is accepted as an institution of the road, and in Scotland it was regarded with absolute indifference. That was



MR. LOXTON HUNTER AT LAND'S END.

the most striking impression on my mind—the greater popularity of the automobile north of the Tweed than in England. In all the villages there appears to be two or three motor-cars; in fact, almost every local doctor has a car."

"What about the roads?"

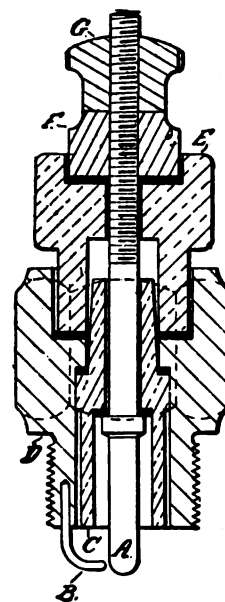
"Not having been over the whole of the route previously, I cannot say whether improvement has been made, but I was surprised to find such excellent highways as far north as Caithness. Touring there was a pleasure indeed."

In the course of further conversation Mr. Hunter told of a difficulty experienced on one or two occasions in getting petrol,

particularly in one place some distance from Inverness. He there had to leave the car, and go to Inverness for a supply, but that was the only time inconvenience occurred. There had been no adventures of exciting moment, no terrible rushes down precipices or midnight prowling up hill. The trip had been a patient forward journey, in which the driver—R. Bunkall—had shown himself a man of resource and a motorist of experience. Such was the testimony of Mr. Hunter, whose successful trip, though satisfactory to the automobilist, was singularly lacking in incident so loved of the interviewers. Besides being the hero of the latest end-to-end trip, and the first this year to sign the book at John o' Groat's he is writing a book on his journey, and we are somewhat afraid his reticence as to exciting experiences may have been due to a natural desire not to forestall public interest in that work.

THE MEZGER SPARKING PLUG.

MR. C. A. MEZGER, of the Regent Automobile and Machine Company, Clinton Street, Brooklyn, U.S.A., has recently devised a new sparking plug, of which a sectional illustration is given herewith. It is claimed that the



plug is so designed that soot will not interfere with the spark. A is the rod terminal which holds all the parts in place and is surrounded by the porcelain sleeve C, having a large core through which the electrode passes. The designer lays particular stress on the concentric space surrounding the electrode, which, he claims, would have to be choked up with carbon before a short circuit could be effected. E is a sort of cap made of porcelain. Together with the nut F and a washer it prevents the escape of gases from the cylinder of the motor. The wire connection is made by slipping a wire between F and G and tightening the latter, which is a knurled nut. To the metal plug D all the parts are secured, while the plug itself is screwed into the cylinder. All joints are packed with asbestos washers. The electrode B is driven into D in the usual way. The manufacturers have adopted a special metal for this terminal, which, they state, is cheaper and more satisfactory than platinum, and is not liable to break when being set, i.e., when bent. In the course of a test of one of the new plugs, it was held up to a gas jet and completely covered with soot. It was then attached to a motor, which was readily started and run for some length of time. The ignition was perfect when running with either full or with partly relieved compression, and no additional accumulation of carbon could be found after removal.

THE McCURD PORTABLE MOTOR-BICYCLE SUPPORT.

MR. W. A. McCURD, who is devoting considerable attention to stands for motor-cycles, has just introduced a new portable support for use on motor-bicycles. Fig. 2 shows the device diagrammatically, while Fig. 1 shows its position



FIG. 1.—POSITION OF SUPPORT WHEN NOT IN USE.

on the machine when not in use. It consists of a clip and segment *A* bolted permanently to the chain stays of the machine by the back plate *K*. The leg *F* is constructed to rotate on the pin *C*.

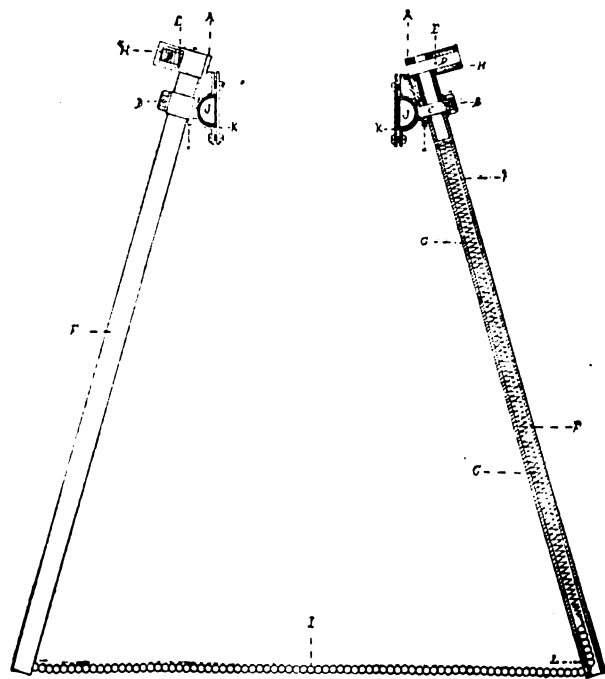


FIG. 2.

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|--|--|
| A Clip and Segment. | F Tubular Leg. |
| B Split Pin securing Lock Nut. | G Spring arranged to absorb Chain. |
| C Pin upon which the Leg <i>F</i> rotates. | H Spring governing Finger <i>D</i> . |
| D Spring Finger. | I Chain. |
| E Cross Piece to withdraw Spring Finger. | J Chain Stays of Bicycle. |
| | K Back Plate securing the Clip <i>A</i> to Stays of Bicycle. |

and is arranged to lock itself in two positions by the spring finger *D* dropping into two holes drilled in the segment. *B* is simply

a split pin securing nut on the pin *C*, and *E* is a crosspiece by which the spring finger is withdrawn from the holes. To prevent the legs "spreading" a chain *I* is used (passing through a hole in each leg), the extension of which is governed by the stop *L*, which will not pass through the hole, and when the legs are closed the spring *G* immediately contracts and draws up the chain. When the jack is required it is only necessary to withdraw the stops and press the legs to the ground, when, by placing the feet behind the tubular legs and pulling the machine back, the machine is jacked up in much less time than it takes to write it. The width of the base is 16 in., so that there is no fear of the machine falling, while any longitudinal movement is impossible without shearing off the pin *D*, which is made of 5-16 in. steel. The position of the legs is governed by the segment being inclined from the vertical, while the stud *C* is, of course, at right angles to the face of the segment. The device is amply strong enough to allow the rider to sit on the machine and start the engine, while for tyre repairs, ordinary engine repairs or replacements, and the convenience of being able at any moment to jack the machine up and prevent the risk of a fall and consequent damage, it forms a useful accessory.

MILITARY AUTOMOBILES.

CAPTAIN P. S. WALKER, of the Royal Engineers, has, according to information we have received, been writing to the American Automobile Club, saying it was his idea to ask the Commander-in-Chief to approve of a more general use of motor-cars and bicycles in the present campaign, and he desired to be ready with the necessary specifications and prices. He believed American road conditions more closely resembled South African than those of England, and he accordingly enclosed a copy of a letter he had sent to a dozen or more American makers. The letter was as follows:—

"I may be requiring several automobiles, light motors, and motor-bicycles for work in the field, and should be obliged if you could quote me c.i.f. Cape Town or Southampton, stating also what stock you hold, and how soon you can manufacture and deliver from stock. As far as experiments go the following are my probable requirements:—

"Automobiles, steam, 6 to 7-h.p., and 8-h.p.; petrol, 8 to 10-h.p. and 12 to 15-h.p., water-cooled, to carry two and four men; on trailer, 450 to 700 lbs.; wire wheels, pneumatic tyres very stout, geared for a maximum speed of 15 to 20 miles per hour, lightness essential, seat accommodation as simple as possible.

"Motors: steam or petrol, of same type as used in cars for fixing on a horse-drawn vehicle, capable of going over very rough country, with carburettors, tank, etc., complete. Also water-cooled gasoline motors from 2 to 5-h.p., with all accessories, capable of being carried singly or in pairs on pack-saddles.

"Motor-bicycles: for rough work, low-g geared; the motor should be protected as far as possible from dirt and high up for crossing rivers. I should require sketches or drawings and descriptions, to enable me to judge of their utility for work out here. The gear will be primarily used for running search-lights in the field, but it might be put to other uses, so that it will be given a thorough military test.

"In case I should be proceeding to England to buy plant you might send a second copy or reference to agent in England, care Messrs. Cox and Co., Charing Cross, London."

Of course it may be that American roads, which are universally acknowledged to be far behind those of this country and the Continent, approximate more closely to the conditions of travel in South Africa, but we regard it as a pity that such a letter, giving the views of an expert as to what is wanted in warfare, should escape the notice of the British automobile industry. Hence we have pleasure in giving it the extended publicity of our columns and would express the hope that when British military men forming conclusions as to the requirements of the times they should first make them known in their own country.

THE Motor-Car Exhibition at the Agricultural Hall.



THIRD NOTICE.



THE FIRST EXHIBITION OF MOTOR CARS IN ENGLAND—TUNBRIDGE WELLS, 1895.

From photo lent 1/11

(Sir David Salomons, Bart.)

THE Maudslay Motor Company, who are establishing large works at Coventry, exhibited one of the first vehicles they have turned out. The car, the body of which took the form of an eight-seated station omnibus, convertible into an open brake, comprises a number of interesting features. First of all we may refer to the frame, which is built up of rectangular steel tubing filled with ash. In the fore part of the frame is set a three-cylinder vertical engine of 20-h.p., the cylinders being 5 in. diameter by 5 in. stroke, and the normal speed 800 revolutions per minute. The ordinary electrical ignition is employed, the contact breaker being on the dashboard. Provision is also made for the fitting of tube ignition as a stand-by. The exhaust valves are located on the top of the explosion chamber and are actuated by a shaft which runs across the top of the engine, the shaft being driven by worm gear and a vertical shaft off the main shaft. A centrifugal type of governor is provided; it is mounted on the vertical shaft which actuates the exhaust-valve shaft. It operates directly on a rocking spindle in the induction pipe, which has a disc throttle valve at its extremity. This spindle is mounted on ball bearings, thus rendering the governor extremely sensitive. The cylinders are provided with large water-jackets, while the sides of the crank case are provided with detachable plates to allow of ready access to the cranks and piston rods. The exhaust valves exhaust into a drum at the side of the cylinders. The drum, from which a large pipe extends to the silencer, is provided with a relieve valve, so that in case of a back fire in the cylinders all undue pressure in the silencer is relieved. The cranks are set at an angle of 120 degrees to each other, giving equal division of explosion as well as best possible balance. Forced lubrication obtains throughout. The engine shaft is extended forward, and by means of worm gear drives two barrel force pumps carried on brackets from the frame. The oil, after being flushed through the bearings, returns to the reservoir through a filter. An indicator in the main supply pipe is mounted on the dashboard and serves as a tell-tale. The clutch shaft is provided with special universal joints. Four speeds and a reverse motion, controlled by a single lever, are provided. The change gear is an improved form of the Panhard, the four gears being arranged in two pairs, and moved to and fro by means of a cam plate. From

the differential shaft the power is conveyed to the rear road wheels through the usual duplicate pair of chains and chain wheels. The manner in which the sprocket wheels are carried on the face of the road driving wheels is also noteworthy. The nave of the wheel is produced inwards, and is provided with two sets of six arms, the inner set being bolted to the sprocket ring and the outer to the driving road wheel through the enlargements of the spokes in the usual way. This arrangement allows of the fitting of an oil-bath gear case. A foot pedal actuates a band brake on the differential, while the hubs of the rear wheels are provided with hand-operated hand brakes. All the brakes are double-acting and water cooled, and the first action of applying them is to disengage the clutch. The road wheels are of the artillery type, the rear ones being 42 in. diameter and shod with solid tyres; the front wheels, which have pneumatics, being 36 in. in diameter. The car has a wheel base of 8 ft. 3 in., and weighs about 18 cwt.

Marine engines of 1½, 3, 5, and 7½-h.p. were shown by Messrs. F. R. Leith and Company, who also exhibited a 1½-h.p. engine fitted with reversing propeller. These are of the Lozier type, and in the higher-powered types a special magneto-ignition is used. In this the friction wheel is mounted on a flexible shaft, and although a spring holds the friction wheel firmly against the fly-wheel, the flexibility of the shaft prevents that rigidity which might produce over-heated bearings. The employment of the flexible shaft enables the Lozier gas-engine magneto to be screwed to the floor of any launch, and operated directly by the fly-wheel of any engine. A simple method for keeping the commutator free from grit, oil, or dirt has been provided without the necessity of using emery or sand paper. The friction-wheel is mounted on a ball bearing rocking arm, ensuring perfect freedom of motion.

Messrs. W. J. Bishop and Company made a prominent feature of their accumulators, in which the plates are separated by corrugated celluloid sheets. Should buckling take place contact between the plates is impossible, a point of advantage which is obvious. These are made in celluloid, ebonite, or teak cases. Connecting plugs, inspection lamps, induction coils, volt and ampere meters, etc., completed an interesting display.

H

The Creek Street Engineering Company have now entered the lists of builders of heavy steam vehicles, and had on view a low-built steam wagon intended to carry a load of one ton. The frame is constructed of wood and is mounted on dropped axles, the floor being only 14 to 16 in. off the ground. On the left hand side, at the front end, is mounted a flash boiler of a coil type, the series of coils being linked up to outside connectors. The water is fed to the boiler at the top, and the steam drawn from the bottom, so that a high degree of superheat is obtained. Paraffin is used

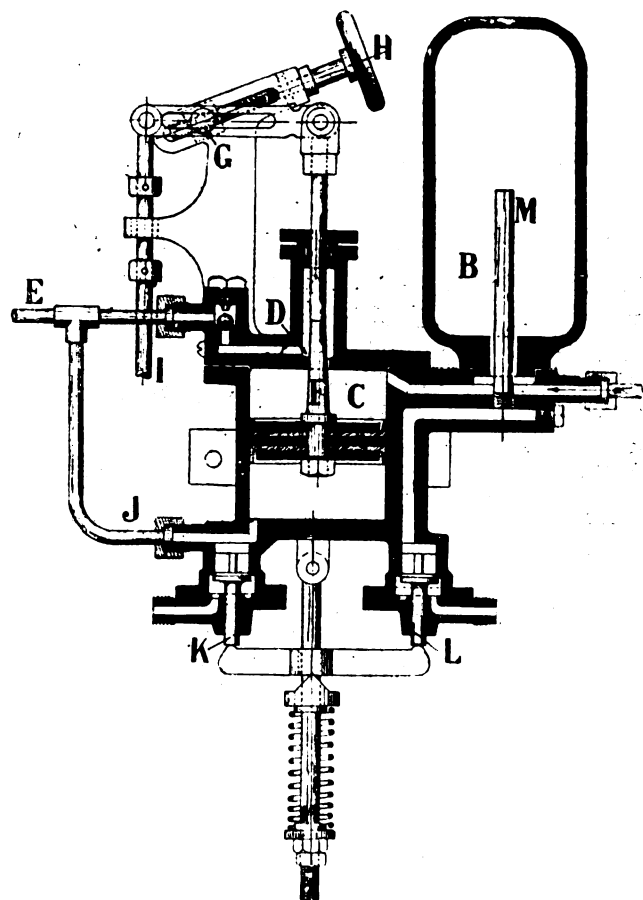


FIG. 78.—SECTION OF CREEK COMPANY'S AUTOMATIC REGULATOR.

as fuel, a section of the burner being shown in Fig. 79. The burner, which is of circular construction, is of the vapourising type, and is composed of a flame baffle B, which forms part of the vapouriser, and of a movable inducing tube F, with an expanded top which forms the burner. A needle passes down the centre of the inducing tube and enters the nipple from which the vapourised oil issues under pressure—this needle is attached to and moves with the inducing tube. The oil, under a pressure of about 20 lbs. per sq. in., first passes round the baffle into the steel coil C, where it is fully vapourised, then down to the nipple E, and thence as vapour up the inducing tube. The vapour in passing up the latter mixes with air, which mixture passes into the expanded top, from which it issues through a series of holes G, formed in its circumference. When at its lowest position the whole of these holes are opposite the baffle, which, deflecting the flame, concentrates it upon the coil, the flame being of just sufficient strength to keep the vapourising coil and baffle hot. When more flame is required the inducing tube is raised by means of a lever H, simultaneously the needle rises out of the nipple allowing more vapour to pass up into the burner, also a number of holes in the burner are raised above the level of the baffle, thus allowing the flame to spread. This action may be continued until the needle is raised completely out of the nipple, and all the holes are above the level of the baffle; in this way the greatest dispersion of the flame and the maximum heat are simultaneously obtained. One of the interesting details of the boiler is the combined auto-

matic control of the water supply to the generator and the fuel to the burner. The regulator (Fig. 78) which is applicable to all ordinary or flash boilers, is a simple proportional meter which proportions the fire to the amount of water passing in from the feed pump. It consists of an air vessel, B; cylinder, C; piston, F; and piston rod (tapered at the bottom to vary the area of the orifice through which the feed-water has to pass, in accordance with the position of the piston); an overflow valve, K, to release the surplus water when the set pressure has been attained; a ball-valve to prevent the boiler pressure acting back on the top of the piston; an adjustable fulcrum to vary the amount of burner movement in relation to the piston movement; and a safety valve in communication with the boiler, which is loaded from the same spring as the overflow valve. In action 200 lbs. pressure per sq. in. is raised in the air-vessel by a pump, and this pressure acting on the top of the piston pushes it down, and the tapered rod, opening the orifice, admits water to the boiler, and simultaneously raises the flame of the burner. The steam pressure now rising in the boiler to a point overcoming the air-vessel pressure (which is the pressure of the overflow valve) acts back against the bottom of the piston and forces it up, thus closing the orifice and so stopping the flow of the water to the boiler, and also shutting down the burner flame. The surplus water passes through the overflow valve. Once the adjustable fulcrum has been set for the required water-level in an ordinary boiler or required steam temperature in a flash boiler the action is entirely automatic. The proportions between water and fuel can be varied by adjusting a milled hand wheel, so that more or less rapid generation of steam can be obtained on occasion. A three-cylinder vertical reversing engine, with cam-operated lift valves, is placed beneath the driver's seat on the right-hand side of the wagon. By sliding the camshaft the cut-off can be varied. The transmission from the engine is by a roller chain to the differential countershaft, and thence by outside chains to the rear road wheels. The engine is 7-h.p. normal, but a much greater power can be developed on occasion. The engine drives a pair of force pumps, the one of which feeds water through the automatic regulator to the boiler, and the other forces the paraffin to the burner. The road wheels are of the artillery type shod with solid rubber tyres. Steering is controlled by a lever, while a pedal controls band brakes on the hubs of the rear wheels. The vehicle complete weighs about 14 cwt. The Creek Street Company also had on view samples of the burner and regulator, which they are putting on the market separately. At the opposite end of the stand was shown a Capel four-seated car fitted with 4½

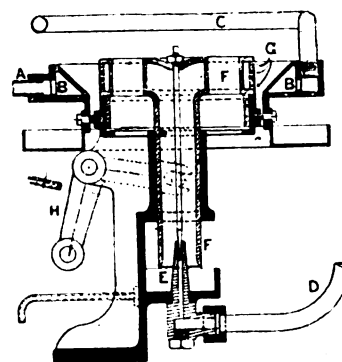


FIG. 79.—SECTION OF CREEK COMPANY'S PARAFFIN BURNER.

b.h.p. horizontal two-cylinder engine. This vehicle was described at length in our report of the 1901 Exhibition. In the interval certain detail improvements have been introduced, but, generally speaking, the arrangement remains the same. The chains now used for the speed gear are similar to ordinary cycle chains, but are leather-covered. The steering gear is operated by a lever and is irreversible. Two new features in connection with the car are a governor device for regulating the speed, which consists simply of a spring-controlled valve placed in the inlet passage and which automatically closes when the speed of the engine increases abnormally, and the other being the new Johnston carburettor, illustrated and described in a recent issue.

Messrs. Mann and Overtons, Limited, who have lately acquired the British agency of the Georges-Richard motor-cars, had an imposing array of these well-known vehicles, including a *chassis*, a complete *tonneau* (Fig. 80) a double phaeton, and a car with a special *limousine* body. The frame is of tubular con-

acts on the admission, the normal speed of the engine being 1,300 revolutions per minute. A hand accelerator on the steering-pillar, and a foot lever in front of the driver, both operate springs which act against the governor, and allow the speed of the motor to be increased or decreased. The water circulation is maintained

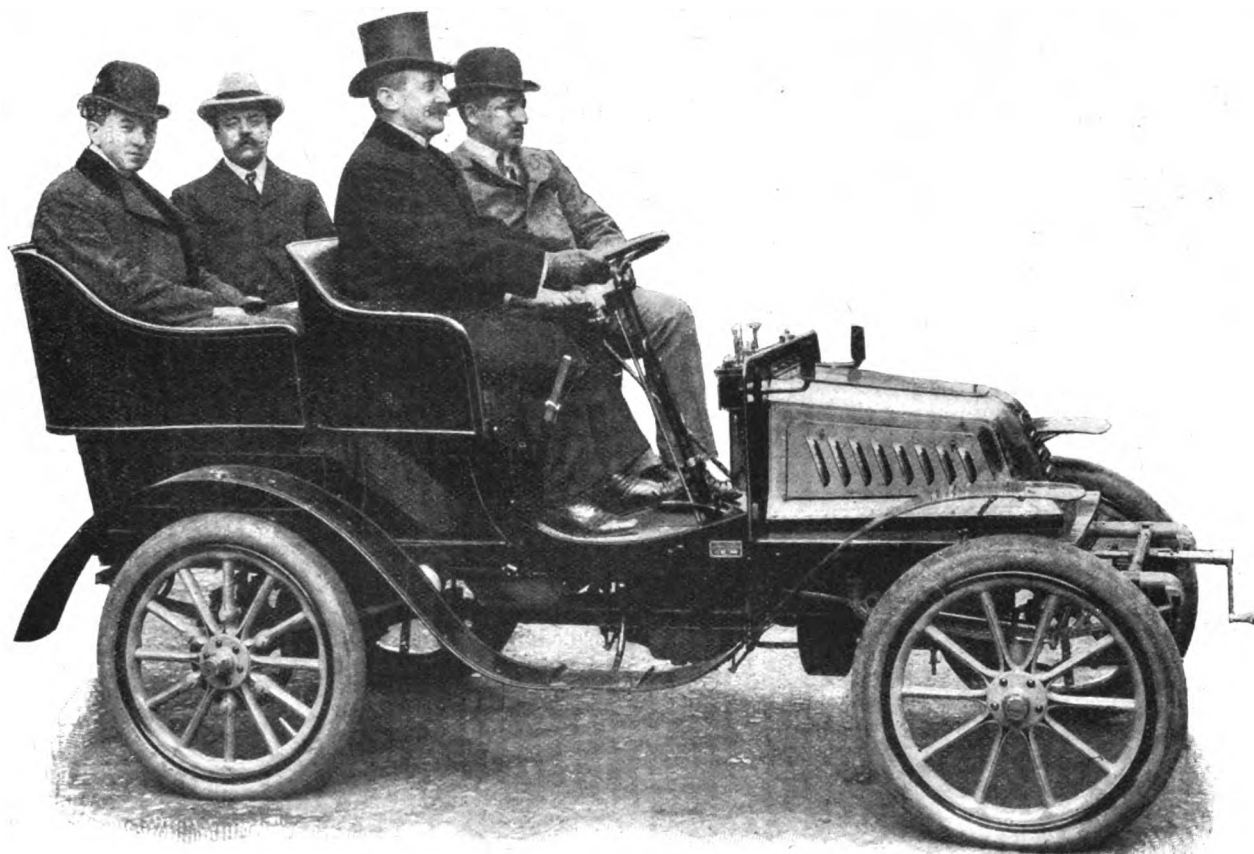


FIG. 80.—THE GEORGES RICHARD 10-H.P. TONNEAU.

struction and is practically double, the lower part carrying the engine and transmission gear, the upper part taking the body. The power is supplied by a vertical two-cylinder engine, developing 10-b.h.p., the cylinders being 110 mm. diameter by 110 mm. stroke. The carburettor is of the Richard firm's own spray

by pump and radiators, the pump being cast in one with the crank casing. As will be seen from the plan of the *chassis* (Fig. 81) the power is transmitted through a pedal operated friction clutch to the change-gear box. A special pivoted-arm carrier connected with the clutch prevents any end thrust from

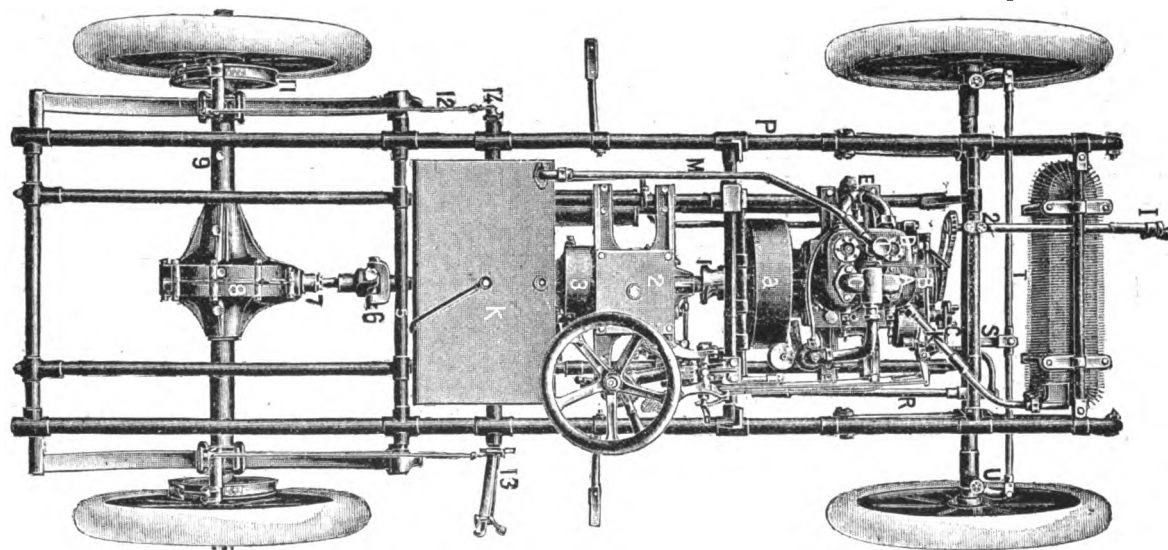


FIG. 81.—PLAN OF GEORGES RICHARD 10-H.P. CAR.

type, and a special form of electrical ignition is employed. The exhaust-valve cam shaft is enclosed. The contact maker and breaker, as also the pump, are driven by the same spur-wheel which drives the cam-shaft. Two ignition coils are used, one for each cylinder, they being fitted with tremblers. The governor

being put on the change-gear shafts. The gear-box gives a reverse motion and three speeds forward, equal to 10, 20, and 30 miles per hour respectively, any intermediate speeds being obtained by varying the speed of the engine. The drive is taken from the gear-box to the differential on the back axle, through a cardan

joint and a pair of bevel wheels. The forward speeds are operated by a single lever, a separate lever being provided to control the reverse motion. The change-gear lever is mounted on the steering pillar, and it may be mentioned that on the high speed the drive is straight through the transmission to the longitudinal universally-jointed shaft, none of the gear wheels being in action. A pedal controls a double-acting band-brake on the differential drum, while there are also band-brakes on drums connected with the hubs of each of the rear road-wheels controlled by a hand-lever. The road-wheels are of the artillery type, equal size, and shod with 750 mm. by 85 mm. Clipper-Michelin pneumatic tyres. A system of forced lubrication of the various parts is adopted, a branch from the exhaust pipe being employed to give the necessary pressure. Inclined wheel-steering is, of course, adopted, the complete car weighing about 10 cwt. The vehicles appear to be well-constructed, and we are looking forward to a trial run on one of them with interest. Messrs. Mann and Overtons also exhibited an example "Energie" tonneau. It is fitted with 8½-h.p. water-cooled two cylinder Buchet motor. The engine is regulated by means of a switch on the steering-wheel, which advances or retards the ignition. The carburettor is of the Longuemare spray type. A centrifugal water-circulating pump is geared direct to the engine-shaft, and a large radiator is fitted to the front of the engine. A special gear box is fitted close up to the clutch, containing three speeds forward and a reverse. All the speeds are changed by means of one lever conveniently placed on the right hand of the driver, the engine driving the universal shaft direct on the high-gear. Two brakes are fitted, both holding either backwards or forwards, the foot-brake acting on the transmission-shaft, and the hand-brake on drums fitted to the hubs of the rear-wheels.

A large and interesting display was made by the Simms Manufacturing Company, Limited, on whose stand were photos of the war car, described in our columns of the 12th April. A special feature consisted of a chassis for an Argyll car, fitted

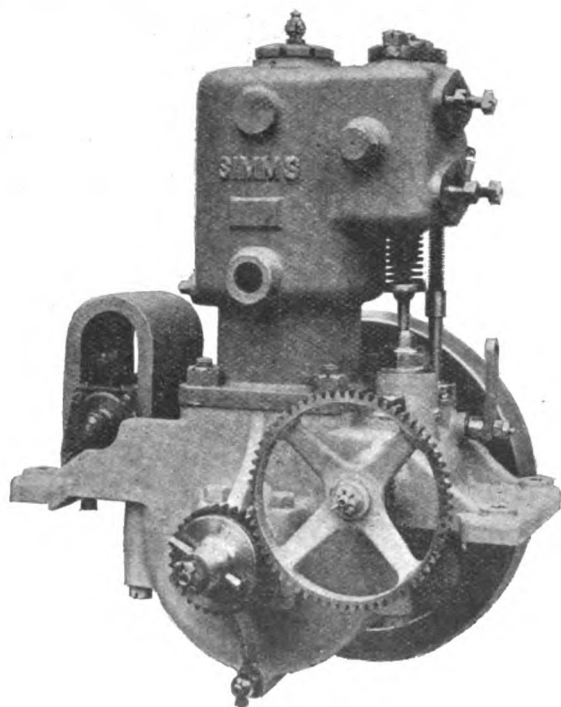


FIG. 82.—THE SIMMS SINGLE-CYLINDER MOTOR.

with a 6-h.p. Simms water-cooled motor with Simms-Bosch magneto-electric ignition and timing gear, and with inlet valve regulator. Perhaps one of the most interesting of the Simms exhibits was the 8 to 10-h.p. twin-cylinder water-cooled motor fitted with the well-known Simms-Bosch magneto-electric ignition. The cylinders are 95 mm. bore by 110 mm. stroke. A specially arranged timing gear is also provided.

The cranks are set opposite each other. The governor is mounted on a separate shaft, and is driven by a fibre wheel gearing into a phosphor bronze wheel on the cam shaft. The governor regulates a throttle valve in the inlet pipe, and there is a special exhaust fitting supplying warm air to the carburettor. Ignition is varied by rocking the connecting rods which transmit the motion of the ignition cams to the igniter about the half-speed shaft, so that they are actuated by the cam earlier or later in the stroke. The automatic splash lubrication conveys lubricant to all the bearings, and a special point is the position of the fly-wheel, this being on the engine-shaft, outside the base chamber. Both the cylinders are cast in one piece. Air-cooled motors of 2-b.h.p. with spray carburettors and exhaust valve lifters, 3½-b.h.p. Simms water-cooled motor, with cylinder of 80 mm. bore by 78 mm. stroke, 6-b.h.p. motor, and a twin cylinder 12 to 15 b.h.p. Simms motor, formed part of a display which was completed by a large selection of accessories.

The stand of the Clarkson and Capel Steam Car Syndicate, Limited, was of interest to all users of steam cars. First we may mention the paraffin burner, not only for use on motor vehicles, but for industrial purposes. This burner is of the true Bunsen type, and the quantity of air allowed to mix with the oil-vapour before combustion takes place can be adjusted to a nicety. Another special feature in the burner is the absence of small holes. The paraffin, after being passed through a coil tube over the fire, issues by a needle valve into the induction tube of the burner, and then passes up through the annular burner orifice. A feature of the device is the combined control of the burner orifice and the vapour jet, by means of which complete combustion is obtained whether the fire is at full blast or turned down low. The initial heat to the vaporising tube can now be got without burning methylated spirits in the burner tray. A little paraffin is turned on into a cup, and from thence it drips on to an absorbent pad, and is lighted with a match. A small fan fixed in a convenient position is then rotated, and this blows the flame of the paraffin on to the vaporiser tube. Among other specialities displayed by the firm were the "Clarkson" radiators and condensers, high-speed water, oil and return feed pumps, steam separators, water filters, and an oil separator. The latter is fitted on the exhaust pipe, and separates the oil from the condensed water, the latter being returned to the tank. On this stand were also shown a couple of new American steam cars, known as the "Conrad." One was an ordinary two-seated runabout, and the other a four-seated *dos-a-dos*. In general outline these cars follow the usual lines; the run-about is fitted with a "Mason" 4½-h.p. double-acting engine, provided with extra cross-head water pump. The boiler consists of a steel shell 16 in. diameter, and contains a large number of copper tubes. The burner and generator is of the "Kelly" pilot type with automatic regulator. The water tank has a capacity of thirty-three gallons, and that for petrol seven gallons. The road wheels are 28 in. in diameter, and are shod with 3 in. pneumatic tyres. The *dos-a-dos* is a more powerful car, having an 18 in. boiler and a 6½-h.p. engine. The water tank holds 36 gallons, while eight gallons of petrol are carried.

One of the largest stands in the Exhibition was that of the Locomobile Company of America. Constant attention was attracted by one of the standard pattern two-seated cars, which was mounted on a stand with rollers under the four wheels, and shown in motion. As the regulations did not permit of the introduction of petrol into the hall, ordinary gas was led to the burner by a rubber tube and steam so generated, and the car kept moving at full speed on the rollers. Lieut. Walker's two-seated car, which has distinguished itself so greatly at the front, naturally caused many visitors to halt at the Locomobile stand. Considering the amount of work which the car did in South Africa it is in wonderfully good condition. The Locomobile steam cars are now known all over the world. The body contains the boiler, engine, fuel, and water tank. It rests on three springs, secured to an underframe of steel tubing. The water in the boiler is converted into steam by heat obtained by burning

ordinary petrol, the tank for which is carried under the foot-board. From the tank it is forced through the boiler, where it is vapourised) into the burner. Steam is generated in an upright copper boiler. Water is supplied to the boiler by a pump connected to the cross-head of the engine; the pump works the whole time the car is running, and is regulated by turning a by-pass lever. A steam gauge is placed in the front of the carriage, and a safety-valve is fitted, which blows off at 240 lbs. pressure. The engines are of the

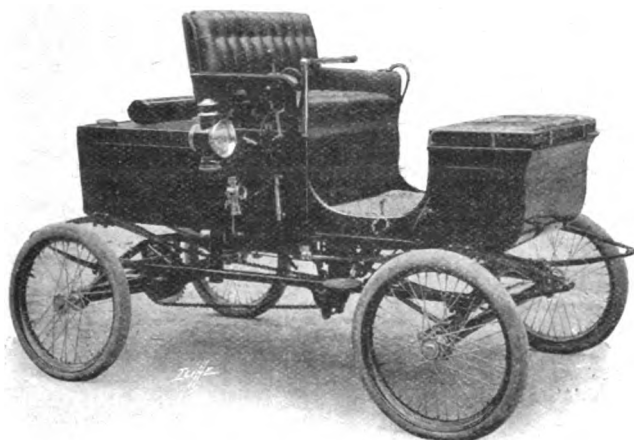


FIG. 83.—THE LOCOMOBILE TOURING CAR.

two-cylinder double-acting type, running on ball bearings, and lubricated by a self-feeding oil cup. The water tank carries a supply sufficient for a run of between twenty-five to sixty miles, depending upon the condition of roads and style of car. In addition to the automatic pump an auxiliary hand pump is attached, which will fill the boiler in a very short time, even if the gauge shows 200 lb. pressure of steam. Attention may be drawn to the water lifter, steam air and water pumps, pilot light and automatic torch, with which all Locomobile cars can now be fitted. Among the new types was a victoria rumble specially finished throughout, and fitted with a 16 in. boiler. It has the new cylinder lubricator, the automatic steam pumps for air and water, recently described in the *Journal*, and a convenient little hand pump at the side of the driver's seat. Another new carriage was a Stanhope, fitted with a nicely shaped case, which forms a box front to the dash, containing two petrol tanks carrying sufficient fuel for one hundred miles. To obviate the necessity for running the petrol tank under air pressure an ingenious device has been adopted. Three small cylindrical vessels are connected together by pipes. The first contains petrol, the second water, and the third air. A few strokes of a small pump on the petrol tank forces more spirit into the petrol tank, which in its turn forces the water into the air cylinder, and consequently compresses it. A relief valve prevents the pressure exceeding 80 lbs. per sq. in. This air pressure behind the petrol provides a reserve of pressure for forcing the fuel to the burner for starting. As soon as the fire is started a start is made, the fuel is pumped by the engine to the burner, a diaphragm regulator preventing an excess of 80 lbs. pressure. The cylinder is fitted with a new lubricator to which is attached a small hand pump, one stroke of which with the finger every ten miles or so ensures efficient lubrication of the pistons and slide valves. Next we examined one of the new touring cars (Fig. 83). Every part of this has been made heavier and more substantial. The boiler is 16 in. in diameter, and the engine is a much heavier and larger type than has previously been used. The capacity of the water tank is said to be sufficient for a run of from forty to sixty miles, and that of the petrol tank for 100 to 150 miles. Quite a new model was the 8 to 10-h.p. wagonette, with seating accommodation for from six to eight persons. The frame of the car is of strong construction, the general arrangement of the engine, boiler, tanks, etc., following the lines adopted in the touring car. Both the boiler and burner are on the same principle as the other types, except that the former is 16 in. in

diameter, and the engine is a very heavy and larger type than hitherto used. It is estimated that one charge of water is sufficient for a run of from forty to sixty miles, and the capacity of the petrol tank is sufficient for a run of from 100 to 150 miles. On the stand was also shown a 21ft. Locomobile steam launch to seat twelve persons. The boiler is of the standard type, the engine is of a new form, comprising two vertical cylinders 2 in. diameter by 2 in. stroke; it is entirely enclosed, no valves being visible; steam is cut off at seven-eighths of the stroke. The water tank holds thirty-five gallons and the fuel tank eighteen gallons; a condenser is also fitted.

Another American light steam car, new to the English market, is the Foster, which was shown by the Blaxton Engineering Company, Ltd. The general features are similar to the well-known light steam car, but the whole construction is much heavier. The boiler is made of $\frac{3}{4}$ -inch steel shell, the shell itself and one head being pressed out of one piece, with 400 half inch copper tubes, the dimensions of the boiler being 16 in. by 14 in. The boiler is lagged with one inch of asbestos protected by a sheet-iron jacket. The engine has two cylinders, $2\frac{1}{2}$ in. by $3\frac{1}{2}$ in., and is fitted with link motion reversing gear. It develops 8-h.p. at 450 revolutions per minute with steam at 150 lbs. pressure. The steam can be admitted to the cylinders to cut off at a quarter of the stroke. The lower parts of the engine containing the shaft and connecting rod are enclosed and made oil-tight. With every down stroke, each connecting rod dips into the reservoir of oil and splashes some of the lubricant over the other bearings. Plain bearings are fitted, and a water pump of large capacity is driven direct. One of the special features of the car is that the burner is so arranged that normally one-half of it only is used, this being controlled, as usual, by a diaphragm valve. Another needle valve, in easy reach of the driver, enables the second portion of the burner to be brought into operation in order to obtain steam more rapidly when desired. The auxiliary burner is not controlled by the automatic valve. In connection with the burner is a pilot light which enables the driver to turn the main fire on and off at will from the seat. An automatic fuel regulator is provided which varies the fire in inverse ratio to the steam pressure, and usually checks the main burner when 160 lbs. of steam have been obtained. The lever operating the reverse gear is placed outside the driver's seat. The throttle valve lever is situated at the side of the driver in the body of the vehicle, and there is a special lever arranged in the centre of the car beneath the seat, this acting upon a rapid throttle valve enabling the driver to shut off steam close to the boiler when leaving the car at any time. A heavy chain transmits the power from the engine to the differential gear on the live rear axle. The dif-

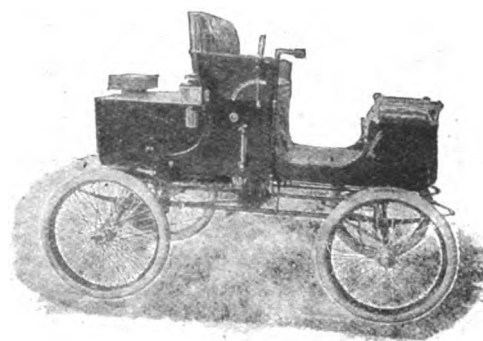


FIG. 84.—THE FOSTER STEAM CAR.

ferential is of the enclosed spur wheel type. The drum of the differential is encircled by a double-acting band brake of liberal dimensions. The frame is of heavy seamless steel tubing with heavy yokes and knuckles. The rear axle is fitted with $1\frac{1}{2}$ in. shafts with accessible ball bearings. The petrol tank has a capacity of eight gallons and the water tank thirty-five gallons. Complete with water and petrol the car (Fig. 84) weighs 11 cwt. It is arranged to seat four persons, *vis-a-vis* fashion; it is fitted with wire wheels $28\frac{1}{2}$ in. diameter, the wheel base being 5 ft. 6 in.

On the stand of Messrs. Durkopp and Co. were displayed a chassis and a complete well-finished *tonneau* of the 10-h.p. Durkopp type of vehicle, and a 20-h.p. four-cylinder *tonneau* of the same make. To deal first with the 10-h.p. cars, these have a frame made of wood, reinforced by angle steel, mounted on artillery type wheels of equal size, taking 840mm. by 90mm. pneumatic tyres. They are fitted with a two-cylinder vertical engine, placed in the usual position under the bonnet. The governor, which acts on the throttle valve, is itself controlled by a pedal, which regulates the engine speed between 200 and 1,200 revolutions per minute. The two cylinders are cast in one piece, no water joint being used for the heads. The arrangement adopted for fixing the valves enables them to be withdrawn by removing a single nut. The crank chamber is made of aluminium, and is fitted with a drain cock, to let out any superfluous oil. Electric ignition is fitted, and this is timed by a small lever on the steering pillar. Tube ignition can also be provided as a stand-by. The carburettor is of the usual spray type. The water circulation is maintained by a pump driven by a gear-wheel off the half-speed shaft; a radiator is also fitted in the front of the motor bonnet. Three forward speeds and a reverse motion operated by a single lever

air-cooled motor with reversible blade propeller. *Special* curiosity, however, attached to the Texas steam car exhibited on the stand. This is claimed to be "self-adjusting for all roads, from a freshly ploughed field to glass-like asphalt," and is "the only motor-car designed in harmony with Nature's laws." The invention apparently consists of a kind of shield so constructed as to form part of the car. This projects to a point, the sides being formed so as to offer little air resistance. It also forms a water tank, thus adding to the capacity of the car. A window at the top and an arrangement similar to a cow-catcher beneath are also conspicuous features, the latter being said to prevent a rush of wind beneath the car and thus obviate back wind, which is responsible for the dust so often associated with the pleasures of motoring. As a novelty it attracted notice; we should, however, like to see it actually on the road before passing final judgment on the idea.

Clothing of good design for motorists was shown by Burberrys, who drew public attention to their "Five Way" Automoto Slip On, which is, in appearance, a sack coat provided with a skirt of ample width, the sleeves having an equally good margin. The idea has been to provide a coat which, while fully protecting the wearer,

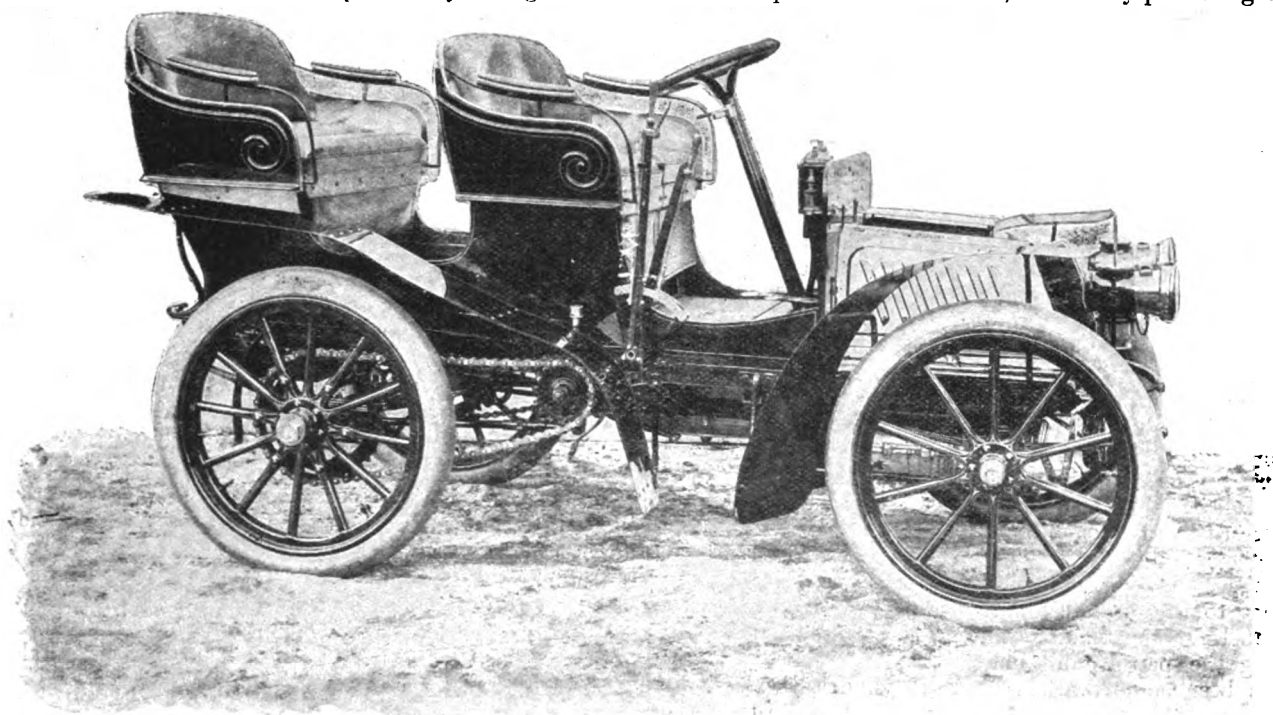


FIG. 85.—THE DURKOPP 10 H.P. DOUBLE PHAETON.

are provided. The power is transmitted through a friction clutch to the gear-box and thence by bevel gearing to a differential cross-shaft, which latter is in turn connected with the rear road wheels by two chains. The clutch between the motor and the transmission is broader than is usual, and is so shaped that it does not grip suddenly when started. Double-acting brakes are fitted, there being two brake drums fitted on the countershaft close to the bearings on the frame in order to take the strain of the bevel gear. There are three pedals, the left one releasing the clutch, the right one releasing the clutch and applying two band-brakes on the differential shaft; the third small one is the accelerator pedal, which by pressing it down prevents the engine from cutting out. The hand brake on the side of the car releases the clutch and puts on two drum brakes on the hind wheels; these brakes are mounted on a swivel to prevent skidding. Complete, the 10-h.p. car weighs about 13 cwt. The 20-h.p. car is built on similar lines to the foregoing, the main difference being that it is fitted with a four-cylinder engine, and has four forward speeds; its weight is 17 cwt.

Messrs. Van Toll and Company showed 3½-h.p. and 6-h.p. single cylinder launch motors and a 12-h.p. two cylinder motor, all fitted with reversing gear; also a 2-h.p. single cylinder

also allows him full play for manipulating the mechanism of the car. In all the "five ways" in which the coat is made it is wind, dust, and rain proof; at the same time it is self-ventilating. The five differences are concerned with the temperatures for which each is fitted. That known as "airlyght" consists mainly of silk; for summer wear a stout cotton twill known as "Gabardine" is lined with camel fleece; the same material and lining, with an interlining of elk skin, is recommended for autumn. For winter a combination of Shetland frieze and camel fleece is employed, while a special coat, known as the "Blizzard," was also shown, this consisting of Shetland frieze and camel fleece interlined with elk skin—a combination that should enable the motorist to regard with equanimity any expedition in a northerly direction.

Induction coils, accumulators, and Léclanche cells were shown by Messrs. Gianoli and Lacoste, who also displayed amperemeters and voltmeters, sparking plugs, water-cooled heads for air-cooled motors, radiators, etc. The G.L. type of pump for the water circulation of voituresses was also given publicity, this being intended for an average speed of 400 to 600 revolutions per minute, an efficient circulation being thus obtained for cooling motors.

Public interest in the demonstrations given at the stand of the Liquid Air Power and Automobile Company, Limited, was well maintained throughout the Exhibition, but from the motorist's point of view some disappointment was probably felt by the announcement that the "liquid air automobiles" cannot be

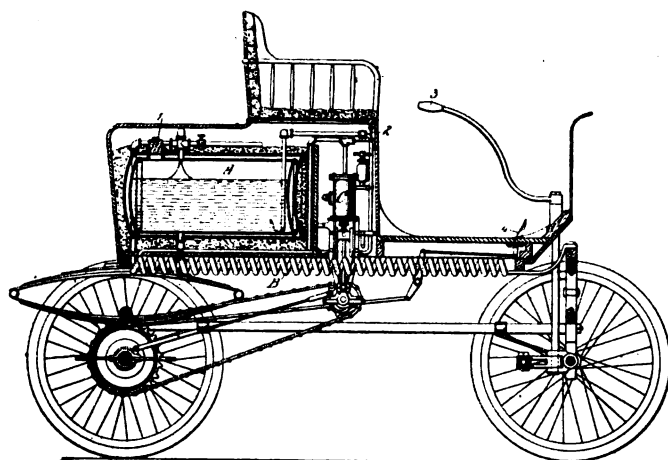


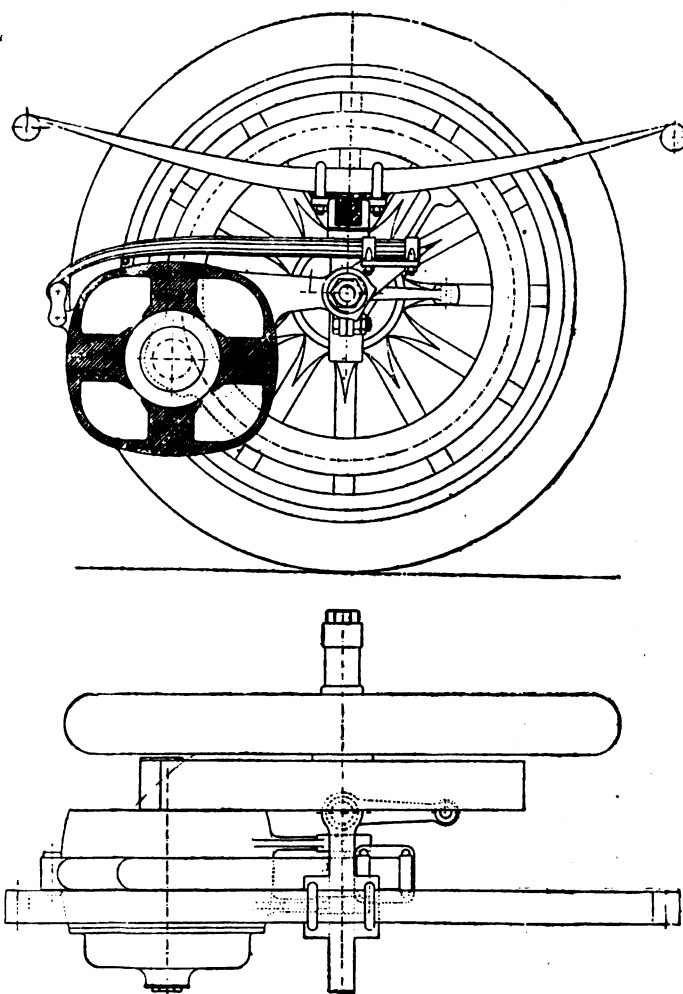
FIG. 86.—SECTION OF THE LIQUID AIR CAR.

ready for delivery till next season. We give a sectional view (Fig. 86) of the car which was shown and which is claimed to be capable of running at any speed up to twenty miles an hour, the motive power being atmospheric air in the form of a liquid at a temperature of 312 degrees below zero. Referring to the illustration, A is the liquid air tank with a capacity of eighteen gallons, which is sufficient for a run of about thirty-five miles at ten miles an hour. B is the radiator, in which the liquid air evaporates and is heated to atmospheric temperature; a pressure of 200 lbs. being, it is claimed, generated in one minute by allowing a small quantity of liquid air to evaporate. Both the tank and radiator have safety valves, which blow off at 210 and 225 lbs. pressure respectively. The plug by which the tank is filled is shown by the figure 1; 2 is the throttle valve, which is operated from the seat by a lever on the right hand side of the car; 3 is the steering lever, and 4 the brake.

Messrs. Laurie and Marner's stand was occupied with a motor delivery-van and specimens of Pegamoid paints and enamels. A motor-bonnet covered with the Pegamoid silver paint presented the appearance of aluminium, and the fact that it is unaffected by heat or cold should help in adoption for the painting of automobiles. Cloths for upholstering purposes were also exhibited, and here again the application of Pegamoid to the motor-car should prove serviceable.

As the title of the firm implies, the exhibit of the Electric Carriage and Garage Company was devoted to a display of electric cars, all but one of which were on the Krieger system, in which the two electric motors are supported forward of the front axle, pinions on the shafts of the motors gearing into an internally toothed fibre ring placed on the axle at the side of the wheels (Fig. 87 and 88). First we examined a double phaeton in white and grey, which reminded us somewhat of the "Powerful," which figured at the 1901 Exhibition. The battery, which is arranged partly under the forward false bonnet and partly under the rear seats, consists of forty-two Fulmen accumulators of 200 ampere-hour capacity, sufficient to run the car a distance of from 50 to 60 miles over good roads on one charge at an average speed of 12 miles an hour. The controller is adapted to give five forward speeds, a reverse motion, and three positions of electrical braking and recuperation of the batteries for use on descending long hills. The car is fitted with equal-sized artillery wheels and pneumatic tyres, and weighs complete about 26 cwt. A luxuriously-uphol-

stered victoria for three or four passengers and coupe for the same number, both capable of running about 50 or 60 miles on a single charge, were also on view and are worthy of inspection. In both these vehicles forty-two Fulmen cells are made use of, and they are so disposed that their position can only be discovered by examination. The controller is arranged around the vertical steering column. The novelty on the stand, and indeed in the Exhibition, as regards electric cars, was the Northey landaulette. Although the carriage has not been completed, all its essential parts were in working order. The most striking departure from the usual design of electric motor-vehicles is the employment of a motor placed under a bonnet in front of the car, its shaft running longitudinally under the body and driving the rear axle by means of a worm-wheel and tangent-gearing of such a pitch that when the car is running downhill, the rear road-wheels will drive the motor instead of *vice versa*, and so enable it to recuperate the cells. The motor is of the four-pole type with laminated fields, and develops 4½-h.p. A distinct novelty, so far as electric cars are concerned, is the employment of a two-speed gear. This is attached to the motor-shaft, and is arranged to give ratios of one to seven and one to fourteen. The two-speed gear is, of course, chiefly valuable as a means for climbing hills, for the motor can be kept running at its normal



■ FIGS. 87 AND 88.—ELEVATION AND PLAN OF KRIEGER DRIVING ARRANGEMENT.

speed, while the car will only travel at half its usual pace. The speeds are altered by moving a small handle. The change-speed gearing is very compact, and is worked by a double magnetic clutch, which is operated by the main current running from the

batteries to the motor. The clutch is fitted with two collectors to convey the current to the winding. On the high speed there is no gearing down, the magnetic clutch connecting the motor-shaft direct to the worm-gear. The employment of magnetic clutches is especially appropriate on an electric car, and as the main current is taken through the clutch, the clutching effect is proportioned to the power being transmitted. A foot lever permits recuperation in all positions of the controller. The car is not yet fitted with the battery. This will be of a special type, Planté positive plates being used with zinc negatives, by which the durability of the Planté type of accumulator is claimed to be obtained with the same degree of lightness as in pasted types of cell. It will consist of thirty-two cells, having a capacity of 120 ampere-hours, sufficient for a run of 50 miles on level roads and in the hands of a good driver—for the mileage possible depends very largely on the latter factor. One half of the battery will be carried under the driver's seat, and the other in the body at the rear of the vehicle. By lifting a small slate plate the whole of the connections to the batteries are at once disconnected. The controller, which is carried on the top of and across the dashboard, gives four forward and reverse speeds, and these changes in combination with the magnetic clutch gear already mentioned give eight changes of speed as desired. The speeds are changed by the backward and forward movement of the steering-wheel standard, and the magnetic clutch is actuated by a small lever on the dash-board, conveniently located near the driver's right hand. Powerful electrical and mechanical brakes are fitted and the steering is a special feature, the hubs of the front wheels being made hollow and pivoted in the centre. On the highest speed the battery is connected up in series, and on the lowest in four parallel sets of eight cells. A band-brake on the high-speed shaft is actuated by a pedal, the depression of which first cuts off the current. Two band-brakes round the differential gear are applied by means of a side lever in the usual way. The road-wheels are shod with solid rubber tyres. As will be seen from the description, the new vehicle is a radical departure in electrical vehicle construction, and its advent on the road will be watched with interest.

Considerable interest was shown in the vehicles exhibited by the Motor Construction Company, who are building light steam-

however, burn petrol equally well. A special apparatus is provided for starting the burner from "all cold." No loose apparatus of any sort is required to start the burner, which is effected by placing a light to the hole in the burner provided for that purpose. The working steam pressure is 200 lbs. per square inch. The engine is a substantially-built machine, having two cylinders $2\frac{1}{2}$ in. in diameter by 3 in. stroke. It has the advantage of having the two cranks and big ends completely enclosed, thereby preventing any grit or dirt getting into them. We understand that future cars will be fitted with an engine $2\frac{1}{2}$ in. by 4 in., with aluminium frame, circular crosshead slides, and piston valves. The transmission is by a chain to a chain-wheel on the differential on the rear axle. The underframe is of tubular construction. The steering is controlled by a side lever, while the cycle-type road-wheels can be fitted with solid rubber or pneumatic tyres. The water-tank has a capacity sufficient for a run of thirty miles. Fig. 89 shows the "Vapomobile" 6-h.p. *dos-a-dos*. The boiler is 16 in. in diameter, and contains 360 fire tubes; it is located in the centre of the frame, the chimney outlet being at the side of the body. The water capacity is sufficient for a run of forty miles. A useful feature is the provision of a steam lock with detachable key, so that there is no fear of the car, when left, being started by any inquisitive admirer. A third car on the stand was a two-seater, having boiler, engine, and underframe similar to the *dos-a-dos*. A feed-water heater, automatic air-pump for the petrol tank, and an independent automatic feed-pump can be fitted. On the stand was also a 24 in. multitubular fire-tube boiler built by the company. It has 962 copper tubes, the total heating surface being 170 square feet. In this boiler a dry plate is fitted right across above the waterline. The plate is held in position by studs fixed in the crown of the boiler, and passing down between the tubes; the part above the plate forms a superheating chamber. It may be mentioned here that the shell of the boiler is no less than $\frac{1}{8}$ in. thick. To show the class of work turned out the company staged, side by side with this large boiler, is a new two-cylinder engine, having cylinders $3\frac{1}{2}$ in. by 5 in. stroke. The crank-chamber is made of aluminium, and the bearings, both of the crank-shaft and of the connecting rod big ends, are of the roller pattern. A Renold silent chain-wheel is mounted on the crank-shaft between the cylinders. One of the main features of the exhibit was a new condenser, which consists of a chamber about 2 feet long and of a cylindro-triangular section in which the exhaust steam is collected. From this chamber issue sixty-four small jets of about $\frac{1}{8}$ in. cross section, which end inside a similar number of nearly horizontal copper tubes. These are open round the ends of the jets, and point in the direction in which the car is travelling. They terminate in a second box corresponding with the first, and of approximately the same dimensions. The steam issuing from these jets into the larger tubes carries in a certain amount of air with it, the quantity being increased by the forward movement of the car. In this way the steam is subjected to a double cooling action—that due to the air which enters it, and that due to the cooling effect of the air on the outside of the copper tubes. The condenser is carried lengthwise under the car, with the open ends of the tubes forward, the rear tank being set lower than the exhaust-box. It is claimed for the arrangement that, for a given weight of metal, nearly double the cooling surface is obtained, and that back pressure on the engine is avoided. A suitable form of oil separator and filter is fitted in conjunction with the apparatus, so that the condensed water may be used again in the boiler, enabling a car which carries about 35 gallons of water to run 100 miles on one supply.

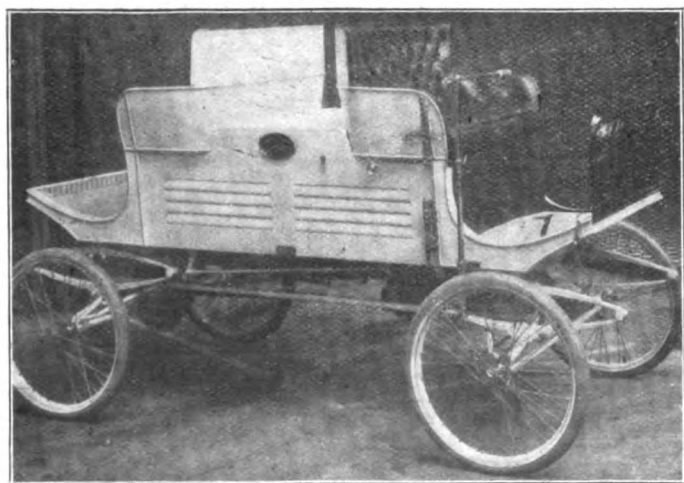


FIG. 89.—THE "VAPOMOBILE" DOS-A-DOS.

cars on the lines of the well-known and largely-used American type. We have often wondered why this has not been done before, and are therefore glad to be able to give some particulars of the English-built "Vapomobile" cars. The two-seater car, in general outline, follows the usual lines. It is fitted with a 14 in. boiler, the shell of which is of solid drawn steel; it is of the fire-tube type, there being 296 $\frac{1}{2}$ -in. copper tubes. A burner can be provided to burn either paraffin or petrol. If the former is used the burners are of heavier make, and the vaporising coils are larger. The burner, which is specially made for paraffin, will,

The "Gare" Patent Cushioned Tyre Company was represented by its special form of tyre, which is adapted for both heavy and light vehicles. The steel-shielded tube tyre consists of a light steel tube bedded in rubber, placed in an ordinary channel rim, and covered with an endless steel band, which forms the wearing surface; this is shrunk on, and is easily replaced when worn. The advantages claimed for the Gare tyre include its wearing powers on rough or broken roads, its non-skidding character, and the great resilience which is secured.

Serpellet steam-carriages formed the principal feature of the exhibit of the Speedwell Motor and Engineering Company, Limited. The Serpellet system, as also the 1902 improvements in the same, have already been dealt with in the *Journal*, so that only a brief reference is necessary. In addition to a 10-h.p. double phaeton (Fig. 90) a chassis was staged, enabling the general arrangement to be inspected. The engine drives by a single

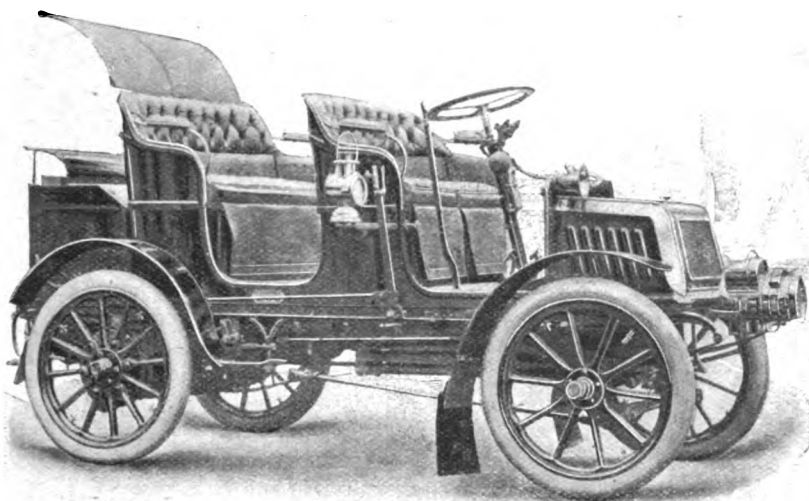


FIG. 90.—THE SERPELLET 10 H.P. DOUBLE PHAETON.

chain on to the differential gear on the rear axle. The car carries enough paraffin, water, and lubricating oil for a 75-mile run without a stop; there is only a comparatively small amount of water carried, as the steam is condensed and returned to the reservoir; the lubrication is also automatic. The car has a long wheel base, equal wheels, extra heavy pneumatic tyres, torpedo-pointed or Panhard shape water reservoir in the fore part of the frame, large condensers, and the new automatic water-injector, which practically does away with hand-pumping. The control levers are grouped around the steering column, while both hand and foot-brakes are fitted. The illustration shows the silk-covered dust and heat screen which is fitted to the rear of the body. The car will, it is claimed, climb a hill of one in six with a full load, and attain a speed of 40 miles per hour on the level. The great attraction of the stand was undoubtedly the racing car with which M. Serpellet created a new record at Nice the

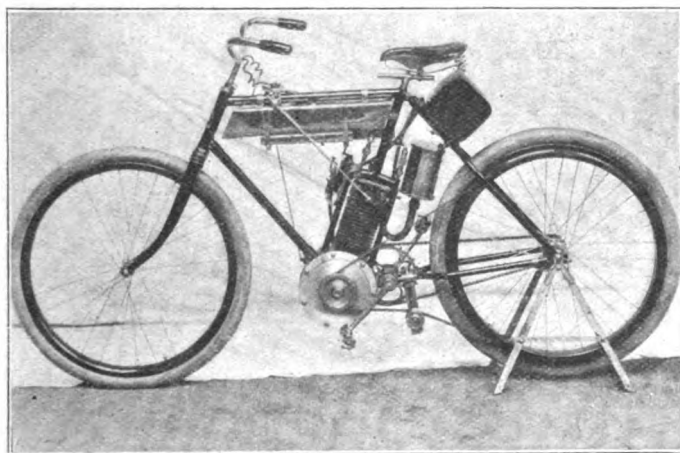


FIG. 91.—THE HOLLEY MOTOR-BICYCLE.

other week, covering the flying kilometre in 29½ seconds. Illustrations of this interesting vehicle were given in our issue of the 26th ult. The Speedwell Company also staged an 8-h.p. Renault light car with roomy *tonneau* body, a 1½-h.p. petrol motor combined with rudder, for use on ordinary rowing skiffs, and a large range of lamps and motor accessories.

The latest American motor-bicycle to be put on the English market is the Holley, of which an illustration is given in Fig. 91. It is being introduced into this country by Mr. D. H. Morgan, who explained its features to us. As will be seen, the frame of the machine is of special construction, the motor—which, at a speed of 1,500 revolutions per minute, develops 2½ h.p.—being built into it so as to form part of the seat tube. The ignition is electrical, while the explosive mixture is formed by a spray carburettor. The switch is contained in the left handle, as usual. The power is conveyed by a flat belt ¾ in. wide by 3-16 in. thick to a wood rim, which is made in one piece with the ordinary wood rim of the rear wheel. A jockey pulley is provided to the rear of the motor to get the necessary tension on the belt. The oil supply to the crank chamber is continuous, by means of a sight-feed lubricator. The petrol tank has a capacity sufficient for a run of sixty miles. The usual pedal gear is provided to start and assist the motor, although it is claimed that, in view of the high-powered motor, the machine will carry a twelve-stone rider up a gradient of one in eight without it being necessary for him to pedal. A back-peddalling brake is contained in the rear wheel hub, and a band-operated brake is fitted to the front wheel. Two-inch pneumatic tyres are used, the wheels being 28 in. in diameter. The new machine appears to be well constructed, and we shall watch its behaviour in practical use with interest.

Among the types of steam-cars shown were the Weston, which have attracted much attention since their introduction into this country. The models exhibited included a Weston Victoria with cane work panels—an effective combination enhancing the appearance of the carriage, a victoria to seat two passengers, a dog-cart phaeton, a Model A stanhope, and the touring car to which reference was made in our issue of March 29th. The touring car, of which we give an illustration in Fig. 92, has extra wide seating for two persons, and has water capacity to run thirty-five miles, the fuel-tank containing sufficient for double that distance. It



FIG. 92.—THE WESTON TOURING CAR.

has an ingenious concealed tool-chest in a let-down panel at the rear of the car, and the box running along the dash-board gives accommodation for luggage. The general features of the Weston cars are notable. The body is slung on a tubular frame, flexibility being ensured by means of three springs so attached that lateral vibration is considerably minimised. Compensating gear, amply enclosed, is provided, as well as central steering from a lever readily adjustable to any required height or angle. The boiler has 300 tubes, giving a heating surface of 45 square feet, and has a seamless shell, copper lined. It is wire-wound, tested to 700 lbs. cold water pressure, and has a safety valve blowing off automatically at 250 lbs., thus preventing that pressure being exceeded. The engine is of 7-h.p., and the crank-shaft is forged in one piece. A simple arrangement of burner is provided, and a feature is made of the water-lift illustrated in the *Journal* on February 8th, by means of which the tank can be replenished with nearly boiling water in five minutes without leaving the seat. Other special points include a feed-water heater, automatic water-pump, and a double-acting band-brake.

Bowden's Patents Syndicate, Ltd., had an exhibit of the uses to which the Bowden wire mechanism, which is now too well known to need a lengthy description, can be put in connection with motor-cycles and cars. In addition to a table on which were shown variable applications, such as the lifting of a 56 lb. weight, and the operation of a rudder from the bow of a boat, the Bowden Company exhibited a motor-quad in which the igni-

friction can be adjusted as required, so that no power is lost in ordinary running, but in the case of a sudden jerk the clutch will slip sufficiently to prevent any damage being done.

Since the Dechamps cars were put on the market some years ago, they have undergone considerable alteration. The latest models in general arrangement follow closely on Panhard lines, but comprise a number of detail features to which reference is

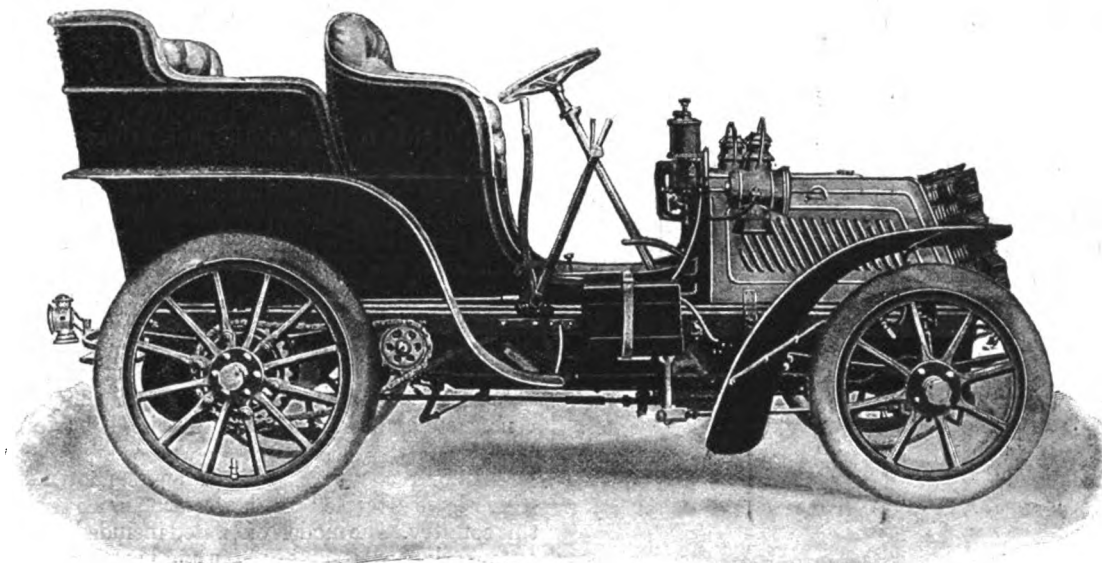
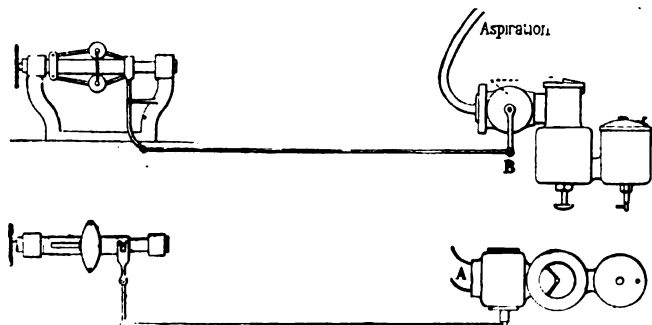


FIG. 93.—THE DECHAMPS 14-H.P. TONNEAU.

tion, carburettor, exhaust-valve lifter, band brake, and two-speed gear were all controlled and operated by Bowden wire mechanism. One simple adaptation of the stranded wire in the coiled and flexible conduit gives a double action most useful in the application of band brakes, as it holds the band in position on the drum, both for forward and backward travelling. A novelty is the application of the mechanism to the regulation of the carburettor. The levers are drawn in one direction by the Bowden wire, and in the others by springs. Sufficient resistance is introduced into the apparatus to allow it to remain where set. A chassis was also shown with engine fitted at rear of frame, and all controls connected up to the steering pillar by means of Bowden wires. Everything from steering downwards

made below. The vehicles are now being handled in this country by the Graphic Motor and Engineering Company, Limited, who exhibited a 7-h.p. car, a 9-h.p. tonneau, and a 14-h.p. tonneau in green with yellow lines. The 7-h.p. car is driven by a water-cooled vertical double-cylinder engine, the diameter of the cylinders being 95 mm., and the stroke 115 mm. The



FIGS. 94 AND 95.—ELEVATION AND PLAN OF DECHAMPS ADMISSION GOVERNOR.

is actuated through this convenient and reliable action. The Bowden motor-bicycle in its latest form was also on view. The motor is a Simms, with magneto ignition, and is arranged vertically behind the bottom bracket, giving a very long wheel-base. Transmission is by special roller chain to chain wheel on the back hub. The wheel is connected to the hub through the Bowden clutch. By turning a handle in the front of the head to right or left a quick pitch screw on the hub is rotated, so as to throw the inner conical surface of the clutch out of contact with the outer part, which is fixed to the hub. This is the position from which the rider starts the machine by pedalling in the ordinary way. When a fair speed has been got up the

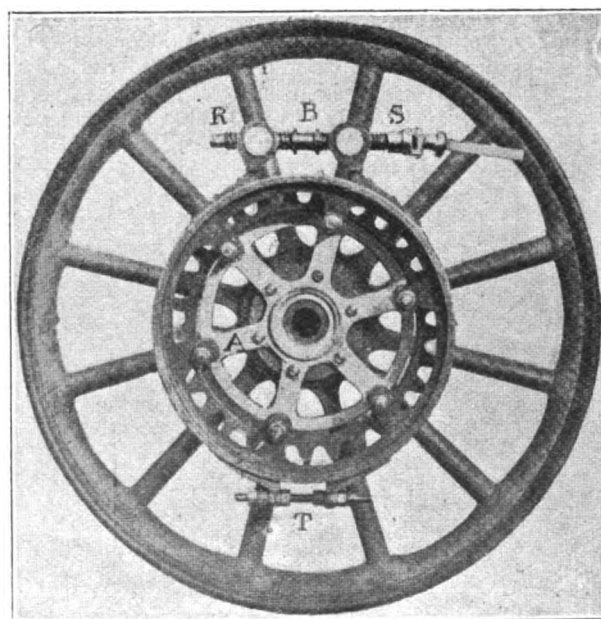


FIG. 95.—THE DECHAMPS BAND BRAKE.

cylinder, cylinder head, and water jacket are in one casting the governor acts on the inlet, and in conjunction with it is a pedal accelerator. Four speeds forward and a reverse motion actuated by a single lever at the side are provided. The Dumont electrical ignition and self-starter is fitted to the motor, which enables the latter to be started from the driver's

seat. The following description may be taken as applying to both the 9-h.p. and 14-h.p. cars, the main difference being that the former is fitted with a two-cylinder (100 mm. diameter by 130 mm. stroke) engine, and the latter with a four-cylinder (95 mm. diameter by 115 mm. stroke) motor. Each cylinder is, together with its head and water jacket, cast separately and in one piece, the two or four being mounted on a common crank chamber. The inlet pipes are held in position by a bridge piece, which, by detaching two nuts from each, allows the pipes to be dismantled and the valves readily withdrawn. Electrical ignition is fitted together with the Dumont self-starting arrangement. The water circulation is maintained by pump and radiators. The centrifugal governor (Figs. 94 and 95), which is driven by a chain, acts on the gas admission close to the outlet from the float-feed carburettor. An accelerator, controlled by a pedal, is fitted, by means

six arms A. By pulling the hand lever a rotary motion (by means of a bevel and rack) is imparted to the double-threaded screw, the two segments of the brake band being thus drawn together. The 9-h.p. car has a wheel base of 6 ft. 2 in., and the 14-h.p. type 7 ft.

Popularly associated with lighting arrangements of the home, Price's Patent Candle Company, Limited, is also interesting itself in the lubrication of automobiles, and its Motorine oils were well displayed at the Exhibition. These are lubricating oils for the cylinders, engines, and bearings of petrol, oil, and steam motors. The Belmoline solidified oil for the gearing and axles of motors and carriages, Rangoon jelly for preserving the bright and plated parts of motors and cycles, lamp oils for motor-vehicles, etc., were also shown on the stand.

A good type of Acetyloid motor-car lamp was shown by Messrs.

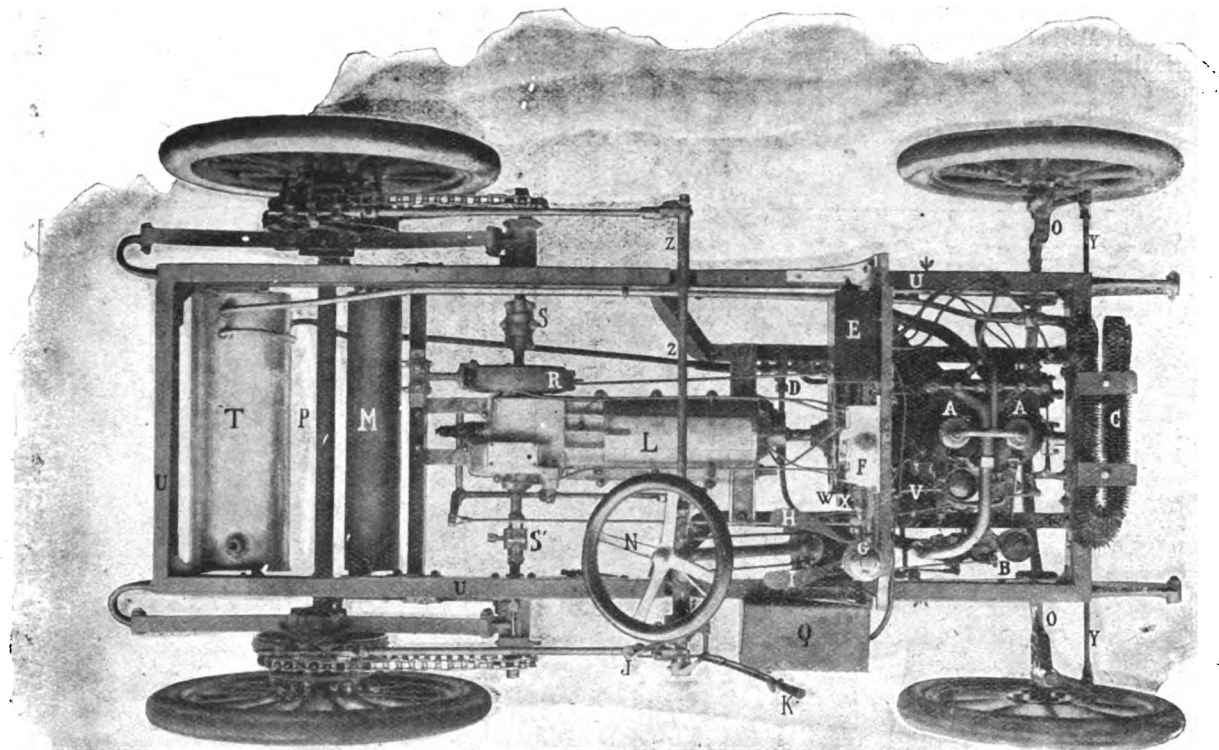


FIG. 97.—PLAN OF CHASSIS OF DÉCHAMPS 9 H.P. CAR.

A Cylinders.
B Carburettor.
C Radiator.
D Circulating Pump.
E Induction Coil.
F Lubricator.
G Lubricator (for heavy oil).

H Clutch Pedal.
I Brake Pedal.
J Speed Lever.
K Brake Lever.
L Gear Case.
M Exhaust Silencer.
N Steering Wheel.

O Front Axle.
P Back Axle.
Q Accumulator Box.
R Brake on Countershaft.
S Universal Joints.
T Water Tank.

U Frame.
V Governor acting on inlet.
W Cone Clutch.
X Fly Wheel.
Y Steering Rod.
Z Axle of Hand Brake Lever.

of which the governor can be made non-acting when desired. Three speeds forward and a reverse motion, controlled by a single lever, are provided. The power is transmitted through a friction clutch (which is provided with a special spring adjustment) to the gear-box, in which is a train of sliding pinions as in the Daimler and Panhard systems. The latter drives the differential countershaft by means of enclosed bevel gearing, the usual pair of side chains connecting the differential shaft with the rear road wheels. A pedal actuates a double-acting band-brake on the differential, while a hand lever controls band-brakes on drums connected to the hub of each of the rear wheels. The latter are of special design; they are double acting and are actuated by a double-threaded screw B (Fig. 96), which draws on to the drum two half brake bands, which can be adjusted by means of the device T. The brake drum is not only attached to the wheel spokes, but is fixed on the hub by means of the

Worsnop and Co., Limited, who have given much attention to the efficient lighting of automobiles. The Acetyloid Search Light (No. 850) was exhibited. This is arranged to give from 50 to 250 candle-power light, and is fitted with red and green side-lights, and can be focussed to various distances. By a patented arrangement the light may be focussed on to the ground or straight ahead, an advantage that will be realised by those who have done any night driving. The voiturette lamp, which was also shown, is made on the same principle as the lamps for larger cars. The generator is fitted in the back part of the lamp, which is provided with plano-convex lens. Messrs. Worsnop and Co.'s Maxilux lamp is entirely self-contained, and has a protected arrangement for adjustment. Our review of this firm's stand must close with a reference to the "Clarissa" petroleum motor-car lamp, the special features of which are a silver reflector, ruby back light, chimneyless burner, and bevelled convex lens.

The Bradford Motor Car Company were somewhat late in taking up their position at the Show, but during the last few days two of the new Pieper cars—a 12-h.p. and an 8-h.p.—were on view. They came in for a large amount of well-merited attention, the 1902 models showing a marked improvement on previous productions of the Pieper Company. Fig. 98 gives a view of the 12-h.p. four-cylinder *tonneau*, a noticeable feature of which is the long wheelbase—7 ft. 6 in. The motor is on the lines of the Panhard; it comprises four cylinders, and runs at a nominal speed of 1,000 revolutions per minute. The cylinders and head are cast in one piece and made of a special quality of cast iron. The cylinder bore is 90 m.m., and the stroke 110 m.m. The base chamber is of aluminium, cast in two halves, with a plate at the bottom for easy access in adjusting the bearings. The engine is governed on the latest principle, by cutting out the supply of vapour at the carburettor. The latter is of the Longuemare float-feed constant level type. Electrical ignition, with Basse and Michel coils and contact, is adopted. An accelerator worked by the foot is provided, this increasing or retarding the speed of the engine as desired. The water is circulated by an improved long-bearing centrifugal pump, driven direct by gear-wheel from the crank shaft, and passes through large surface radiators. The lubrication of the cylinders and

that it is fitted with a two-cylinder motor and is a little shorter in the wheel base.

Much attention was devoted during Show week to the stand of Messrs. Chas. S. Rolls and Co., which was presided over by the Hon. C. S. Rolls. Occupying a prominent position was the 60-h.p. Mors racing car which he drove in the Paris-Berlin race last year. Standing at rest as it was, it was difficult to imagine that only a few days previously it had been travelling over French roads at a speed equal to about seventy miles per hour. Another interesting car was Mr. Leslie Bucknall's 40-h.p. Panhard touring carriage, with double *tonneau* and arm-chair front seats. This is finished in ivory white, with scarlet upholstery. Another example of the Panhard-Levassor Company's production was to be seen in a 10-h.p. Panhard light car of the latest type, with *tonneau* body and four-cylinder Centaure motor. Not the least interesting feature of the stand was the display of cups and medals won in recent years by Mr. Rolls, and a large collection of old prints and photographs relating to early mechanical and aerial locomotion.

Messrs. Bayliss, Thomas, and Company, Ltd., had a small but interesting stand on which three specimens of the well-known "Excelsior" motor-bicycle were shown. The first was fitted

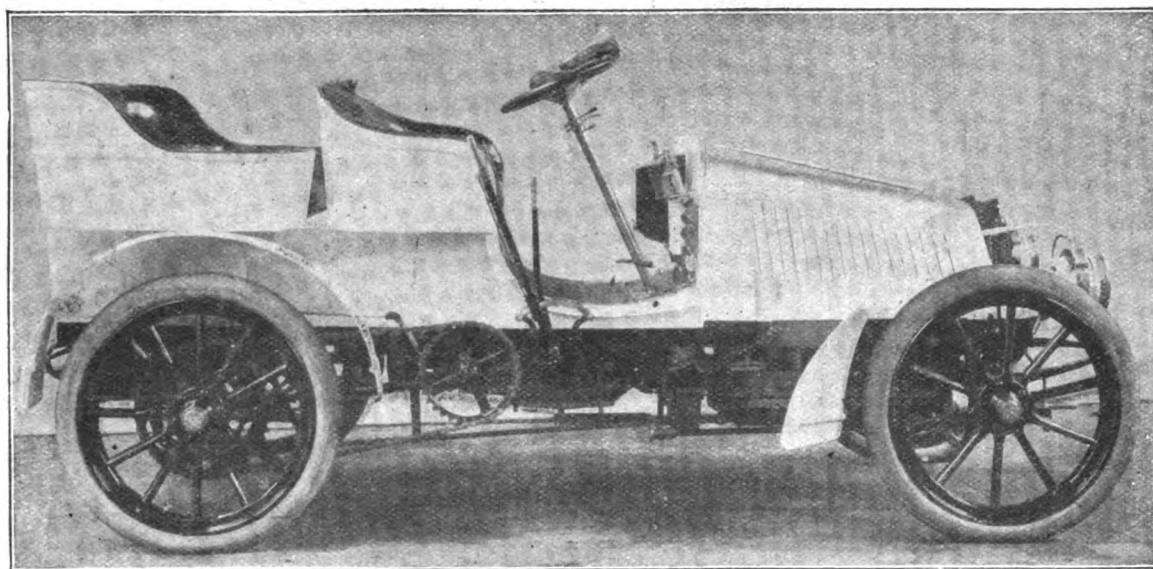


FIG. 98.—THE PIEPER 12-H.P. TONNEAU

crank shaft is controlled from the dashboard. A paraffin supply is also fixed for cleaning the pistons and other working parts. There are three speeds forward and a reverse controlled by single lever, the transmission being on the lines of that adopted in the Panhard systems. The change gear wheels are of special quality steel, with broad wearing surfaces. The bearings are large and wide; and grease cups are fitted on the dashboard, so that bearings may be lubricated at any time by the driver. The differential gear is fitted on the countershaft, from which the power is transmitted direct to the road wheels by roller chains. The clutch is controlled by a foot pedal, and also is disconnected when the foot or hand brakes are brought into use. There are two brakes, one double-acting, worked by the foot and acting on a water-cooled drum on the countershaft. The hand brake has a rack to hold in any position desired by the driver, and operates double-acting band brakes on drums on each of the rear wheel hubs. The steering is controlled by a wheel on an inclined column, through irreversible worm gear, and the car will, it is stated, run straight without the wheel being held even over rough roads. The road wheels are of equal size, 32 in., fitted with phosphor bronze bushes and grease cups and shod with stout pneumatic tyres. The car, which complete weighs about 14 cwt., is fitted with a comfortable *tonneau* body in natural wood, and has every appearance of being both speedy and reliable. The 8-h.p. Pieper car is identical with the one described except

with the new 1½-h.p. motor, on the Minerva system. The machine is fitted with rim brakes on both wheels, a forward extension of the front mudguard, spring head, and the special Bayliss attachment for securing the belt pulley to the rear wheel. The next machine was the lady's motor-bicycle recently illustrated in the *Journal*. Lastly, we found the powerful gent's machine, with 2½-h.p. motor. This machine is suitable for drawing a trailer, and is the type with which the firm have scored so well in recent contests. A special tank is provided behind the diagonal tube for the lubricating oil, which is fed by gravity to the crank case. The machine is fitted with a multiple-ply belt, copper stitched, which is claimed to be non-stretchable.

The Ader system of motor-vehicles were shown by the Motor-Vehicle Engineering Company, who are introducing them into England under the name "Pegasus." Three cars were staged—a 10-h.p. *tonneau*, a 10-h.p. double phaeton, and a 15-h.p. double phaeton (Fig. 99). While the main features of the Ader system have not been changed since we described it at length in the *Journal*, many improvements in the details have been introduced. The 10-h.p. and 15-h.p. cars only differ in construction in the size of the motor and in the change-speed gear, which in the 10-h.p. vehicles gives three forward speeds, and in the 15-h.p. four speeds, a reverse motion being of course provided in both cases. The engine, the normal speed of which is about 1,600

revolutions per minute, comprises two inclined cylinders, the piston rods of which work on to a central crank shaft. The ignition is electrical, while the water circulation is by pump and radiators. The system of carburation is upon a new principle, and the mixture is admitted to

speed of the motor is at once reduced, the vibration of the carriage when brought to rest being thus reduced to a minimum. The method of transmission adopted is on similar lines to the Panhard system, through a friction clutch, gear-box, and chains. The forward and reverse motions are controlled by a single lever. Two brakes

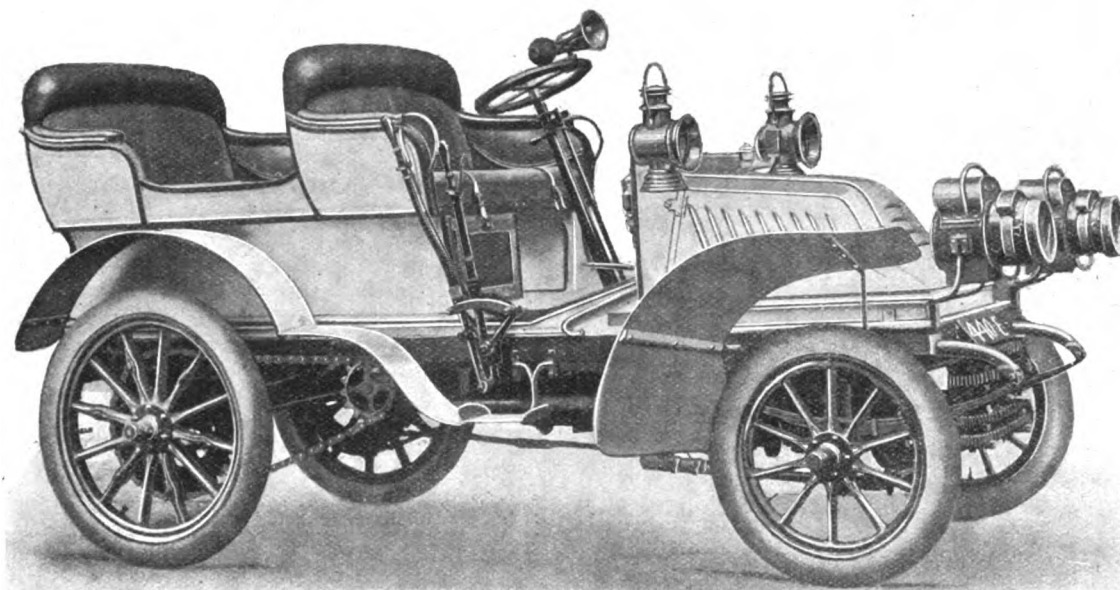


FIG. 99.—THE "PEGASUS" 15-H.P. DOUBLE PHAETON.

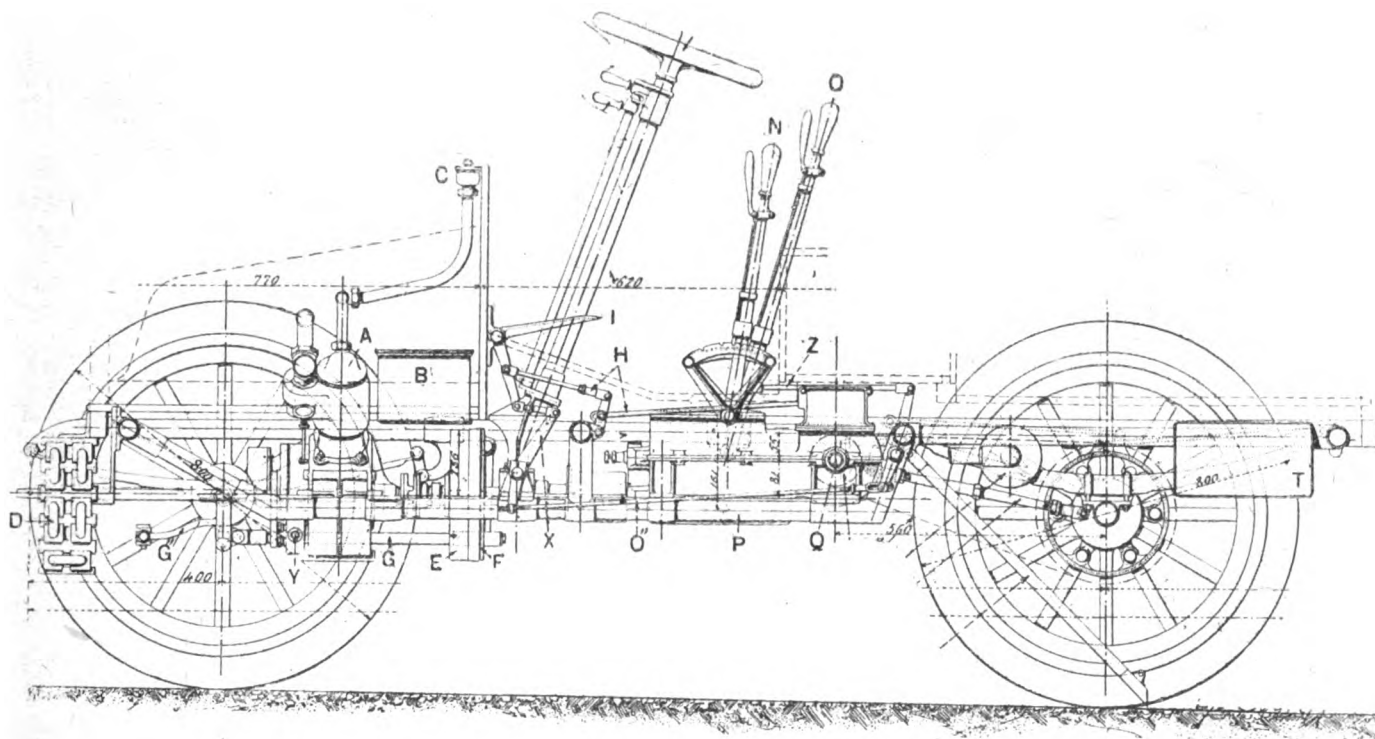


FIG. 100.—ELEVATION OF 10-H.P. "PEGASUS" CAR.

A. Motor.
B. Carburettor.
C. Water inlet.

D. Radiator.
E. Friction clutch.
I. Brake pedal.

N. Change-gear lever.
O. Brake lever.
P. Change-gear box.

Q. Differential shaft.
T. Water tank.
Y. Pump.

the motor by a stop valve, much in the same way as steam is supplied to a steam engine. The governor acts on a throttle valve, and is so constructed and arranged in conjunction with the clutch and brakes that, immediately upon the withdrawal of the former, or the application of the latter, the supply of mixture is automatically decreased, so that the

are fitted, as also the standard inclined steering. As already mentioned, there are one or two special details in the Pegasus cars, to which we may refer at length in a subsequent issue. We may add that the 15-h.p. car exhibited has been purchased by the recently formed King's Colonial Imperial Yeomanry, who intend to use it for despatch work.

It has been known for some time that the Century Engineering and Motor Company, Limited, were devoting attention to light cars in addition to their well-known motor tandems. It was, therefore, with interest that we went through the details of the new 9-h.p. car (Fig. 101) that was staged on their stand. It is fitted with a well-finished *tonneau* body, in olive green, with light green lines. The frame is built low, and the wheel base is somewhat longer than usual. In the fore part is set an Aster 9-h.p. single-cylinder engine, which is provided with a governor acting on the admission; in conjunction with the latter is a hand-operated throttle. The water circulation is maintained by a pump and a Begbie-Audin radiator. The transmission is on the lines of the Panhard system, three forward speeds and a reverse motion, controlled by a single lever, being provided. An interesting feature of the car is a device to enable the driver, when travelling at night, to readily change the gear. The speed changing lever is fitted with a small brass bell, within which is a small electric lamp, which enables the driver at night to see directly where the notches are for the different speeds. The action of pulling the lever out of a notch completes the electrical circuit and causes the incandescent lamp to glow, this continuing until the lever is again in the right notch, when the current is broken and the lamp extinguished. One pedal controls the

per minute, but by means of the governor this may be varied between 250 up to 1,200 revolutions. A special form of commutator is used in connection with the electric ignition. The governor, which is of the centrifugal type, acts on throttle valves fitted in each of the induction pipes. A separate carburettor is employed for each cylinder, two switches being also provided in connection with the ignition, so that either of the cylinders may be stopped as desired. The water-circulation is maintained by radiators and a chain-driven slow-running pump. Only four gallons of water are carried. Four speeds forward and a reverse motion, controlled by a single lever, are provided. The change gear is divided into two pairs, one pair being enclosed in an extension of each of the two crank cases. The power is conveyed from the crank shaft through spur gearing to the clutch sleeve and clutch on the variable gear shaft. The second counter-shaft drives the rear wheels by means of two chains. The clutch, which is not fitted on the engine-shaft, as usual, but on the counter-shaft, is so arranged that a pressure of 10 lbs. on the clutch pedal is sufficient to withdraw it. Both male and female portions have opposed surfaces in cast-iron, and however much oil may get upon the surfaces in contact, no effect is produced thereby upon the holding action of the clutch. The clutch spring is very light, and fixed in an accessible position. The counter-shaft brake is

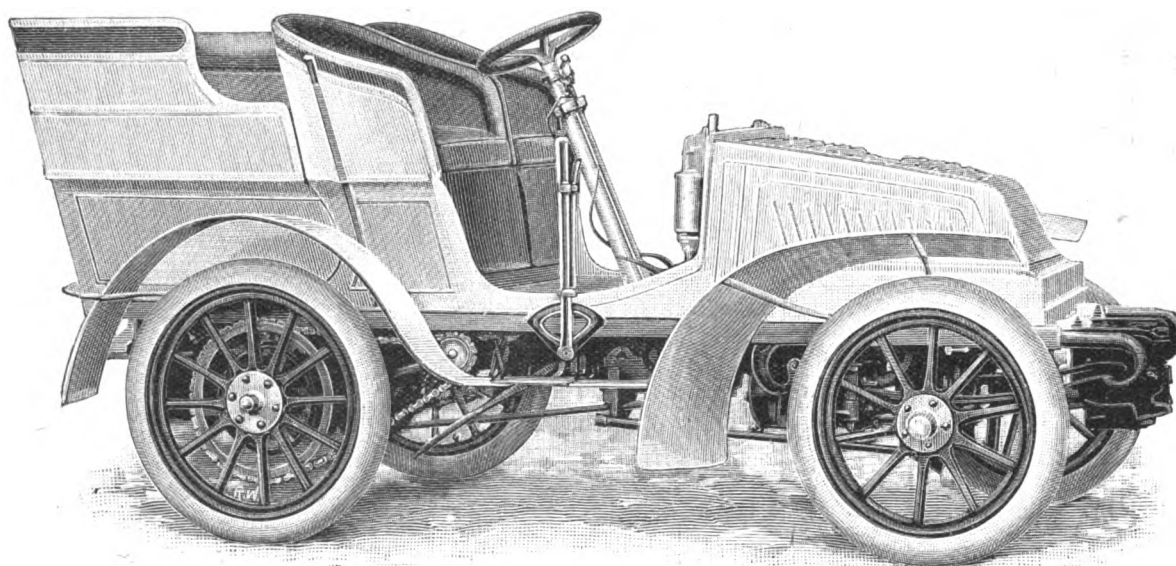


FIG. 101.—THE CENTURY 9-H.P. LIGHT CAR.

clutch and another both the clutch and a double-acting band-brake on the differential shaft. In addition a hand-lever actuates double-acting band-brakes on the hubs of the rear wheels. Steering is controlled by an inclined hand wheel, on the column of which the motor-controlling levers are mounted. The latter are of a special type, for, instead of racks being fitted to them, a friction device is employed, which provides for a very fine adjustment. The water and the petrol tanks are of sheet brass, and have a capacity of respectively seven and thirteen gallons. The car, which is fitted with equal-sized artillery wheels and 750 by 85mm. pneumatic tyres, weighs complete about 13cwt. Of the Century motor-tandems two were shown—one fitted with a 5-h.p. Aster motor, and the other with a similar engine of 6½-h.p., the latter being built for the county road surveyor of Donegal. The latest models of these well-known machines have so recently been described in the *Journal* that further reference on the present occasion is unnecessary.

There are a number of interesting features in the cars now being turned out by Messrs. James and Browne, two of which were shown at the Exhibition. The frame is built up of channel section steel, in the forepart of which is fitted a horizontal 9 h.p. two-cylinder, water-cooled engine, with fly-wheel set in the centre and revolving forward. There are no water joints to the cylinders, while the two exhaust valves are actuated by means of a single cam. The normal speed of the engine is 500 revolutions

mounted round the differential gear on the second counter-shaft, thus avoiding any stress being thrown upon the gear sleeves. The gear wheels are, by the way, very wide, and run very quietly. The castings carrying the sprocket wheel bearings are bored in position on the frame, so that absolute accuracy is obtained in this vital part. The brakes on the hubs of the rear road wheels are of a special expanding type, but as they were illustrated and described in our issue of February 22nd last there is no need to refer to them at length on the present occasion. By the employment of a neat and efficient compensating arrangement for brake application it has been possible to allow the frame sufficient elasticity and bending movement to ensure soft and comfortable running without undue shock. Ring lubrication is provided to all gear case bearings, and on the dashboard is a special multiple sight-feed lubricator which is closed and opened by means of a single tap. Steering is controlled by an inclined wheel, actuating a special rack-and-pinion arrangement in which there is no backlash. The single *tonneau* has a divided front seat, and is nicely finished in red and black, with light yellow wheels, and upholstered in dark green leather. The double *tonneau* car, with seating accommodation for six persons, is in red and black, with dark green wheels, lined with a lighter shade of the same colour, and upholstered in dark green smooth leather. The workmanship, both as regards under-frame and carriage body, is of an order which promises well for the future of the James and Browne cars.

The 1902 model Belsize car exhibited by Messrs. Marshall and Company bears but little resemblance to the original cars turned out by this firm. In addition to a complete vehicle fitted with a well-finished *tonneau* body (Fig. 102), they wisely included a *chassis*, so that the various parts could be inspected. The frame is of a special form and constructed of angle steel; in the fore part is set a two-cylinder motor developing 12 h.p. The cylinders are 100 mm. diameter by 110 mm. stroke, the

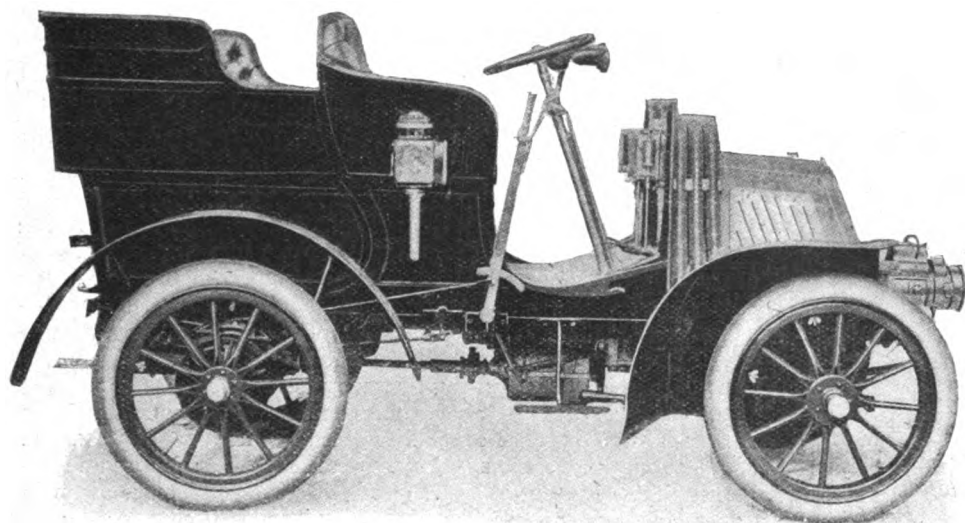


FIG. 102.—THE BELSIZE 12-H.P. TONNEAU.

normal speed being 800 to 900 revolutions per minute. The cylinder and head are cast in one piece, so that there are no water joints to give trouble. Following the latest practice, the governor acts on the throttle; it is actuated from the crank shaft, and is enclosed with a compact dust-proof case, forming practically part of the crank chamber from which it is lubricated. In connection with the governor is a hand accelerator. The valves are so arranged that by simply taking off one nut both they and their seats can be readily taken out. The carburettor is of the Longuemare spray type. Electrical ignition is adopted; the coil is placed on the dash board near the motor to obviate the necessity for long wires, and the make and break device is efficiently protected. The water circulation is maintained by pump and radiators; the latter is of special form, being disposed along the bottom side edges and the upper rear edge of the bonnet in such a way that air has free access to the radiating fins, which are made of aluminium. The power is transmitted through a friction clutch to the variable speed gear, which is of the Panhard type, and thence by a lower shaft, which drives the balance-gear axle through universal joints and bevel gearing. Three forward speeds and one reverse are provided, all controlled by means of one lever. Both the top and bottom shaft on the gear-box are easily removable, and each gear wheel can be replaced independently of the others. Equal-sized road wheels are of the artillery type, while the steering is of the usual inclined hand wheel type. A special feature of the Belsize car is to be found in the brakes. A foot-brake controls expanding brake blocks, which act on the inner surfaces of drums attached to each of the rear road wheels. On the outer surface of the drums are ordinary double-acting band-brakes actuated by a hand lever. All parts of the car are made on the interchangeable system, each being given a distinct number. Complete, it weighs about 14½ cwt.

Various patterns of the well-known Stirling voitures were to be seen on the stand of Stirlings' Motor Carriages, Limited, including a two-seated phaeton (Fig. 104), a three-seated phaeton, and an attractive looking four-seated dogcart. These vehicles have already been described in the *Journal*, but it may be mentioned that they are fitted with a 4½-h.p. horizontal governed motor, having tube and electric ignition, rotary circulating pump and radiator. The change gear is adapted to give three forward

speeds (6, 12, and 18 miles per hour), and a reverse motion. The novelty on the stand was, however, the new 12-h.p. "Stirling" public service car (Fig. 103), the identical vehicle whose progress in the late Glasgow-London trial was so unfortunately arrested by a hot bearing. The two-cylinder engine is placed in the front of the frame above the steering axle springs, and well water-jacketed. Both tube and electrical ignition are fitted, while a governor is provided, which acts on the admission. The engine is of the slow-running type, the normal speed being about 750 revolutions per minute. The water circulation is on the thermo-siphon system, a large range of radiating coolers formed of Clarkson's perpendicular cooling tubes connecting the top and bottom tanks taking the place of the usual dashboard. Three speeds forward and a reverse motion are provided, the power being transmitted through a large friction clutch to a gear-box, and thence by an universally-jointed shaft and bevel gear to the

countershaft, upon the ends of which are toothed pinions gearing with two internally toothed wheels, bolted to the spokes of the rear road wheels. A water-cooled band brake is mounted on the longitudinal shaft, while the rear wheel hubs are provided with special double-acting and expanding band brakes. The wagonette body is of plain but strong construction, and comfortably accommodates sixteen passengers. The driver steers the car by means of a horizontal hand-wheel, the change gear and brake levers being set closely to his hand. The road wheels are of strong

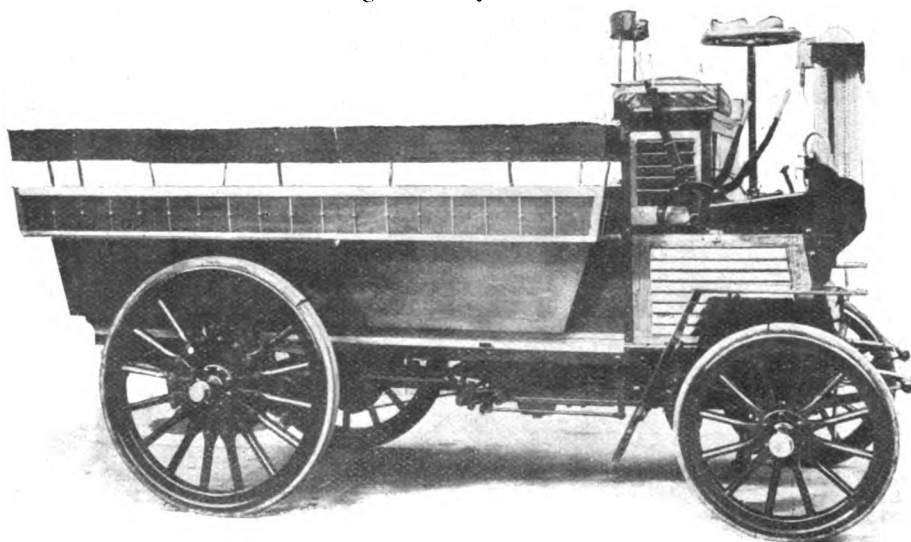


FIG. 103.—THE STIRLING 12-H.P. PUBLIC-SERVICE CAR.

construction, and are shod with solid rubber tyres. Particular attention has been devoted to the various bearings, which have been made of extra length in view of the work demanded of a public service car.

M. E. Vicart exhibited three motor-car bodies of good design. The *tonneau* were roomy and convenient, one having a side frame of aluminium of gauze-like appearance, to reduce weight without detracting from the strength of the body.

While the majority of the cars exhibited had petrol motors of the four-cycle type, there were one or two in which the engine was of the two-cycle type, giving an explosion at each revolution of the crank-shaft. In this category we noticed a handsome victoria with hood, shown by Mr. Ralph Lucas. In view of the several interesting features it comprises, it was a wise step to also include a *chassis* in the exhibit. The frame and the lower part of the body are constructed of sheet steel and form one rigid

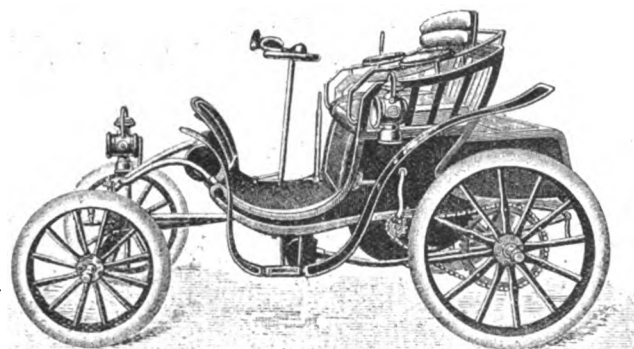


FIG. 104. THE STIRLING PARISIAN PHAETON. (See page 217.)

piece. The motor, which is located transversely at about the centre of the frame, has a single cylinder containing two pistons 4 in. diameter by 4 in. stroke. The pistons work outwardly on to two crank shafts, each having a pair of flywheels, and being entirely enclosed in crank chambers. The crank-shafts revolve in opposite directions, and they both drive by enclosed bevel gearing carrying on to a countershaft the change-speed gear, and revolving at the same speed as the engine. The cylinder is air-cooled in its centre, and is water-jacketed at each end where the piston travels. Air is drawn into the crank chambers during the inward stroke, and it is, during the outward stroke, forced into the combustion chamber, the fuel being supplied to it on the way. The fuel feed is through a needle valve, which is opened by the suction of the engine acting on a diaphragm, and it is fed on to a butterfly valve, which also acts as a throttle valve for regulating the power of the motor. The governor, which is of the enclosed centrifugal type, acts on the throttle valve. Either petrol or paraffin can, it is stated, be used. The same fuel feed arrangement is used for either fuel, a two-way cock being generally used. Using petrol, the engine develops 8 h.p., and with paraffin 9 h.p. The normal speed of the engine is about 1,200 revolutions per minute, but this can be increased up to 1,600 revolutions or reduced to 250 revolutions per minute, this being done by regulating the tension of the governor spring. The ordinary valves found on four-cycle motors are dispensed with; one piston serves to open and close the exhaust port, and the other does a similar duty for the inlet port. Forced lubrication of the cylinder is employed, and the big ends of the connecting-rods are lubricated through hollow crank-pins. A starting-handle is fitted to each end of the countershaft, so that the engine can be started to run in either direction, the ordinary reversing gear being dispensed with. Electrical ignition is adopted, while the water circulation is on the thermo-siphon system. As already mentioned, the power is transmitted through bevel gearing to a transverse shaft. Two speeds are provided; a Crypto gear, giving a reduction of three to one, is employed for the low speed, this being controlled by a pedal. The high gear is brought into operation by a Champion clutch, this being operated by drawing the steering-pillar towards the driver, it being pivoted below for this purpose. From the countershaft to the live rear axle the power is conveyed by a universally-jointed shaft and bevel gearing. The axle is provided with a straight-tooth balance gear. The actual speed of the car, under ordinary conditions, is regulated by a small button in the centre of the steering-wheel which works against the action of the governor. A specially-shaped water-tank, having a large cooling surface, is placed in front. The car is built strongly. Its weight complete is about 12 cwt. A hand-

brake is fitted to the countershaft, while a hand lever actuates emergency shoe brakes on the solid-rubber tyres.

Safes of every kind, deed boxes, party and warehouse walls comprised the exhibit of Mr. John Tann—a name well known in connection with safes for resisting fire and burglars. Book and deed safes of ingenious construction were a subject of interest to motorists and firms engaged in the industry in common with all commercial men.

At the stand of Messrs. John Child Meredith, Limited, a new 9-h.p. car was staged. It is fitted with a two-cylinder horizontal motor in the fore part of the frame, under a Wolseley type bonnet, the cylinders being set opposite to one another with a central crank-shaft. The normal speed of the engine is 800 revolutions per minute; the ignition is electrical, while the water-circulation is maintained by a gear-driven pump and radiators. In line with the engine-shaft, and connected with it by a friction-clutch, is a shaft on which is mounted a train of three sliding bevel pinions, enclosed in a gear-box; three speeds forward and a reverse motion are provided, controlled by a single lever. The three pinions mesh at will with a triple bevel wheel placed on the end of a longitudinally inclined shaft, which in its turn rotates the live axle by means of the bevel gearing surrounding the differential gearing thereon. The three forward speeds are obtained by sliding the bevel gear sleeve, and bringing the required combination of gear into mesh. The car is fitted with inclined steering, *tonneau* body, and weighs about 15 cwt. On the same stand was an interesting little two-seated car, of which an illustration is given in Fig. 105. It is known as the "Abingdon," and is fitted with a 3½-h.p. vertical single-cylinder water-cooled engine, located under a bonnet in the fore part of a channel steel frame. The water-circulation is on the thermo-siphon system, the tank, which is attached to the dashboard, being fitted with radiating fins. Two forward speeds and a reverse are provided, a chain connecting the engine-shaft with a countershaft which carries two pinions within a gear-box meshing with two spur-wheels on a sliding sleeve on a secondary shaft, a single chain connecting the latter with the rear live axle. The reverse is obtained by a spur-wheel on the outside of the gear-case. A pedal controls hand-brakes on the hubs of the rear wheels, while hand-operated emergency tyre brakes are also fitted. Steering is controlled by an inclined hand-wheel. The car complete weighs about 4½ cwt., and can, it is stated, attain a speed of 20 miles per hour. Messrs. Meredith have striven to produce a reliable little car at a moderate price, and,

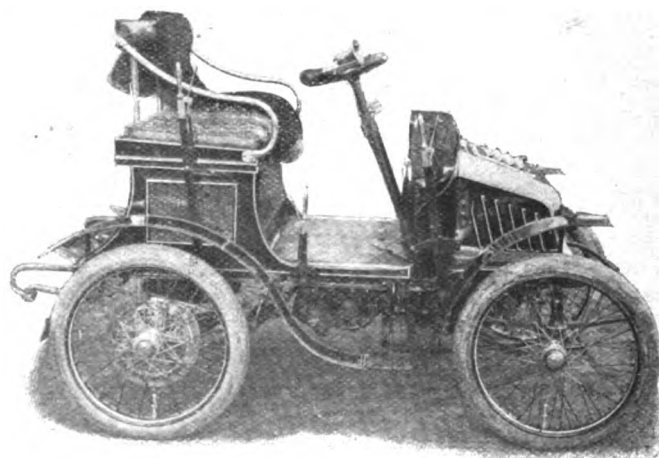


FIG. 105. THE "ABINGDON" CAR.

judging from a brief inspection, it appears to be strongly built throughout. We may add that the retail agents for the little car are Messrs. Coxeter and Sons, of Abingdon. In addition to the complete cars Messrs. Meredith had a large display of accessories, including accumulators, coils, horns, lamps, switches, sparking-plugs, and the G.O.M. carburettor, recently illustrated in the *Journal*.

(To be continued.)

MOTOR-VANS AND THE POST-OFFICE.

SEVERAL attempts have been made to further the cause of automobilism in the mail-service, and at Reigate and in Lincolnshire successful experiments have been carried out. Still the laggard course of the postal authorities has not been quickened; and horses are employed where automobiles might well be utilised. A new venture was, however, inaugurated on the 1st inst., which will, let us hope, be the forerunner of a general movement throughout the country, leading to the supersession of the horse-drawn mail-van. We refer to a new method of carrying parcels between Liverpool, Prescot, Warrington, and Manchester. This system of carrying the parcels will do away with the plan of horse-hauled coaches established in April, 1890. Mr. F. Salisbury, the postmaster of Liverpool, evinced great interest in the heavy vehicle trials which were held at Liverpool last year, and it is in a large measure as the result of the impressions he then formed, together with the assistance he has received from Mr. R. Barrett, superintendent of the parcels post department of the Liverpool General Post Office, that the new service has been called into existence. It will be kept up with three vans, two in regular use and one spare vehicle for emergencies. The three vans are all of the same type, and bear the initials "E. R." and the words "Royal Mail—Liverpool and Manchester." The contract for carrying the parcels is in the hands of the British Electric Traction Company, of London, who have sub-let it to the Motor Haulage Company, of Manchester. The motor-vans have been built by Messrs. G. F. Milnes and Company, Limited, the vehicle having been specially designed for the class of work for which it is intended. It is fitted with a four-cylinder Daimler engine with the Simms-Bosch magneto-ignition and timing-gear. It is 16-b.h.p., and has four speeds and one reverse. Externally, the van very much resembles the old type of coach. The floor space inside the van is 10 ft. 6 in. by 5 ft. 6 in., and, in addition, there are facilities for carrying a large number of baskets on the roof of the car. At ten o'clock on the night of Thursday, the 1st inst., these first motor postal-vans were started, each containing over a ton of parcels to be distributed in the towns above mentioned, and such towns surrounding them as Wigan, Bolton, Bury, and other branch places by carts.

In exact correspondence with the departure from Manchester a motor-van left the Liverpool Parcels Post Office, pausing with the Manchester van, at Warrington, and reaching Cottonopolis just about the same time the other van arrived at the great shipping centre. About thirty-five minutes in time is saved in the new service. The motor-van starts a quarter of an hour later than the coach which it has displaced, and gets to its destination twenty minutes earlier. Had it been thought needful the saving might have been greatly increased, for the van is capable of a pace of 16 miles an hour. As it is, the economy in time that is effected is simply a mile an hour. A further advantage secured consists in the increased storage capacity of the van, which will contain 30 cwt. (holding thirty-six baskets) as against the 18 cwt. (twenty-four baskets) of the coach.

There was a large gathering at the Manchester Parcels Post Office to see the departure of the van. From the Post Office there were present Mr. J. Philips (postmaster and surveyor), Mr. H. Hartley (chief clerk), Mr. A. Rogers (chief superintendent), and Mr. T. Sawyer (chief of the parcels post department). Others present were Mr. F. E. Baron, Mr. J. V. Kitchener (chairman of the Motor Haulage Company), and Mr. H. G. Burford (manager of Messrs. G. F. Milnes and Co.'s motor department). The van was decorated with flags and flowers. The Postmaster said a few words in regard to the potentialities of the motor system. Mrs. Philips then broke a bottle of wine on the wheel of the van and said, "I christen this car the 'Alice,' and wish it God-speed." The National Anthem was sung, the conductor sounded the horn, and at 10.15, amid cheers, the van made its way out of the shed, and sped along Deansgate and on to the old Liverpool road.

The departure of the motor-vehicle from Liverpool for Man-

chester was watched with great and curious interest by a large number of people. Mr. Salisbury, the postmaster; Mr. Barrett, superintendent of the Parcels Post; and several other officials were present, in addition to Mr. J. S. Critchley, head of the automobile department of the British Electric Traction Company.

HERE AND THERE.

A LARGE model of Dr. Barton's airship will be on view at Wembley Park on Whit-Monday.

THE Polytechnic Cycling Club held the first motor-bicycle paced race for amateurs on the 1st inst.

MR. G. GAWLER, of Stafford House, Bath Street, Chard, is now keeping a stock of motor-spirit.

THE Electric Carriage and Storage Company, Limited, has been formed with a capital of £100 in £1 shares.

MESSRS. T. COOK AND SONS are now conveying tourists between Brussels and the battlefield of Waterloo by motor-car.

SIR J. H. A. MACDONALD, K.C.B., Lord Chief Justice Clerk of Scotland, has suggested the formation of an automobile museum.

THE suggestion that there should be a special race for 7-h.p. Panhards at Bexhill has been disapproved by the Committee of the Automobile Club.

THE Coventry Eagle Company are making a speciality of trailing cars for use with motor cycles. The attachment to the bicycle is by means of a universal joint and clip. The joint is composed of steel, all wearing parts being carefully hardened. The U-shaped arms are made to revolve laterally and perpendicularly, in a semicircle, the pins locking these being riveted by a special process. The clip is fastened to the arms by a bolt and nut, which is slightly riveted over, and made so as to revolve, in order that the bicycle, which is not always perpendicular—in turning a corner, for instance—may in no way interfere with the horizontal position of the trailer. In this way the trailer is unaffected by any change in the perpendicular plane of



the bicycle, or by any slight side movement. The clip by which the trailer is fastened to the bicycle is attached to the seat pillar. Provision is also made by which the trailer may be attached to bicycles of various heights of frame, by means of a telescopic adjustment, the top part of which slides or telescopes into the bottom part. To obtain perfect security, when the tube is adjusted to the required height, a small bolt is put through both tubes, thus securely fastening them together. The trailer itself is strongly made of wickerwork, and is carried on carriage springs. The weight of the vehicle is from 30 lbs. to 35 lbs. The wheels are fitted with pneumatic or cushion tyres, and are built with good bearings and detachable mudguard.

LORD KINNOULL has become a motorist.

TO-DAY (Saturday) the members of the Yorkshire Automobile Club will have a run to Ripon.

MR. W. H. KITTO, A.M.I.M.E., of Hartington Road, Chiswick, is now representative in London for the sale of Gobron-Brillie cars.

MEMBERS of the Manchester Automobile Club have secured very reasonable terms for putting up their cars at the Albion Hotel, Manchester.

A CO-OPERATIVE association has been formed among residents of Montlucon, France, to house and keep in repair their automobiles, to buy accessories, etc.

THE electric engineers on the Leeds Tramways staff have found a motor-car for four passengers of great service in visiting outlying portions of the several routes at night.

VISITORS to Teignmouth (Devon), will be interested to know that Mr. W. Bobbett, of the Quay Extension Road, supplies petrol and executes repairs to motor-cars.

THE Electric Landulet Company, Limited, inform us that as from the 1st inst. all communications should be addressed to the head office, Niagara, York Street, Westminster.

ON Saturday Lord Suffield visited the Daimler Company's works, and made a minute inspection of the 22-h.p. carriage now being constructed by the company for His Majesty the King.

ON Saturday last the members of the Midland Automobile Club had a run to Wroxhall Abbey, near Warwick, where the members took tea with the president, Mr. J. Broughton Dugdale, J.P.

AT Evreux, on Friday, last week, Osmont, the professional motor-cyclist, covered a mile, with a flying start, on a De Dion motor-tricycle in the record time of 56 1-5 sec., beating the old record by 3-5 sec.

THE Streatham Motor-Car Company, of 27, High Road, Streatham, have been appointed sole Southern agents for "Cudell" cars. They undertake repairs of all kinds, have an inspection pit, keep a stock of petrol, lubricating oils, and accessories.

ON the Crystal Palace track, on Saturday last, Mr. G. V. Rogers, on a Mitchell motor-bicycle, made an effort to lower the British record for five miles, and at his second attempt covered the journey in 9 min. 3 4-5 sec., which is 3-5 sec. inside the previous best.

WHITSUNTIDE will see a large number of motor-cycle races. In addition to those already mentioned, there will be five-mile handicaps at both Dover and Tunbridge Wells on Whit Monday, and a five-mile handicap and one of three miles at Canterbury on Whit Tuesday.

ON Saturday evening a serious accident occurred to one of the motor-buses running in public service at Scarborough. The



THE FIRST MEET OF THE MOTOR CYCLING UNION OF IRELAND IN PHOENIX PARK, DUBLIN, APRIL 26TH, 1902.

MR. ALFRED HARMSWORTH considers 120 miles a good day's run on an automobile, and advises purchasers to see how the cars they intend to buy can tackle hills with gradients of 1 in 8½.

WITH reference to the "Gladiator" record which appeared in this company's advertisement in the last issue, the Aston Hill mileage should have read "16.25 per hour" and not "sixteen miles per hour," as stated.

THE Roadway Autocar Company have lately issued a handy little book of instructions relative to the management of Mors cars. The booklet will be found useful by all motorists who drive this well-known type of vehicle.

A THREE-MEASURE lubricator has been found on the main road between Warrington and Manchester. The owner is invited to apply to the British and Foreign Motor-Car Company, Limited, of 27, Islington, Liverpool, for the return of the same.

A CYCLING and motor sports meeting is to be held at the Cricket Grounds, Butts, Coventry, on Whit-Monday, May 19th. The programme includes a one mile motor-bicycle contest, limited to motors of not more than two and a half inch cylinder bore.

THE customs duty on motor-cars imported into British Guiana has been fixed at 80 dols. per car for vehicles not seating more than four persons. For vehicles having accommodation for more than four an additional duty of 20 dols. per seat is imposed.

chain came off and, the 'bus gradually gaining impetus, rushed along at a great pace until Eastborough was reached, when it ran into a brick wall. The 'bus was badly damaged and three passengers much cut about their heads and faces.

MR. G. F. PEDLEY, late manager of the Daimler Company, Limited, has been the recipient of a handsome gold watch and diamond scarf pin, presented to him by the foremen and staff of the company on his resignation of his position. Mr. W. H. Proctor made the presentation, and in responding Mr. Pedley expressed his best wishes to his successor, Mr. E. M. C. Instone.

ON this page we reproduce a photograph taken by Messrs. Lafayette, of Dublin, of the first meet of the Motor-Cycling Union of Ireland. The group is an interesting one, including as it does many celebrities of the Irish motor-cycling world. Mr. J. B. Dunlop, the President of the Union and the inventor of the pneumatic tyre, is in the front seat of the quad in the left of the picture.

THE Motor Cycling Club, intend making Bexhill their rendezvous for the coming Whitsuntide holidays. A party will leave London on the afternoon of the 17th inst., and journey to Folkestone, calling at Tunbridge Wells on the way down for tea. On Sunday the members will go to Bexhill, returning to town on Monday evening. Providing the weather is fine a very enjoyable time should be spent.

CORRESPONDENCE.

ROADS AT HASTINGS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With regard to the attention that is being paid to the motor rack at Bexhill, there is little left to be desired, and the only pity is that the track is not a longer one; but I feel it a duty to caution those motorists who visit this charming little town against the dangerous condition of some of the main highways in the neighbouring towns of Hastings and St. Leonards. Many of these have been for a long time in a very rough and deplorable condition, and anything like fast travelling over them might lead to serious disaster.—Yours faithfully,

A MOTORIST.

GRADIENT WANTED.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to your correspondent *re* the gradient of Garbold Hill. In the first place I may mention that the name is Parbold Hill. The rise is 440 feet in one mile, making an average of exactly 1 in 12. The steepest part is near the top, and is 1 in 6. I have obtained the information from the surveyor, so that my Company's Vulcan cars can be guaranteed to be able to climb a hill with a known gradient.—Yours truly,

J. HAMPSON.

In consequence of the pressure on our space several letters are held over till next week.—Editor, *M.C.J.*

MOTOR MANUFACTURING COMPANY, LIMITED.

An extraordinary general meeting of the Motor Manufacturing Company, Limited, was held on the 1st inst., at Winchester House, Old Broad Street, E.C., Mr. Roger W. Wallace, K.C. (the chairman), presiding. The Secretary (Mr. Alfred Burgess) having read the notice convening the meeting, the Chairman said that one of the first things that would have to be done would be to put the management on a better footing. It would also be necessary to cut down the inflated capital of the company. The wisest course was to write down the assets of the company to very near their approximate cash value, which would amount to between £70,000 and £80,000; so that they would then be in a position of feeling that the nominal value of their capital was its actual value, and that when money was earned they would be able to pay a dividend upon it. With regard to the business itself he was pleased to say that they were getting standard types of cars which were being ordered by customers, and those types were going to be kept up—of course, improving them as they went along—but they were not making further experiments, which had wasted so much money in the past. He was pleased to state that at the Motor Exhibition they received a large number of orders for standard types. There would, of course, have to be new arrangements for selling the goods. The present premises in Holborn were inefficient, and they ought to move to some place more accessible to customers, and also the repairs ought to be done at some other place. He would also see that fresh blood was introduced both on the directorate and otherwise, to make one final effort to see if they could not turn the disastrous failures of the past into something successful in the future. He then moved the following resolution:—"That the provisional agreement submitted to this meeting, and which agreement is dated April 14th, 1902, and made between Alfred Burgess, on behalf of this company, of the one part, and William Ernest Shephard (as trustee for a proposed new company, which is to bear the same name) of the other part, being an agreement for the sale of the undertaking of this company in part consideration of the allotment of shares in such new company credited as partly paid up, be and the same is hereby ratified and approved, and that the directors be and they are hereby authorised to affix the common seal to such agreement, as token of ratification, and to carry the said agreement into effect, and to accept office as directors or some of the directors of the new company, and to enter into any agreements on their own account in respect of the placing or underwriting of shares in the new company, or of the taking up of any shares not claimed by the members of this company." Mr. H. Buckea seconded the resolution.

Mr. Glass said that all the meetings of the company had been held for the purpose of recording failures. The history of that company was simply a long record of weak management allied with magnificent promises and dismal failures. At the last meeting Mr. Gretton assured them that mismanagement was going to be a thing of the past, and the company was going to have a great future. They were also told that their patents were very valuable indeed. He did not think one single car of the Iden patent had been seen in the streets, although these patents had cost the company a large amount of money.

Mr. Sadler moved as an amendment, "That this meeting of the shareholders of the Motor Manufacturing Company, Limited, refers back the proposals in the report for the earnest reconsideration of the board."

Mr. J. H. Gretton maintained that the whole of their troubles had resulted from the bad basis upon which the predecessors of the company had existed. Even in the second company the board of directors was appointed in such a manner that it was bound to bring the company to ruin, and it was not until after a certain time they were able to find that out, and to get rid of all the bad features of the administration. When they reconstructed the company on the last occasion those gentlemen who were responsible for forming the Great Horseless Carriage Company still held

a large interest in the company, and forced them to pay them out, and consequently took a very large portion of the money which the shareholders gave them to carry on the business. The company recently received a large order from South Africa to provide conveyances to run from Johannesburg to the mines. If they wanted to make a successful manufacturing business they must spend a great deal of money.

Mr. Henry Sturme seconded the amendment, and the chairman replied to his remarks with considerable warmth. After further discussion the amendment was put to the meeting, and was rejected by a very large majority, and the resolution was carried with only three dissentients. The Chairman then moved that the company be wound up voluntarily. This was seconded, and unanimously agreed to.

NO LIGHT.

ON Tuesday, Mr. Plowden heard a summons at the Marylebone Police-court, issued at the instance of the police against Frederick Parish, of 28, Portland Terrace, St. John's Wood, N.W., for driving a motor-tricycle within one hour after sunset and one hour before sunrise without having a lamp so constructed and placed as to exhibit a red light in the reverse direction to that in which he was proceeding. Fined 1s. and costs.

ALLEGED NEGLIGENT AND UNSKILFUL DRIVING OF A MOTOR-CAR.

At the Brompton County Court, on Tuesday, before Judge Stonor, Mr. Henry Clark, a greengrocer, brought an action against Mr. J. Lewis, of the firm of Messrs. Lewis and Lewis, engineers, Fulham, claiming £26 for loss sustained owing to the alleged negligent and unskilful driving of a motor-car by the defendant.

The plaintiff stated that on March 6th last he was out with his cart, his son holding the horse's head. The cart was quite stationary and drawn up close to the kerb. Suddenly the defendant, driving a motor-car, came rapidly round the corner, and although his (plaintiff's) daughter, who was near the cart, called out to the defendant to stop, the motor-car still came along on its wrong side and collided with the off front wheel of the cart. The pony shied, knocked down the son, and one of the wheels ran over the lad's leg. The vegetables and fruit were pitched out of the cart and spoilt.

Mrs. Jane Palmer gave evidence proving beyond doubt that the plaintiff's cart must have been on the wrong side of the road, and supporting the defendant's case that the cart turned and caused the collision.

Mr. Mozley-Stark, solicitor for the plaintiff, intimated that he felt it useless to go further with the case. His Honour accordingly found in favour of the defendant, and allowed costs.

THE ROAD CARRYING COMPANY, LIMITED.

THE statutory meeting of the Road Carrying Company, Limited, was held on Monday, at the Exchange Station Hotel, Liverpool, Mr. G. H. Cox presiding. There were also present the Hon. Arthur Stanley, M.P., Messrs. R. O. Burland, F. R. Dixon-Nuttall, Max Muspratt, G. W. Paton, and T. Thornycroft Vernon, directors; E. Shrapnell Smith, Secretary, and others. The Secretary having read the notice convening the meeting,

The Chairman said the meeting had been called in compliance with section 12 of the Companies Act of 1900. Since the company was registered, preparations had been pushed forward for actually beginning the business of road carriers by means of motor-wagons. Ten wagons had been ordered, but the earliest delivery of any of them could not be obtained prior to June 10th. The company would probably run between Liverpool and Blackburn during the night, and within the radius of twelve to fifteen miles of these towns during the day. They had had many offers of freight at remunerative rates, both outwards and inwards. For reasons which they considered good, the board had decided to add a light car department to that of the heavy wagons, and had accepted the following agencies:—The Daimler Motor Company, the Gardner-Serpollet steam cars, and the De Dion-Bouton, Limited. Further, an agreement was under consideration by which they would be able to supply the electric carriages of the City and Suburban Electric Carriage Company, Limited. The company would be in a position to store, clean, adjust, repair, and insure motor-carriages of all descriptions, while in their Liverpool garages, at 20, Hardman Street, and at 26 to 34, Vauxhall Road. He concluded by moving the adoption of the report. The Hon. Arthur Stanley seconded, and the motion was approved.

Subsequently an extraordinary meeting was held, at which it was resolved, on the motion of the Chairman, seconded by Mr. Max Muspratt, that one of the articles of association be altered to allow of the first annual meeting of the company to be held in 1903 instead of 1902. A vote of thanks to the chairman, proposed by the Hon. Arthur Stanley, was heartily carried, and the chairman having briefly replied, the proceedings terminated.

FURIOUS DRIVING CASES.

F. PARISH, 28, Portland Terrace, St. John's Wood, London, was summoned at the Market Harborough Petty Sessions for furiously driving a motor-car at Kibworth Harcourt on March 17th. Mr. Rowlett, solicitor, Leicester, appeared to prosecute; defendant did not appear when first called,

and subsequently a telegram was received saying that he could not get there in time. Mr. Rowlatt pointed out that the case had been adjourned once before on a plea of insufficient notice, and the telegram was not sent off till within a short time before Parish should have arrived. The Bench ordered a warrant to issue for his apprehension. At the adjourned hearing, when he was brought up on a warrant, the defendant was fined £10, including costs, with an alternative of two months' hard labour.

ALFRED HURN, driver, and W. S. Cunard, owner, of Hawthorn Hill, Bracknell, Bucks., were charged at St. Neots with furiously driving a motor-car at Buckden on March 30th, 1902. Police-constable Hodson and Leonard Mann, of Buckden, proved the charge, and said defendants were travelling over 27 miles an hour. The Bench imposed a fine of £5 and £1 costs.

At Huntingdon Division Petty Sessions, A. L. Humphreys, of 187, Piccadilly, London, has been summoned for driving a motor-car at extreme speed. Police-sergeant Storey said on March 28th, at 12.15 p.m., he was at Melcham's Bridge, on the Old North Road, when he saw a motor-car approaching at a furious rate. It went 739 yards in one minute two seconds, which worked out at the rate of 24 miles an hour. He stopped the driver, who gave his name and address. Fined £2 and 3s. costs.

J. SCRIVEN was charged at the Bradford West Riding Police Court with furiously driving a motor-car. A police-constable deposed that defendant's car covered 400 yards in thirty seconds. The car was thus travelling at the rate of about 30 miles an hour. A fine of £5 and costs was inflicted, in default a month's imprisonment.

At the Lambeth Police Court, Robert Rouse, of Tottenham Court Road, W.C., was summoned by Sub-divisional Inspector Peckover for driving a motor-carriage at a greater speed than was reasonable and proper having regard to the ordinary traffic on the highway. Police-constable Easton, 46 L, stated that on the night of the 4th inst. he was in the New Kent Road, when he saw a motor-car coming down the road at a terrific speed. He took out his watch and found that the car covered 120 yards in seven seconds. The defendant's representative said the defendant would plead guilty, although he did not think he was going quite so fast as the constable said. Mr. Francis ordered the defendant to pay a fine of £3 and 2s. costs.



"ROUGH JUSTICE."

(Das Schnauferl. Munich.)

B. H. FLINT, of Arklow House, Ramsgate, has been fined £5 and 10s. 2d. costs, at the Ramsgate Police Court, for driving a motor vehicle at a greater pace than twelve miles an hour. The police said the pace was thirty miles an hour, a statement contradicted by the defendant, who, however, admitted exceeding the legal limit.

GEORGE TAYLOR, New Street, Chelmsford, has been charged before the local county bench. In the result he was fined £5 and 18s. 6d. costs, for driving a motor-car at a greater speed than twelve miles an hour at Broomfield.

BERTRAND CHARLES WOTTON, Thornton Heath, Surrey, was charged at Grinstead with having driven a motor-car at a greater speed than 12 miles an hour at Babingley on March 31st. Defendant totally denied the speed, and the case was dismissed, the Chairman remarking that there was not sufficient evidence.

At Chippenham Police Court last week Gaston Laurent, motor-car driver to the Duke of Beaufort, was summoned for driving his Grace's car through Chippenham, on April 11th, at a speed exceeding 12 miles an hour. A fine of £3 and costs was inflicted. In another case heard against the same defendant for furiously driving a motor-car, it was stated that Laurent was driving the Duke's huntsman. In this case the Bench inflicted a fine of £7, to include costs.

At Brighton, Mark Stowman has been fined £1 9s. and costs for driving a motor-car to the danger of the public on April 13th. Police evidence was to the effect that the defendant travelled at the rate of 30 miles an hour—as shown by calculations based on an ordinary watch.

THOMAS WOODS has been fined £2 and 11s. 6d. costs at Brentwood Police Court for driving a motor-car at an excessive speed.

On Saturday, William Baker, of London, pleaded guilty at Winchester to driving a motor-car at an excessive speed, at King's Worthy, on the 28th March. P.C. Deacon said the defendant covered a measured distance of 400 yards in forty seconds, or at the rate of twenty miles an hour. The Bench imposed a fine of 40s. and 8s. costs.

WILLIAM SHEPHERD, who was driving a motor-car from London to Bournemouth, was summoned for driving a motor-car at an excessive speed at King's Worthy. Defendant pleaded guilty at the Winchester Court, and was fined 40s. and 8s. costs.

At the Birmingham Police Court, Daniel Willetts, of Bowling Green Lane, Stourbridge, was summoned for furiously driving a motor-tricycle along Broad Street on the 21st ult. The evidence of Police-constable Brown, who followed the offender on his bicycle, went to show that defendant was travelling at a speed of from twelve to fourteen miles an hour, at which pace he covered the whole length of Broad Street. Defendant, who said he did not think he was going so fast, was fined 10s. and costs, with the alternative of fourteen days' imprisonment.

WILLIAM JAMES MABER, a Mountain Ash ironmonger, was summoned at the Llandaff Police court on Monday for driving a motor-car at a furious rate. P.C. Enoch Jones stated that the motor was careering along at a rate of 100 yards in seven seconds. The Bench imposed a fine of 20s. and costs, or fourteen days.

GEORGE MOODY, of Llandudno, motor driver to the late Duke of Westminster, was charged at Penrhyndeudraeth with having driven a motor-car through Merioneth at an improper speed. A police-officer said he went at a rate of twenty to twenty-four miles; a mason said he went at twenty to twenty-five; another mason said he covered 100 yards in two seconds. Moody denied that he was going at more than eight miles an hour, observing that it was only geared up to twelve miles. A fine of £3 with £1 7s. costs was imposed.

ON another page of the present issue we reproduce an interesting photograph taken during the recent heavy vehicle trials from Paris to Nice. It shows the French Military Commission which, on a Serpollet car, accompanied the vehicles on their long journey. At the wheel is Captain Genty, and at his side is Colonel Lambert. The occupants of the rear seats are Commandants Mengin and Ferrus, while standing at the rear of the car is M. Paul Meyan, of our contemporary *La France Automobile*, the organiser of the trials.

THE first annual general meeting of members of the Scottish Automobile Club (Western section) was held in Glasgow last week, Mr. Jas. R. Nisbet presiding. The report by the committee showed the membership at date to be fifty-eight, and the balance at the credit of the Club at 31st January, 1902, £25 7s. 4d. The committee for the ensuing year were elected, with Mr. John Adam, of Larchgrove, as chairman, and Mr. Robt. J. Smith, C.A., Glasgow, as honorary secretary.

ON Tuesday, in the Companies' Winding-up Court, a petition was presented by Mr. Charles Friswell for the compulsory winding up of the British Motor Traction Company, Ltd. Mr. Muir, in support of the petition, stated that an arrangement had been come to with certain persons connected with the company, by which the petitioner obtained security for his debt, and was willing to abandon his petition. The petition was allowed to be withdrawn, with costs.

AT a meeting of the Aeronautical Institute and Club, held on the 2nd inst., Mr. Auguste E. Gaudron read the second part of his paper on the "History of Navigable Ballooning," which was entirely devoted to the experiments of M. Santos Dumont with his various balloons. The lecturer, who is a professional aeronaut of many years' experience, was of opinion that if M. Dumont had taken for his initial basis of construction the advanced stage of improvement in design attained by Messrs. Renard and Krebs fifteen years previously, he could have done with No. 1 what he accomplished with his No. 6 balloon.

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COMMENTS.



ON Monday further evidence of the enthusiasm with which leading public men regard automobilism will be evidenced at Bexhill, and the refusals of accommodation at the leading hotels have been quite a record number. As a gathering of rank and fashion the "meet" promises to vie with the scene at many of the fashionable Grand Stands, and the presence of some of the principal Continental cars should be sufficient to cause records to be made on the new track.

The contests will commence at 1 p.m. on Whit Monday, so that visitors from a distance will have to start from home at an early hour if they intend to see all the trials.

A Bad Road.

MOTORISTS are always glad to hear of roads to avoid, and hence we give publicity to the neglected condition of the Lea Bridge Road between Lea Bridge and the tramway terminus. This road is the great and only highway for motorists to Epping and the Forest generally from Hackney, Islington, and North London. The state of the road is described as a disgrace to the Leyton Council and the Lea Bridge Tramway Company. We hope it is not quite so bad as a newspaper correspondent suggests, but the matter should be considered by the authorities concerned.]

The Dashwood Climb.

ELSEWHERE we publish a complete account of the Dashwood Hill competitions on Saturday last, with a cheerily written record of the journey there and back. The accompanying photographs have more than ordinary interest, for they testify to the interest which the Leader of the House of Commons feels in automobilism.

Suspension of a Competitor.

THE stern attitude of the Automobile Club with regard to the competitor who, on Saturday last, infringed its rules during the Trials on Dashwood Hill will be upheld by all who are interested in developing automobilism as a sport as well as a serious business undertaking. Mr. Grahame White was—as will be seen from our report on another page—disqualified for an infringement of the rule as to speed down hill; and we now learn officially from the Automobile Club that, "as a mark of disapprobation and as a warning, this car (a 28-h.p. Mors) and its driver are suspended from the Competition Register of this Club, and the car may not be run, and Mr. Montagu Grahame White may not drive, in any motor competition in this country until after June 30th next," unless he denies the accuracy of the report, in which case he will be heard by the Committee of the Club. This is the first occasion on which the Club has resorted to such a

course, and we hope it will have a salutary effect on those who disregard the feelings of their fellow-automobilists. To infringe the regulations in the presence of the Right Hon. A. J. Balfour and others, who from their public positions are seeking to remove legislative restrictions and administrative red tape, is an offence which the Club could not possibly condone.

Next Year's Show.

LITTLE has to be added to our recent references to next year's International Automobile Exhibition at the Agricultural Hall in March, save that the interest in the stands to let still continues, and, despite the efforts to induce the trade to hold back, energetic and enterprising firms are booking space in special positions. Evidently some who hold back will be disappointed when they find, after weeks of waiting, that the best positions have practically all been taken.

Street-Cleansing.

THE experience of the Kensington Borough Council is conclusive so far as the economy of motor dust and water vans is concerned. The Council has had one in operation since last December, working as a watering-cart by day and a street-cleaner by night. Mr. Weaver, the Borough Engineer, is so satisfied with the results, that on his recommendation the Council has decided to order another machine from the Thornycroft Steam Wagon Company, at a cost of £725. With two, he says, none of the present night horses will be required, and as watering machines during the day each motor will do more work than three one-horse water vans. The two machines will cost about £500 a year, compared with over £1,300, the annual cost of nine horses and men.

Regulations at Cardiff.

THE Head Constable of Cardiff has issued some regulations with regard to the street traffic of that busy town which might be usefully enforced in other districts. In issuing these regulations, Mr. W. McKenzie, the Chief Constable, says:—"Drivers of heavy carts are frequently to be seen at such a distance from their vehicles as not to have due control over the horses drawing the same. This is an extremely dangerous practice, and one that must be rigidly put down; every case coming under the notice of the police must be reported, so that proceedings may be taken against the offender. The practice of leaving tradesmen's horses and carts unattended in the streets is also much too common, and the police must see that this dangerous habit is put a stop to. In some few instances drivers chain up one of the wheels of their vehicle, but this practice must not be recognised by the police, because, although it lessens the danger, the breach of the law is the same." Whilst congratulating Mr. McKenzie on his regulations with regard to horse-drawn traffic, we cannot endorse his views that horses do not take kindly to automobiles, and regret that he did not make clear that the painting of the owner's name and address on light locomotives only applies in the case of vehicles employed for business purposes.

The Aero Club.

SHORTLY after the balloon ascent of Messrs. Pollock and Wallace from the grounds of the Crystal Palace, as recorded in our last issue, a second and larger balloon of 45,000 cubic feet capacity, carrying Sir Vincent Barrington, Mr. F. H. Butler, and Mr. S. Spencer, made a journey. Owing to a heavy squall and delay in filling, it did not start until 5.30 p.m., when it rose rapidly to a height of 4,500 feet, and met with a strong wind and fall of snow. After travelling in an irregular course over Beckenham, Chislehurst, near Farningham, and over South Darenth, it was decided to descend owing to the wider reaches of the Thames being approached. On touching earth the balloon dragged its grapnel for a considerable distance, owing to the strong wind, over a large open field, but was finally brought to rest by some twenty men hauling at the trailing guide rope. Accurate barometric, thermometric, and hygrometric observations were taken by Mr. Butler's self-recording instruments. The distance travelled over earth was about sixteen miles, and the time taken up to letting drop the grapnel twenty-five minutes, making an average speed of about thirty-eight miles an hour. At its highest elevation the pace must have exceeded forty-five miles.

Portsmouth Automobile Run.

THE enthusiastic interest taken in motoring at Portsmouth is rapidly on the increase, and since the recent Exhibition in London dozens seem to have discarded their cycles to take up the more fascinating sport, and are nightly to be seen disappearing themselves along the excellent front. The recently inaugurated Portsmouth Automobile Club, of which, by the way, Earl Russell is an active vice-president, is now well established.



PORTSMOUTH MOTORISTS AT BISHOP'S WALTHAM.

On Saturday last quite a large muster of automobiles of all descriptions turned out for the second run since the Club's formation, when the picturesque country around Bishop's Waltham was visited. The run proved exceedingly enjoyable, the party, after regaling themselves at the "Crown" Hotel, Bishop's Waltham, returning home through Winchester, Botley and Titchfield.

Glasgow to Bexhill.

COUNCILLOR H. Brooke and Mr. Bradney Williams, of the Bexhill Motor Co., have had a capital run from Glasgow to Bexhill on a 8-h.p. Argyll car, which is to be utilised on the south coast. Starting from Glasgow, they made good time to

Shap Fell, the descent of which—a distance of fourteen miles—was negotiated in partial darkness and in a drizzling rain. Reaching Kendal, the wayfarers rested the night, having covered 140 miles in a net running time of nine hours five minutes. The next day Warwick was reached, the net running time having been 175 miles in 12 hours 20 minutes. Rain delayed the start on

the third day, and towards evening the way was frequently ^{lost,} delaying the arrival at Bexhill till one o'clock in the ^{morning.} In sixteen hours, including 3 hours 20 minutes for ^{stoppages,} 177 miles had been covered. Thus the average speed for the whole of the journey was 15.4 miles per hour—a *satisfactory* tribute to the good workmanship now being put into the manufacture of automobiles.

Motor-Vehicles for Trade Purposes.

IT is a needless commonplace to remark of the greater readiness with which the advantages of the motor have been recognised on the Continent than has been the case in this country; but perhaps sufficient stress has not been laid on its wide adoption there for business purposes. It is true that as regards what is generally understood as heavy traffic we may console ourselves with being fairly abreast of European competition, at least as far as motor building is concerned; but as regards light goods conveyance, we can lay no such flattering unction to our souls. The wide adoption, for instance, of light vehicles, from the humble quad transformed to parcels carrier to the one-ton van in Paris, finds no parallel in London, where the few light motors used seem to be largely adopted as a mere advertising medium. The problems involved are not so widely different from those offered by the ordinary light passenger vehicle, while they differ considerably from those questions of heavy traffic which several English firms have so ably set themselves to solve; and perhaps our backwardness therein is more due to the apathy and conservatism of the British tradesman than to any other reason. Still, we are aware of at least one instance in which a deputation from a firm requiring light and fast goods vehicles of small capacity were disappointed at the want of provision for their needs apparent at the Show, and the question is one that should have the attention of makers, as in cases like this, supply must, to a certain extent, precede demand.

A Narrow Escape.

MR. CHARLES FRANKLIN left Newbury for Bristol at 1 a.m. a few mornings ago, after vainly trying, with the aid of a kindly policeman, for an hour to obtain a bed. He wended his way towards Bristol upon his 2½-h.p. motor cycle. All went well until reaching Savernake Forest, when the machine dashed into a huge gate across the road, forcing it open, the impact throwing Mr. Franklin and his cycle to the ground. Like lightning, the gate rebounded, and, striking him on the side of his head and cutting his ear, rendered him partially insensible. There he lay until daybreak, when he picked up his machine, traversed about half-a-mile, and arrived at a sheep-house, in which were some straw and sacks, he settled down until 8.30, when he crossed a field to Folly Farm, and through the kindness of the tenant, who drove him to the Marlborough Railway Station, he was enabled to reach his destination by rail. He believes that the speed of the machine, forcing the latch of the gate, saved him from a terrible accident, and probably sudden death. It is a common occurrence for cyclists, strangers on that road, to collide with this gate at night, and if the gate cannot be done away with, danger signal lights ought to be attached to the same at night when closed, warning approaching cyclists and others of its presence.

The Leather Trade.

COMMENTING on the recent Motor Car Exhibition at the Agricultural Hall, the *Leather Trades' Review* says:—It is obvious that the subject is of very direct interest to the leather trade inasmuch as quite a large section of it is devoted to the production of harness and saddlery, and the question arises as to what is to be the probable effect upon our industry. Possibly the day is a long way off when the harness maker will go out of business, but he is bound to be seriously affected by the popularity of the automobile, and it would be folly for the leather trade as a whole to shut its eyes to the probable changes

likely to be brought about by the gradual displacement of horse-propelled traffic. Fortunately, the increasing use of the motor does not necessarily mean the extinction of the leather trade as applied to locomotion. Leather in some form or other seems indispensable to many industries, and the automobile seems no exception to the rule. In the first place a certain amount of driving belts are required, although we gather from our inspection this is rather a small item. More important seemed to be the large quantity of our staple consumed in the upholstery and fittings of the vehicles. The demand for this grade of material is in excess of the supply, and some of our neighbours across the Channel have orders booked ahead for some time to come. From enquiries at the Show we were certainly tempted to believe the initiative in catering for the requirements of the automobile industry could not be placed to the credit side of British account. We always hesitate to accept without discount the statements of importers of foreign goods, but we were assured the samples of motor leather clothing, at any rate, were, without exception, of Continental make, or cut from skins tanned and dressed on the Continent." Our contemporary concludes with an earnest appeal to the British leather trade to be up and doing.

Motor-Cars for Syria and Palestine.

The United States Consul at Beirut reports that enquiries about automobiles are being made in Syria. Only one specimen, an inferior second-hand French machine, has been seen in Beirut; but it is thought that in Syria and Palestine, with their lack of railways and street cars, and with their rapidly developing carriage-road systems, motor-cars would do well. A new road is now being built between Sidon and Beirut, and will soon replace the ancient bridle path. While this road will be level, others throughout the region are steep and have numerous sharp turns. Vehicles in use, therefore, must be strong and durable. The country is poor, and, except possibly for the accommodation of tourists, there would not at present be much demand for automobiles outside of Beirut. The tourist traffic in Syria has more than doubled during the last ten years. At present about 750 foreign tourists pass through Beirut annually, most of them proceeding to Baalbek and Damascus. Twice this number go through Palestine. Galilee is also growing in favour among tourists. The figures given do not include pilgrims, thousands of whom seek the holy places, nor the special excursions which have lately come into vogue.

An American Endurance Contest.

A 100 mile endurance contest, held on the 26th ult by the Long Island Automobile Club, brought forward no less than eighty-two entries, of which sixty-six actually started. Although the start had been arranged for 10 a.m., the majority of the vehicles were somewhat tardy in arriving, and as the space provided for the cars was rather small with respect to the large number of entries, more or less confusion existed. No fixed order was followed in starting, the start being given to the vehicles in the order in which they presented themselves. A Panhard-Levassor of high horse power, having rushed over the 100-mile course in less than three hours, was the first to arrive back. Things went along slowly enough for a time until a Darracq came in, something like three hours ahead of the minimum time limit. Fifteen miles an hour, the Club had decreed, was to be the maximum speed, while all cars were ordered, on penalty of disqualification, to pass through controls at a speed not greater than eight miles an hour. A short time after others of the large cars began to arrive, and so far ahead of the schedule were they that there was no official of the Club on hand to receive them and make an official entry of their time. Of the sixty-six starters thirteen were disqualified for excessive speed, while fourteen did not complete. In the hill-climbing contest on Roslyn Hill a Locomobile won in Class A, steam, its time being 1min. 42sec. An Autocar won in Class C, making a time of 2min. 30sec. A Winton touring car won in Class D, in 1min. 42sec., and a Rochet-Schneider in Class E,

climbing the hill in the best time, 1min. 19sec., and winning two cups, one as winner in its class and one for making the best time of any vehicle.

The Dismissal of Cases.

It would appear that reason is beginning to prevail on the Bench, and this week we report two or three interesting cases of alleged furious driving where the magistrates declined to convict. One was at Haywards Heath, where the witnesses for the defendant were able to convince the Bench that no conviction should be made, and a second instance was at Dartford. In the latter case the police alleged that a motor-car was being driven at a rate of over twenty miles an hour, but, despite their elaborate calculations with a watch, the case was dismissed—conclusive evidence to the contrary being given by the passengers on the car.



MR. S. F. EDGE ON HIS 50-H.P. NAPIER.
Photo by [Mr C. Bailey.]

The Duty of the Police.

Mr. S. STOREY, ex-M.P., has just been re-elected chairman of the Durham County Council, and in the course of his speech in returning thanks he said that it had been the policy, and a mistaken idea of the police in that county for years past, that when they took a case to court it was incumbent upon them to win the case or else they got into discredit. He added that that was not the business of the police at all. They were public servants appointed to sustain justice. Their business was not, when they took a case to court, to win by hook or by crook, but to put all the evidence forward and see that justice was done. The business of the police and of those who acted for the police was not to strain any case against any man, but to present whatever they had which would enable them to take a just view of the whole of the circumstances. The Standing Joint Committee was about to appoint a new Chief Constable for that county, and he hoped before the appointment was made that the committee would lay down such regulations on that point as would secure a better state of things in the future.

Roads.

PRACTICAL work is being done by the Roads Improvement Association. It is now endeavouring to obtain precise information regarding certain roadways in the country, and will be glad of the assistance of motorists in obtaining the knowledge desired. Those readers willing to survey twenty or more miles of any of the roads mentioned below are invited to correspond with the hon. secretary at 45, Parliament Street, S.W. The roads in question are from London to Cardiff via Oxford and Gloucester; London to Dover via Canterbury;

Warrington to Carlisle; Manchester to Derby; York to Berwick via Newcastle; Bristol to Penzance via Exeter; Birmingham to Lincoln via Nottingham.

THE BEXHILL TRIALS.

CONSIDERABLE interest is being shown in the trials which are to be held at Bexhill on Monday next. Since we outlined the programme in our last issue several alterations have been made. Notably, the start of the trials in the Tourist Section has been changed to one o'clock, and those in the Speed Section to two o'clock.

Mr. Charles Cordingley has offered a 25-guinea cup as a first prize in Class A in the Tourist Section, viz., for tourist cars weighing over 25 cwt. There will be three prizes in this section, viz.:—First, Mr. Cordingley's cup; second, the United Motor Industries prize, value £12 12s.; third, Messrs. G. S. Scudder and Co.'s prize, value £9.

It should be noted that no vehicle can take part in the races unless it has been weighed. The opportunities given for weighing are as follows:—At the London and North-Western Company's Goods Depot weighbridge, Seagrave Road, West Brompton Station, London, on Friday, May 16th, from 3 p.m. to 7 p.m. At the West Marina Station weighbridge at St. Leonard's-on-Sea, on Saturday, May 17th, from 4 to 7 p.m. At the West Marina Station weighbridge, on Monday, May 19th, from 10 a.m. to 12 noon. There are several routes to Bexhill-on-Sea. A pretty one is via Godstone, East Grinstead, and Uckfield. In many parts the road is winding, and special care should be taken in approaching Bexhill, as the corners are dangerous.

The following is a list of entries up to the time of going to press:—

TOURIST SECTION.

Class F II.—MOTOR BICYCLES weighing not more than 112 lbs.

No.	Make.	Brake h.p.	Rider.
13	Werner	2	E. H. Arnott.
23	Humber	2	Bert Yates.
29	Werner	2	— Buquet.

Class E.—LIGHT VOITURETTES.

Cars weighing less than 10 cwt., with seats for four persons.

Cars weighing less than 9 cwt., with seats for three persons.

Cars weighing less than 8 cwt., with seats for two persons.

No.	Make.	Brake h.p.	Driver.
1	De Dion	4½	J. M. Gorham.
28	Century Tandem	5	R. W. Leader.
30	Baby Peugeot	5	C. Friswell.

Class C.—LIGHT CARS.

Cars weighing less than 18 cwt., with seats for four passengers.

Cars weighing less than 16 cwt., with seats for three persons.

Cars weighing less than 14 cwt., with seats for two persons.

No.	Make.	Brake h.p.	Driver.
14	10 h.p. Panhard	12	Roger H. Fuller.
16	7 h.p. Panhard	9	Chas. Jarrott.
22	7 h.p. Panhard	—	H. R. Langrishe.
26	12 h.p. Gladiator	10	C. K. Gregson.
27	8 h.p. M.M.C.	8	Geo. Iden.
35	12 h.p. New Orleans	12	Wm. Exe.

Class B.—Cars weighing 18 cwt. or more, but less than 25 cwt., with seats for four passengers.

No.	Make.	Brake h.p.	Driver.
2	16 h.p. Napier	24	S. F. Edge.
21	6 h.p. Daimler	7	Ernest Pitman.
25	12 h.p. Panhard	16	Yves Le Coadon.
33	10 h.p. Mors	12	H. T. Edwards.

Class A.—Cars weighing 25 cwt. or more, with seats for four passengers.

No.	Make.	Brake h.p.	Driver.
5	16 h.p. Napier	24-25	Edwin Midgley.
9	16 h.p. Panhard	20	H. Strakosch.
10	50 h.p. Napier	65	W. G. H. Brannan.
11	16 h.p. Daimler	18	Arthur Wood.
12	24 h.p. Daimler	26	Hon. John Scott Montagu, M.P.
32	24 h.p. Mors	28	M. Grahame White.

SPEED SECTION.

Class D.—MOTOR BICYCLES weighing over 112 lbs.

No.	Make.	Brake h.p.	Rider.
4	—	2½	E. H. Arnott.
24	Humber, chain driven	2½ h.p.	Bert Yates.
31	2½ h.p. Norfolk	2½ h.p.	S. F. Norfolk.

Class D1.—RACING MOTOR-CYCLES having more than two wheels, and weighing over 2 cwt., but under 250 kilos.

No.	Make.	Brake h.p.	Rider.
20	8 h.p. De Dion Tricycle	8	Victor Lee.

Class B.—LIGHT RACING CARS. Vehicles under 650 kilos.

No.	Make.	Brake h.p.	Driver.
19	16 h.p. Panhard	20	Chas. Jarrott.
34	8 h.p. Clement	9½	D. M. Weigel.

Class S.—Vehicles weighing more than 650, but less than 800 kilos.

No.	Make.	Brake h.p.	Driver.
15	10 h.p. Panhard	12	Chas. Jarrott.
17	16 h.p. Panhard	20	Harvey du Cros.

Class A.—Vehicles under 1,000 kilos.

No.	Make.	Brake h.p.	Driver.
7	40 Cannstatt Daimler	40	Campbell Muir.
8	40 Cannstatt Daimler	40	Baron Henri de Rothschild.
18	40 h.p. Panhard	40	Chas. Jarrott.

SPECIAL BIG RACERS' CLASS.—Vehicles over 1,000 kilos.

No.	Make.	Brake h.p.	Driver.
3	50 h.p. Napier	75	S. F. Edge.

RACING STEAM CARS:

No.	Make.	Brake h.p.	Driver.
6	Gardner-Serpollet	20	L. Serpollet.

COMPETITION FOR CARS HAVING THE BEST APPEARANCE.

No.	Entered by	Description.
2	S. F. Edge	16 h.p. Napier.
7	Alfred C. Harmsworth	40 h.p. Mercedes.
9	H. Strakosch	16 h.p. Panhard.
11	Walter Crombie	16 h.p. Daimler.
14	Roger H. Fuller	10 h.p. Panhard.
25	A. G. Schiff	12 h.p. Panhard.
50	L. Savory	12 h.p. Gladiator.
51	Dr. Horner Wyeth	7 h.p. Noe-Boyer.
52	Nevill Copland	8 h.p. De Dion.
53	Alfred C. Harmsworth	20 h.p. Panhard.
54	W. F. Sewell	9 h.p. Daimler.
55	W. J. Peall	12 h.p. Daimler.

Altogether there are more than seventy entries, the last received being a 30-h.p. Wolsley car. Chevalier de Knyff will drive the 40-h.p. Panhard that has just taken part in the "Circuit du Nord." The Hon. C. S. Rolls has entered a 60-h.p. Mors, and also a 40-h.p. car of the same type. The "Easter Egg" will be driven by Mr. A. L. Creyke. This, it will be remembered, was on view at the recent Exhibition. Mr. C. Cordingley's 12-h.p. M.M.C. has been entered in the Tourist Section. We understand that M. L. Serpollet will make an attempt to beat his recent kilometre record, so that some phenomenal speeds may be anticipated.

MESSRS. DURHAM, CHURCHILL AND Co., of Sheffield, have removed their London office to 106, Great Portland Street, W.

MR. PERRY KEENE has been summoned at the Salisbury Petty Sessions for refusing to stop when desired by a person in charge of a horse. Mr. Staplee Firth defended, and the case was dismissed.

WE hear that a marriage has been arranged between Mr. Mark Mayhew, L.C.C., Vice-Chairman of the A.C.G.B.I., and Miss Dora Christine Fisher, youngest daughter of the late Mr. Luke Fisher, M.D., of Lytham.

THE action, the General Automobile Agency v. Waller, reported on another page, was concluded on Wednesday. The Agency sued Mrs. Waller for £500, but Mr. Justice Jelf accepting the lady's pleas, gave judgment in her favour, and ordered the return of the £100 deposit.

MR. AKERS-DOUGLAS, the First Commissioner of Works, received a deputation of cyclists and automobilists on Wednesday on the subject of the facilities granted to them for riding in Hyde Park. The concession asked for was that cyclists might be allowed to use the roads in Hyde Park with no other restrictions than those imposed on the ordinary traffic. Mr. Akers-Douglas, in reply, promised that he would without delay place their views before the Ranger, and ask for his favourable consideration to their request. Motor-cycles, taken under the care of the Hon. John Scott-Montagu, were assured fairer treatment, Mr. Akers-Douglas admitting that it was not fair to exclude them from the parks while motor-cars and ordinary cycles were admitted.

FROM SHOE LANE TO DASHWOOD HILL.

THERE were four of us—Three Men on a Car, to say nothing of the Driver—and we decided to have a day together in the open air. A week's sojourn at the Agricultural Hall, and a fortnight's groping in the candle light to seek the inspiration necessary to write columns descriptive of the great Exhibition, had jaded our spirits and wearied our brains. We wanted a reviver—and where is the restorer of good spirits that can compare with a breezy trip on a motor-car that has been well broken in (not necessarily broken down) and that can elude police and annihilate distance with the swiftness of a bird? As



GETTING READY FOR THE HILL CLIMB.

[Photo by]

[Mr. T. B. Percy.]

the Automobile Club was holding a hill climbing competition on Dashwood Hill last Saturday, the proposition was moved, seconded, and duly supported, that we should accompany the string of vehicles that intended to join in the Consumption Trials. One of our number did not appreciate the idea of hill climbing, but the allurements of the Consumption Trials—which he regarded as rather a good thing—settled his mind, and with unanimity we agreed to the proposition.

It was carried into execution on Saturday last. Not "a bright May morning," nor did it have the warmth associated with Spring. Had a little more sallowness been infused into the atmosphere it would have been a good imitation of a November day. But the only settled thing about the English climate is its glorious uncertainty, and when the snow lay an inch deep in Buxton, we need not have been surprised to find the air chilly in London, even in the merry month of May. As already remarked, there were three of us, to say nothing of the driver; our identity need not be disclosed beyond cataloguing the journalistic trio as the Fair One (a gentleman, as distinguished from a lady, be it duly noted), a Thin Man, and he of Robust Proportions, who, with the modesty becoming the official chronicler of the journey, sat to the rear of the Driver—a capital position when the wind makes frontal attacks. Like others who spend their days in town, we all have dormitories in the suburbs, and from three quarters of the Metropolitan Police radius we foregathered to seats on Mr. C. Cordingley's 12-h.p. M.M.C. car, which took up a position outside the *Journal* office in Shoe Lane. Two of us having boarded the vehicle, a start was made for Victoria, where the Thin Man was to be picked up. Into Ludgate Circus we descended with muffled throats and looks of determination. For there was a chilliness in the air which not even the cheery greeting of Mr. A. Burgess, the secretary of the Motor Manufacturing Company, who was, in his capacity of a pedestrian, making use of the footway, could dispel. As we sped along the Embankment, a mist arose from the waters of the Thames, and there was a general aspect of spring cleaning about. The street orderly boys were tidying up; the mud-carts were dawdling along the roadway, and the pavements seemed scarcely aired. Overtaking an electrical cab whose driver

was inclined to "growl," after the manner of mere ordinary cabbies, we got within the shadow of Big Ben, and rounding into Parliament Square left timbers cumbering the ground on the Abbey lawns, and Colonial Agents settling down to routine duties in Victoria Street.

Now, it had been ordained by the Automobile Club and those who steer its course, that an official start should be made from the Belgravia Garage, South Eaton Place; and it was our intention, when the full complement of passengers was obtained, to fall in line with the vehicles as they were sent on their way. But, alas! the Thin Man was not to be seen outside Victoria; the only evidence of motor matters was a 6-h.p. Daimler opposite the Grosvenor Hotel. From its driver we learned three things. Firstly, that it belonged to Mr. Oliver Stanton, who has sold the Black Cat which was wont to purr so innocently along unfrequented roadways; secondly, that the Thin Man had arrived; thirdly, that, joining forces, the two early birds had sallied forth to catch the worm, which, being interpreted, means they were looking for the garage. A little later they returned—with no garage but with plenty of provender, which we duly plundered. But where were the motorists? We played every variant of note of which a horn is capable, from a long plaintive bleating, as of a lamb in distress, to the defiant shriek of a factory hooter, and having waited half an hour, and being assailed by other motorists vainly looking for their fellows, we set our faces westward and took a series of runs through Eaton Square and the locality, asking butcher boys, postmen, and municipal employees if they had seen a cavalcade of automobiles. But civility in answers of negation was our only reward.

So we decided to follow our inclination instead of the cars. Mr. Stanton, however, with the instinct of the expert, scented a car in the distance, and, keeping close up to the legal limit, bore upon it, to find Mr. Manville on board. He followed the vehicle—so we afterwards learned—some distance, only to discover that Mr. Manville was not going Buckinghamshire way. So he ceased to follow, and led his own vehicle to the right path that leads to High Wycombe. Passing into Hyde Park, we overtook the Royal postillions, who were rehearsing several splendid four-in-hands for the Coronation procession, and noted the dignity



MR. BALFOUR WATCHING THE TRIALS.

with which the horses ridden by ladies affected indifference to our presence. We would have preferred the excitement of having to jump from our car and capture a prancing steed, receiving a pleasant "Thank you" as reward; but, no, those horses calmly pursued their path. Taking liberties with Alexander Selkirk's confession, we might have said:—

"They are so well accustomed to cars,
Their tameness is shocking to us."

The Fair One likes not the poetry; but the Thin Man thinks well of the underlying idea.

And then the road lay almost along the course of the new Tube railway into Shepherd's Bush, where the electric trams took up the parable—I mean the roadway—as far as Southall. Thus far we had only sighted ordinary beasts of burden and commonplace tramcars; not a motor-car hove in sight until we halted at Hillingdon, a pretty little village this side of Uxbridge. A glance at the church and a ramble in an old-fashioned hostelry occupied but a few minutes; still, it sufficed for quite a dozen cars to whiz by, to the delight of a trio of canine observers whose antics reminded one of the famous collie encountered by Sir Henry Thompson in the High Street of Watford. Remounting our car, which had been travelling delightfully, we gaily careered through Uxbridge, the bustle of Middlesex was left behind, and we were in the quiet county of Penn. of Hampden, and Milton—a county which has preserved its agricultural aspect almost unaltered since the days when Cavalier and Roundhead crossed swords on its old-world village greens.

The main road to Oxford is a pleasant succession of views of well-wooded parks and grassy meadows, and were time not

announces the approach of a vehicle that knows its own mind and goes straight forward. But the force of such incidents soon pales on the motorist as he gazes upon the succession of undulating fields that lead the way to Beaconsfield, which has a fine wide main street, one portion of which seems for the nonce to be given up to some remnants of an old English fair. Right under the splendid Perpendicular tower of the church, in the churchyard of which lie the remains of Edmund Burke, a group of donkeys stood awaiting the attention of the village youths, and braying in extraordinary asinine fashion as we passed. After that the road descended upon the river Wye, a diminutive, gentle stream that breaks forth into something approaching a roar at the weir, just before Loudwater is reached. Then into Wycombe Marsh the road passes between houses and cottages until High Wycombe with its wide street and ancient market place, is reached.

Now it must be understood that automobile competitions on distant hills are not an appetising business. Last year we learned wisdom, for Dashwood Hill is not a place overrunning with comforting morsels, and those who are not adequately provided come empty away. So we decided to lunch in the town, and while the car was at rest we took a stroll and tried to recall some scenes of Venice by the stream that runs along Queen Square, where the little bridges across the water have a quaintness all their own. By this time a few cars were coming along—some numbered after the manner desired by a few County Councils; others unknown, unnumbered, and unsung. A few straggling motor-cyclists passed by, and after lunch we set forth again, refreshed and ready for the fray.

A short sharp spin took us to West Wycombe, a little place that owes much to Francis Dashwood, Lord le Despencer, whose name is still remembered on Dashwood Hill, where, at the thirty-third milestone from London, we found a number of automobiles and a goodly company of motorists. The site chosen was a capital one, providing ample room for the vehicles that were started on their trials.

Arrived at Dashwood Hill, the Mystery of the Start was soon discovered. The venue had been altered a few hours before the morning of the day, and instead of South Eaton Place, the run was from the new garage of the Hon. C. S. Rolls at Lillie Hall, Earl's Court, where Mr. Burrows, who is now attached to the Club Secretary's staff, superintended arrangements. The result was the confusion that prevailed at the original place, and it might be well in future to adhere to programmes, or at least acquaint everybody of alterations of plans. Competitors and observers were informed by telegram or messenger, and, although instructions were given, no news of the alteration came the way of the Press, judging from our own experience. At the foot of the hill many representative motorists were present. Colonel Holden, Mr. Worby Beaumont, and Mr. Staplee Firth—the latter only once perceived taking a "refresher"—were superintending the supply of petrol to the contestants, and must have become well proficient in the art ere the close of the day. One of our photographs shows Colonel Holden mounted on a car, with Mr. Beaumont filling up the tank, Mr. Lyons Sampson being an interested spectator. Snapshottists were almost as numerous as motorists—all complaining of the dull light and cool weather. Still, the scene was full of incident and interest as the Thin Man and the Fair One marched to the top of the hill, there to survey the scene from the vantage ground of an elevated position. The task of sending the cars on their way was no easy one. Standing behind a table were Messrs. C. Johnson and H. J. Swindley, the latter armed with a watch, and the former having nothing more formidable than a telephone. This was part of the electrical timing device which had been arranged, and the constant "Are you there?" seemed strangely out of place. But its utility was demonstrated. Mr. R. E. Phillips, with his new Rochet-Schneider car, and Mr. F. T. Bidlake were at the other end of the wire, which was laid by the side of the road, and constant communication was kept up during the day.

Dashwood Hill is fairly familiar to those who love ascending



MR. BALFOUR AT LUNCH.

[Photo by]

[Mr. C. Friswell.]

pressing a day or two could be excellently spent in the old churches and manor houses that lie only a mile or two from the well-beaten track. Two miles beyond Uxbridge is Denham, with its fine Elizabethan mansion that once gave refuge to Charles II.; and then, heeding not the bye roads to places of historical interest, we made for Gerrard's Cross, from whence the pedestrian can find an easy way to Stoke Poges, where Gray sleeps beneath "the yew tree's shade," or to Jordans, made memorable by its association with the founder of Pennsylvania. The Romanesque village church of Gerrard's Cross has a great dome of most un-English appearance; but our chats on such matters were cut short by the action of a silly woman who crossed the road in a fashion most peculiar. For she grew nervous at the approach of the car, and came rushing wildly towards us at full tilt. It was only when the brake was applied that she had the sense to divert her steps to the footpath. Had she been knocked down in her nervous rush at the car we might have been hauled up for woman-slaughter, and now be pining in durance vile. And all because people will not use a little common sense, and leave the roadway with celerity when the sound of the horn

THE DASHWOOD HILL CLIMB.



MR. A. HARMSWORTH'S 40 H.P. MERCEDES.
14 H.P. NEW ORLEANS CAR AT HILLINGDON.

MR A. J. BALFOUR ON THE MERCEDES CAR.
COL. HOLDEN AND MR. WORBY BEAUMONT FILLING THE TANKS.

THE WOLSELEY CAR FINISHING THE DESCENT.
ON THE HILLSIDE.

THE REV. A. WHATTON ON THE MERCEDES CAR.

steep inclines and travelling comfortably by car where it is wearying to the feet. The hill begins at the thirty-third milestone, and the competitions on Saturday ended at a distance of 1,173 yards from the bottom. The average ascent is one in 14.3, and includes 352 yards of 1 in 10.9. Very remarkable was the ease with which most of the cars went up the hill, and several romped up in grand style. It was allowable to stop the engine at the top of the hill, and make the descent by gravity. Then to turn the car at the bottom, restart the engine, and repeat the ascent. The performance had to be repeated seven times—in accordance with the regulations published in last



'A "REFRESHER."

week's *Journal*, the fuel to be drained from the tanks into measuring vessels at the conclusion of the trial. Thus the kindly officials were kept at their post during five or six hours—a devotion to the details of organisation that speaks well for their enthusiasm in the cause of automobilism.

Those members of the public who attended seemed to take only a transient interest in the event, and few there were who stayed long. Probably the business reminded them too much of the Duke of York, who—

" had two thousand men ;
He marched them up the hill, and marched them down again."

Evidently some of the drivers, and many of the observers felt that the experience palled after awhile. In "The Light that Failed" Rudyard Kipling—himself a motorist, be it remembered—tells how Dick Helder discovered that with a limited income sausages and mashed potatoes were the best food, and meditated in this wise :—"Now sausages once or twice a week for breakfast are not unpleasant. As lunch, even with mashed potatoes, they become monotonous. As dinner they are impertinent. At the end of three days Dick loathed sausages, and, going forth, pawned his watch to revel on sheep's head." Similarly, two or three trips up Dashwood Hill were tolerable, but at the fourth some drivers felt inclined to utter monosyllables; at the fifth ascent they could have revolted and flown away from telephones and stop-watches; at the seventh try they did retire, shaking the dust of the place from their rear wheels in a perfect frenzy of relief. Mr. A. J. Balfour came along—on the Hon. J. Scott-Montagu's car—and divided his attention between a plate of cold beef and the passing cars. Having no Opposition to watch, he seemed to hugely enjoy his *al fresco* entertainment, and regarded the performances of some of the vehicles as really remarkable. After the Rev. Arundel Wharton had trusted himself on Mr. Alfred Harmsworth's 40-h.p. Mercedes, and returned safely, the Leader of the House of Commons took a seat by Mr. Campbell Muir, and,

bending to the breeze, journeyed up Dashwood Hill in 1 min. 13 secs. Fortunately no police had been engaged for the event, or we might have seen one of the Chief of Lawmakers summoned for breaking the laws he has helped to form. It might have been uncomfortable for Mr. Balfour; but it would have been a good thing for the industry. Who is the leader of opinion—he it in Society or in politics—who will become a martyr for the cause? Then Mr. Scott Montagu ascended the hill with Mr. Muir, and, whether the driver felt his responsibility less or not I do not know, but this I can say—he beat Mr. Balfour's time by two seconds. The road conditions were not of the best, for, although the surface was dry, it was very loose. Some of the motor-bicyclists found the ascent somewhat trying, and a few had to finish on foot, their general demeanour indicating a weariness of the flesh as well as vexation of spirit. Towards the middle of the afternoon I made the ascent of the hill on the 12-h.p. M.M.C. car, and found that many motoring enthusiasts were lingering by the wayside, one interesting little group consisting of Messrs. W. J. Peall, E. W. Peall, Percy Richardson, G. F. Pedley, Banks, and my two colleagues, who had chosen the higher part, and were surveying the scene with the patience associated with those who have had tyre troubles—and surmounted them. Once on the top, we passed through the avenue of trees to a secluded and level piece of road, where we decided to make a record between milestone and milestone. With a flying start the car got into a fine swing, and, nothing heeding, was at the second milestone ere the minute hands had made its second revolution; as to the precise time I am discreet enough to be silent. But as to the scenery I saw little; the trees appeared to leap with the agility of kangaroos, and my eyes ran copious tears. One man on the pathway seemed inclined to hold converse, but ere I could offer a remark he was gone—a case of incivility that should be inquired into by our educational authorities. Returning to the hill we descended in dignified style, for we were on official ground. We were half-way down when a Gillet-Forest delivery van, which was ascending for the sixth time, jibbed, owing, it transpired, to the wearing of the leather of the clutch. The passengers dismounted and went to the head of the vehicle just as though it had been an ordinary horse-drawn conveyance. Without warning the car commenced to run back, and it seemed as though an accident was inevitable, when the driver, with a presence of mind that should secure him a diploma for nerve, steered the vehicle into the hedge—nearly running down a couple of photographers and smashing their instruments—where it came to a stop. Neither the



AT THE STARTING POINT OF THE HILL CLIMB.
[Photo by] (Mr. C. Friessell.)

driver nor the car was hurt; the incident was over in less time than it takes to relate, but it was exciting enough while it lasted.

Mr. Grahame White, who is well known as a dashing driver, with plenty of celerity in his movement, added a little zest to the proceedings by rushing up the hill at a terrific pace on a 24-h.p. Mors. The way in which he came down was even more alarming, for, slipping in his high speed, he simply rushed down the hill and round the curve at the bottom at a pace which must have

been a mile a minute. It might have been a brilliant exploit, but its wisdom was questionable.

Towards the end of the afternoon the number of motorists present visibly thinned, and our journalistic trio mounted our trusty car for the return. A halt was made for necessary lubrication at West Wycombe, and then, with plenty of dust in the rear, we made way to Beaconsfield, making another stop to visit the many scenes of historical interest there to be found. There is no railway station at this town of fine open aspect, and its hostelrys—the "White Hart" and the "Saracen's Head"—are well preserved, and ready to join in the revival that motoring will bring. In the olden days the Oxford coaches changed horses here while the passengers changed coin. Motorists should prove equally profitable to the innkeeper.

While at Beaconsfield a few motor-vehicles sped by, Mr. Grahame White alarming the natives of the place as he drove through on a car from which a part of the silencer was missing. A series of sharp loud reports as though a battery was indulging in field practice startled everybody, and from every doorway peered anxious faces wondering why motorists should disturb the quietness of the scene. We, on our part, were in no hurry to return, so the journey home was made *via* Windsor. Leaving the town we turned into the Slough road. We found plenty of interest,

they proved to be Messrs. Banks and Coles taking advantage of the opportunity to study the gear-box—truly an interesting sight. Expressing the hope that they would profit by their lesson, we next came upon an awkward little hill with a deep descent and a nasty turn at the end—just the sort of pathway along which to send a friend out of a spirit of revenge. Regretfully leaving the road to Burnham Beeches, the way was made across Farnham Common to Farnham Royal, so called from the fact that the manor used to be held in return for the supply of a glove for the king's right hand at the Coronation. Away into Windsor, and thence *via* Staines to town. Most of the vehicles were back in Lillie Hall shortly after tea, and there the process of emptying tanks was again carried out.

Below are the results of the trials as officially declared, and, although they are subject to correction after reference of special points to the honorary observers, they are not likely to be substantially affected by subsequent analysis. In connection with this table Trial A is the non-stop run from Lillie Hall, S.W., to the foot of Dashwood Hill, about thirty-three miles; Trial B the return journey over the same course *via* High Wycombe, Beaconsfield, and Uxbridge; and Trial C is the average speed up Dashwood Hill, arrived at by taking a mean of the time records of seven ascents.

No.	Car.	Entered by	TRIAL A.			TRIAL B.			TRIAL C.		
			Stops.	Average speed, miles per hour.	Consumption. Galls.	Stops.	Average speed, miles per hour.	Consumption. Galls.	Stops.	Average speed, miles per hour.	Consumption. Galls.
1	5-h.p. Baby Peugeot ...	Friswell, Ltd. ...	none	up to legal limit	'84	none	up to legal limit.	'843	one	10.59	'337
3	2-h.p. Hewetson Bicycle ...	J. C. Nixon ...	Withdrawn on outward journey, owing to short			circuit					
4	10-h.p. Wolseley ...	Wolseley Co. ...	none	up to legal limit	1.375	none	up to legal limit	1.25	one	10.31	'8
5	16-h.p. Benz ...	Hewetsons, Ltd. ...	"	"	2.112	No details taken, car towed another home			Belt broke on hill		
6	6-h.p. Benz ...	Hewetsons ...	"	"	1.05				one	8.47	'931
7	8-h.p. Peugeot ...	Friswell, Ltd. ...	"	"	1.375	none	up to legal limit	1.168	none	10.43	'518
8	12-h.p. Gladiator ...	Motor Power Co. ...	"	"	1.27	"	"	1.24	"	14.20	'618
10	7-h.p. Gillet Forest Van ...	Vaughan and Brown ...	"	"	1.812	"	"	1.75	three	4.35	1.175
11	Century Tandem ...	Century Co. ...	"	"	1.125	"	"	1.15	none	10.19	'562
12	4½-h.p. De Dion ...	J. M. Gorham ...	"	"	1.375	three	"	1.58	"	9.38	'525
13	4½-h.p. Rochet ...	British and For. Motor-Car Co. ...	"	"	not measured	none	"	.75	two	7.88	'3
15	6-h.p. Weston Steam Car ...	Weston Motors ...	"	"	2.75	"	"	.3	none	11.10	—
17	2½-h.p. Humber Bicycle ...	Humber, Ltd. ...	one	—	.368	—	—	.46	—	19.55	'08
19	1½-h.p. Ormonde Bicycle ...	Ormonde Motor Co. ...	none	up to legal limit	.431	none	up to legal limit	.393	none	13.40	'131
20	1½-h.p. " " ...	" " ...	"	"	.27	"	"	.2	Failed on second attempt		
21	9-h.p. Firefly (Herald) ...	Firefly Motor Co. ...	"	"	2.5	Failed on second ascent; trial abandoned.					
23	2½-h.p. Excelsior Bicycle ...	H. Martin ...	"	"	.118	none	up to legal limit	.25	none	18	'118
24	9-h.p. New Orleans ...	New Orleans Motor Co. ...	"	"	.943	"	"	1	one	9.39	'625
25	14-h.p. " " ...	" " ...	Withdrawn at High Wycombe owing to heated bearing			at Acton; trial abandoned			regarding speed down hill.		
26	8-h.p. Foster Steam Car ...	Blaxton Eng. Co. ...	Run into by electric tram			to infringement of rules			one	11.77	.1
27	28-h.p. Mors ...	Roadway Autocar Co. ...	none	up to legal limit	.318	one	11.92	.25	(broken belt)	10.77	'805
28	1½-h.p. Phoenix Bicycle ...	J. Van Hooydonk ...	"	"	1.93	none	up to legal limit	1.125	none	8.59	1.3
29	10-h.p. Georges Richard ...	Mann and Overton ...	"	"	1.93	none	up to legal limit	1.125	none	8.59	1.3
30	2-h.p. Minerva Bicycle ...	D. Citroen ...	No records owing to accident at Ealing;			owing to tyre troubles			—machine run into.		
31	10-h.p. Serpollet Steam Car ...	Speedwell Motor Co. ...	none	up to legal limit	2.5	none	up to legal limit	2	none	8.59	1.3
32	12-h.p. Gobron-Brillié ...	W. H. Kitto ...	none	up to legal limit	2.5	none	up to legal limit	2	none	8.59	1.3

for the scenery was typical of that harmony of colour that makes the English landscape so delightful. Through some trees we just descried the way to the Hall Barn, where the poet Waller lived for many years, and a few yards farther came upon something less ancient. Standing in the road was a Brown motor-car, and two protruding forms were seen. On getting nearer

GREAT expectations were formed amongst the natives of Ceylon recently when it was rumoured that a motor-car was to become part of the equipment of one of the estates in the Lunugala district. It is owned by Mr. Stanley Green, and when it arrived hundreds of natives and estate coolies crowded to see the vehicle.

CONTINENTAL NOTES.

By "AUTOMAN."

THE month of May, 1902, will always be regarded in the annals of automobilism as a red-letter month, for it inaugurated a step with regard to motoring which has come about so noiselessly that we hardly stop to realise the importance of it. France has given more than its official sanction to high speeds on the open roads, for a department of its Government, namely, the Ministry of Agriculture, is actually the promoter and organiser of a road race, where not only is the highest possible speed encouraged, but a premium offered for the winner.



THE DE DIETRICH CAR READY TO START FROM NICE ON THE RETURN JOURNEY.

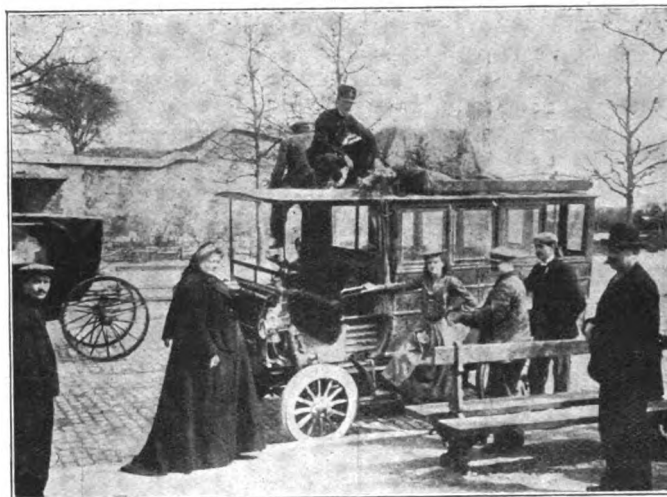
Second Class :

1. De Dion-Bouton, 8-h.p., 17 litres, 720.
2. Darracq, 6-h.p., 24 litres, 200.
3. Ader, 7-h.p., 24 litres, 500.

Third Class :

1. Bardon, 5-h.p., 7 litres, 790.¹
2. Georges Richard, 8-h.p., 11 litres, 500.
2. La Societe Nancieene, 11 litres, 400.

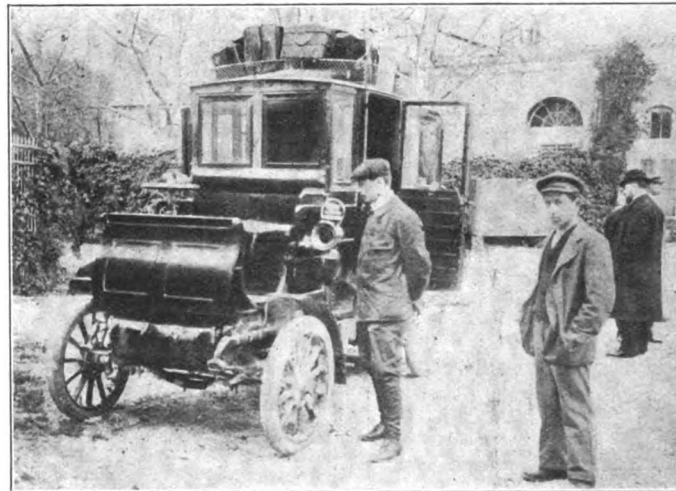
The results, however, show that the classification has not been good. It will be remembered by the readers of the *Journal* that there were three classes, namely, first, cars carrying less than 100 kilos (1 cwt. 2 qrs. 2 lbs.), secondly, cars carrying between 100 kilos and 500 kilos (9 cwt. 3 qrs. 10 lbs.), and, thirdly, cars carrying



THE DE DIETRICH CAR MET AT PARIS BY THE OCTROI AUTHORITIES.



THE CANNSTATT-DAIMLER LORRY AT VALENCE.



THE PEUGEOT BROUGHAM AT MARSEILLES.

THE RECENT FRENCH HEAVY MOTOR-CAR TRIALS.

[Le Chauffeur.]

THE opening of the "Circuit du Nord" took place at Beauvais on Saturday morning last, when at six o'clock twenty-one heavy traction vehicles left the Bertin Garage on the consumption trial of eighty-five kilometres, which is the distance which separates Beauvais and Paris—about fifty-two English miles. Out of a total of twenty-three entries, there were twenty-one starters, and out of the twenty-one starters only one failed, and this was a 7-h.p. Peugeot, which failed solely on account of tyre troubles. The day was fine but cold, and the roads as a rule were in good condition, though there was a certain amount of skidding by some of the heavily loaded vehicles. The following were the results, arranged in the order of the results according to the consumption per ton of useful load :—

more than 500 kilos. In the first category there were no entries at all, in the second there were only four entries, the rest of the entries being of the third class. It is noticeable as a result of the competition that the light cars are by far the most economical in the consumption of petrol per useful ton of load, and this result seems remarkable at first sight, and will be a problem for the future. It may, however, be accounted for in a great measure in the pneumatic tyres of the lighter vehicles.

WHILST these lines are in the printers' hands, the tourist and speed contest will be taking place, and the duel between Panhard and Mors will have been once more decided. There is not much change as far as the *chauffeurs* are concerned, and the names

of those in the speed trial are almost identical with the starters for the Paris-Berlin last year's race, with the exception that the Mercedes stable is not represented at all. The Hon. C. S. Rolls and Mr. C. Jarrott are the only Englishmen in the race, and all the cars are of French make, save two, which come from the workshops of M. H. P. Dechamps, the indefatigable Belgian. I notice that Gabriel, who was so successful for Darracq at Nice, has gone over to Mors.

I CALLED at the Mors Works a few days ago, and M. Huillier was kind enough to show me round and point out the improvements that have been incorporated in the 1903 model which makes its appearance for the first time in the Circuit du Nord. The steering gear is absolutely irreversible, no amount of shock on the wheels making any impression on the hand of the conductor. Another point of great interest is the ingenious device for easing the springs, and avoiding the jolts of a bad road. All those who are used to high speeds on the road know the sensation of passing over an inequality therein. The springs are compressed and released so quickly that the wheels bounce and rebound. In the new Mors cars the springs are fitted on pneumatic dash pots in such a manner that this jerk is entirely done away with, and, in M. Huillier's own graphic words, stick to the ground like glue. What struck me most is that these new racing cars have ceased to be the monsters of last year.

THE *Commission Sportif* are to be congratulated on the wise resolution they adopted last year, when they inaugurated the 1,000 kilo limit. This new rule has changed the efforts of the manufacturers of motor-cars from a competition in which brute force was the object to one in which science and intelligence alone will triumph.

THE "Passe-partout" has arrived safely in Paris, but has not yet gone off on its journey north-west. It is remaining in Paris for some little time in order to have certain alterations made.

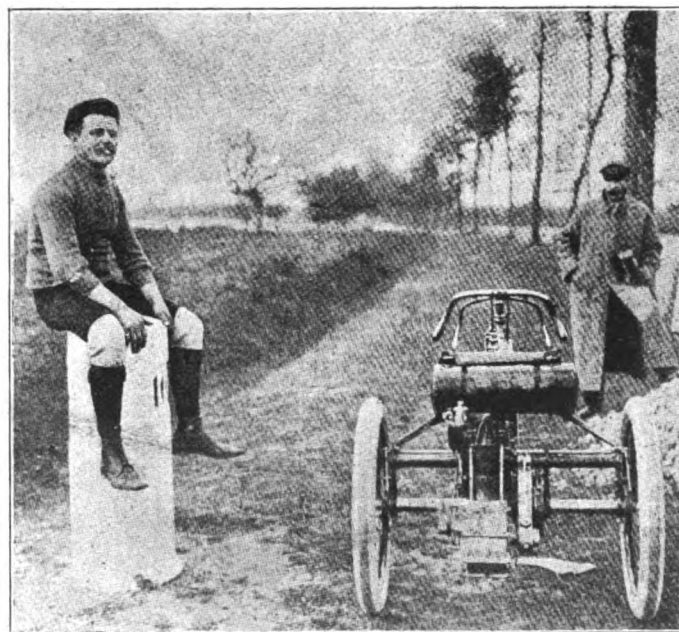
AMONGST the ranks of automobilists in France there are a great many painters, and so it is that the A.C.F. has organised a picture exhibition in the Salle des Fêtes. The paintings are all by members of the Club, and are well worth a visit, although there is nothing especially connected with automobiles as the subject of these works of art. The motor-car has hardly got so far as that. Probably next year we shall see something in that direction.

SOME few weeks ago I mentioned in these columns the question of the magneto sparking arrangements with regard to weight of vehicle in competitions. According to racing rules, accumulators for electric ignition were not taken account of in the weight of vehicle, whilst the magnetos in the magneto electric arrangement were weighed with the car. This was obviously unjust, and I am glad to see that the following new rules have been added to the racing list by the *Commission Sportif*. (1) Cars which have a mechanical contrivance driven by a motor and with which the necessary power is produced for ignition purposes shall have 7 kilos (15 lbs. 6 ozs.) weight allowance. (2) The weight of lamps and horns shall not be counted, but only the brackets for carrying the lamps. (3) Records made where there are turns and in which time allowances have been made for the turns shall not be recognised at all.

ON Monday morning M. Severo decided to take a trial of his air-ship, which I described to the readers of the *Journal* some little time back. He started shortly after five o'clock in the morning from his balloon shed at Vaugiraud, his wife being there to see him off. Just before mounting into the car with his *mecanicien*, M. Suchet, he handed his wife his purse, saying to her: "I shall not want it up in the air, and you had better take care of it," and the balloon was loosed and mounted to about 400 metres, going against the wind towards the E.N.E. It went over the goods

station of Montparnasse, and on in the direction of Vincennes. When just over the Avenue du Maine the spectators noticed that something was wrong, and M. Lachambre, the well-known balloon maker, affirms that he saw fire. The air-ship deviated in its course towards the left, as if the intention was to turn back home, and immediately after, to the horror of the spectators, an explosion occurred, and the whole envelope burst into flame, whilst the solid part of the frame and car, with the motors, M. Severo, and the *mecanicien* made one plunge towards the earth in a vertical direction. The unfortunate occupants were both thrown out and smashed on the pavement of the Avenue du Maine. This sad tragedy occurred at 5.40 a.m., as M. Severo's watch bears witness, for the shock stopped it. The consensus of opinion of expert spectators is that the aerostat rose too quickly on account of the sudden expansion of the hydrogen, due to the sun's rays, and that the hydrogen, escaping through the automatic valve, gathered between the balloon and the car, and was ignited by the exhaust from the motor, and, being already mixed with air, produced an explosion which immediately ruptured the balloon, and set the whole airship in a blaze. This view is strengthened by the fact that the centre of the explosion, judging from the wreckage, was near the motors, and the body of the *mecanicien*, who was by the motors, was charred out of all recognition, whilst the body of Mr. Severo, who was in the front of the car, showed no marks of burns whatever.

IN our last issue we mentioned that a few days ago Osmont, the professional motor-cyclist, covered a mile, with a flying start, on a De Dion motor-tricycle, in the record time of 56.1.5 sec.,



beating the old record by 3.5 sec. Our illustration, from *La Vie au Grand Air*, shows the intrepid rider enjoying a cigarette just prior to his record ride.

THE awards in the recent heavy-weight trials between Paris and Nice, organised by our contemporary, *La France Automobile*, are announced as follows:—2nd Category, A, 12-seated omnibuses.—1st prize, De Dietrich (No. 5); 2nd prize, De Dietrich (No. 6); B, hurries carrying over one ton.—1st prize, Daimler lorry (No. 8). 3rd Category.—A, 8-seated omnibuses.—1st prize, Peugeot (No. 13); B, delivery vans carrying at least 500 kilos.—1st prize, Gillet-Forest (No. 10). In addition the driver of each vehicle which arrived at Nice will receive a bronze medal from the French Automobile Club. We reproduce on page 232 several snapshots taken during the trials.

Mechanical Flight Up-to-Date.*

BY SIDNEY H. HOLLANDS.



CHAPTER VII.—continued from page 168.

THE subdivision and arrangement in tiers of sustaining surfaces has proved highly advantageous in Mr. Hargrave's "cellular kites," previously referred to. It may be added that in these the detachment into groups of "cells"—the two or more groups separated some distance longitudinally—has given a remarkable degree of aerial stability to the structure. To quote Mr. Hargrave's own words: "One thing about these cellular kites is worth special mention, *they are perfectly stable and certain in their action*, and need no careful adjustment." Referring to an ascent on a series of his large cellular kites (Fig. 6) Mr. Hargrave says further:—

"As few experimenters can afford to lay a rail-track of sufficient length to properly try a flying machine I thought it would be well-spent time if I not only devised but made and went

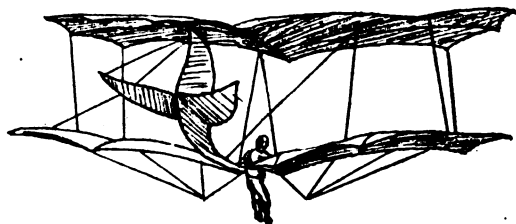


FIG. 8.—LILIENTHAL'S "DOUBLE-DECKER." (151 sq. ft. of Surface.)

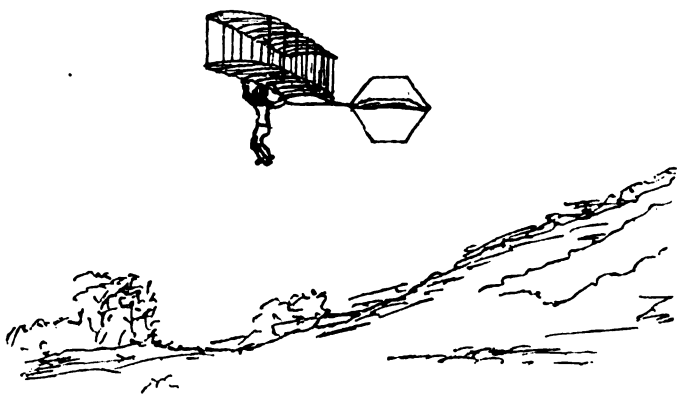


FIG. 9.—CHANUTE'S "DOUBLE-DECKER." (134 sq. ft. of Surface.)

up on a series of kites that could be converted into a flying machine by adding a motor. Or the kites to be merely used as a means of safely lifting a flying machine from the ground, trying it, and, if it flew, slipping the moorings, as it were, and flying free. And finally picking up the kite line and descending without risk. . . .

. . . I provided myself with four kites (of an aggregate weight of 34½ lbs. and an aggregate lifting surface of 232 square feet). . . . They were toggled on to the same line" (at distances of about 48 feet; a sheave-block tackle, which was anchored to a spring-balance on the ground, was used for hauling in and paying out line). . . .

* All rights reserved.

"The sling seat was then toggled on and I got aboard with a hand anemometer and a clinometer, the lot were then pulling 180 lbs. I found the velocity of the wind to be 18.6 miles per hour when it raised me; the wind fell lighter and I came down. However, a long and strong gust eventually came and sent me up like a rocket.

"A careful reading showed the wind velocity to be 21 miles per hour with 240 lbs. pull on the spring-balance. The weight aloft was a total of 208 lbs.

"I think this experiment marks an epoch in my work. Although the altitude attained was nothing to speak of, the conditions would be identical if the kites had been held by a mile of piano wire instead of the clothes line used.

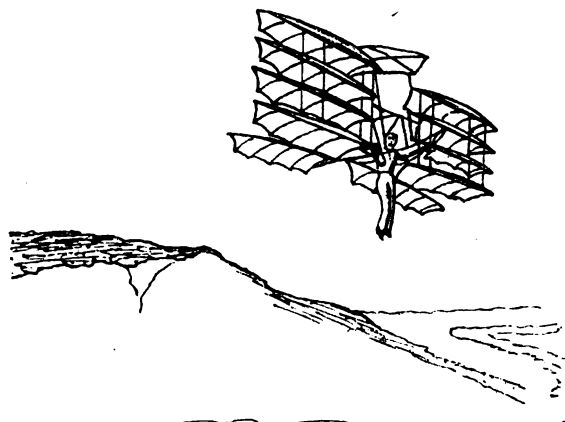


FIG. 10.—CHANUTE'S MULTI-WING MACHINE.

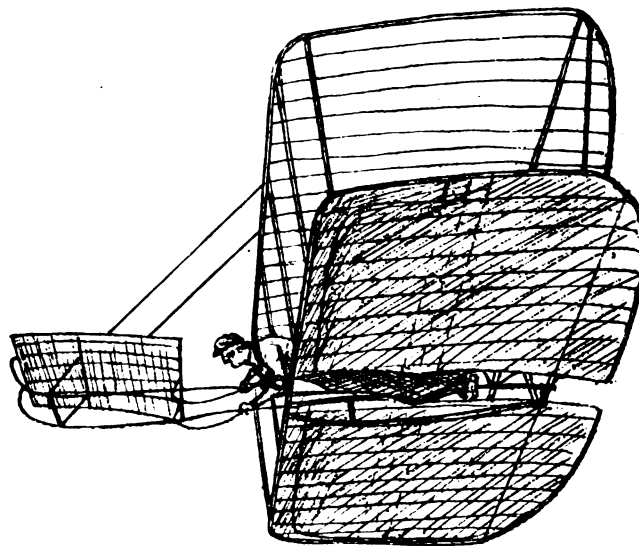


FIG. 11.—WRIGHT'S "DOUBLE-DECKER." (308 sq. ft. of Surface.)

"The particular steps gained are: that an extremely simple and compact apparatus can be made, carried about, and flown by one man, and that a safe means of making an ascent with a flying machine, of trying the same without any risk of accident, and descending, is now at the service of any experimenter who wishes to use it."

An experimental aerial machine made by Mr. Horatio Phillips in 1893 (Fig. 12) depended *solely* for sustentation on multi-superposed slats, or very narrow aerocurves. These were very long and closely spaced, being 22 feet long by only 1½ ins.

wide, and spaced $2\frac{3}{4}$ ins. *immediately* above each other; the frame in which they were set, each at an angle of 15 degs., was 20 feet wide and 9 feet high. The structure closely resembled a colossal Venetian blind more than anything else. This was erected on a low triangular three-wheeled under carriage or truck, which also carried a small rotative steam motor and boiler (loco. type), developing about 8 h.p. and driving a 6-ft. fan-propeller (set in front of the slat frame) at about 600 revolutions

devoid of stability. It will be obvious that a *stepped* system of *semi*-superposed surfaces, such as I described earlier herein (Fig. 7), does provide considerable parachutic surface in addition to its other advantages.

Some of the late Dr. Lilienthal's highly instructive sailing-flight experiments were conducted with duplex-superposed surfaces, or "double-deckers" (Fig. 8), as also were those of the late Percy S. Pilcher in England, and of Messrs. Chanute, Herring,

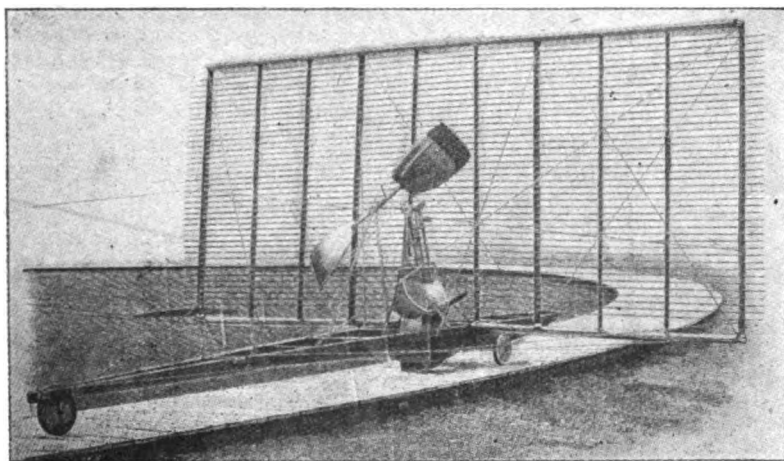


FIG. 12.—PHILLIPS' AERIAL MACHINE.

per minute. The machine ran on a circular track of about 50 feet diameter around a central post, to a swivel on which it was linked or tied by wire guys.

The propeller thus drove, or rather pulled, the machine around the track at an estimated speed of 25 miles an hour. At this speed when tried, and *when facing the wind* (through about one-third of the circle) it rose about two feet clear

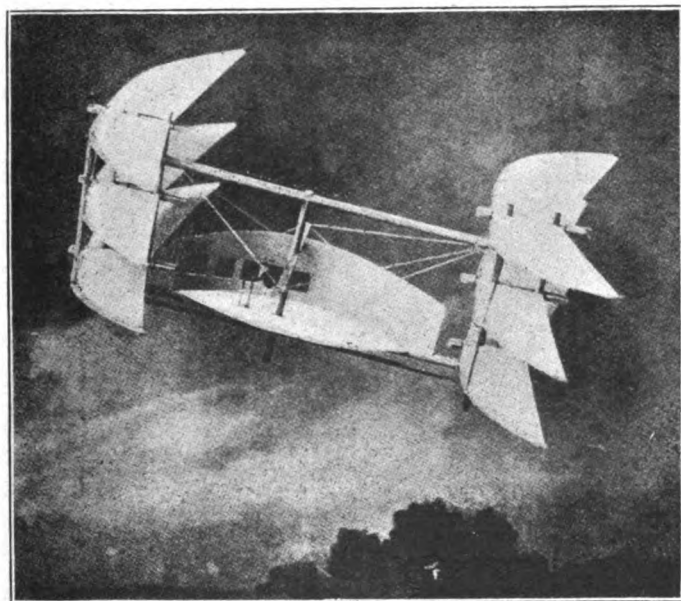


FIG. 13.—LAMSON'S FIRST TYPE OF "AIR-SHIP." (Superposed Planes.)

of the track. The aggregate area of slat surface or aerocurves (Fig. 1) was 137.5 square feet, and the total load lifted was 402 lbs.

This trial was interesting as an experiment in aero-dynamics, but of course the machine was not of a type in the least adapted for a practicable aviator. One very essential feature was conspicuous by its absence, viz., surface for parachutic action, a provision for safe descent, besides which the machine was quite

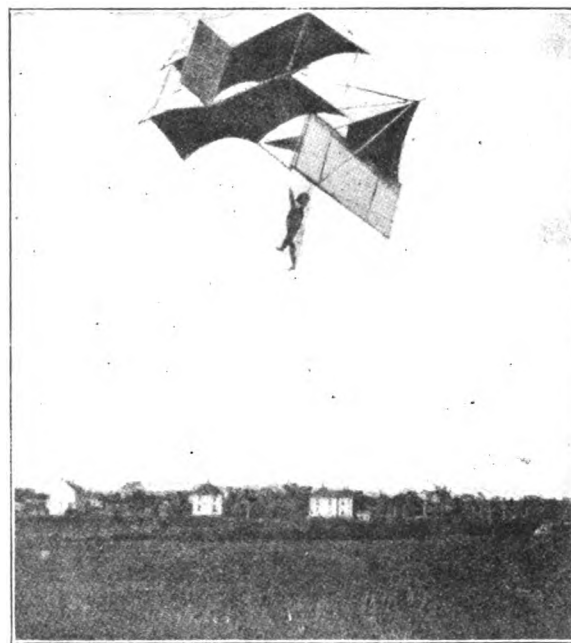


FIG. 14.—LAMSON'S "AIR-SCHOONER," WITH DUMMY PASSENGER.

and Wright (respectively) in America (Figs. 9, 10, and 11). The latter, the brothers Wilbur and Orville Wright, of Dayton, Ohio, are the most recent experimenters in this branch of flight and have made some bold departures, both in methods and in type of soaring machine, from all precedent, but, fortunately, so far successfully. Well, daring, combined with discretion and an adequate knowledge of aerial phenomena, are just the qualities wanted for this work, and may they continue to have every success. Mr. C. H. Lamson, another American, in 1896 made and tried some large models (superposed), but without motors (see Figs. 13 and 14).

(To be continued.)

Mr. G. H. Bechtel, of Southport, has been appointed manager of the Road Carrying Company's light car department. Communications for him should be addressed to the offices, 7, Victoria Street, Liverpool.

THE Albion Motor-Car Company, Limited, have just completed two Albion cars to carry six persons for shipment to Singapore, where they have had a car running for a considerable time with successful results.

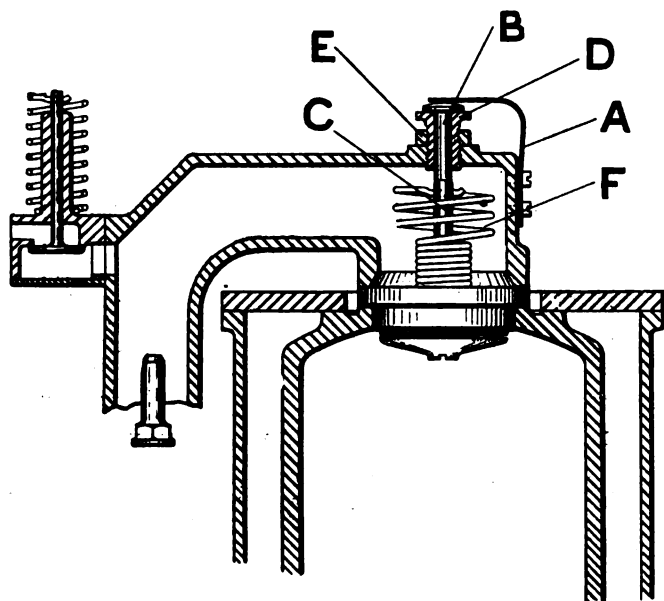
THE disused Wesleyan Chapel on the Springfield road, Chelmsford, has been acquired by Mr. G. Taylor for motor-car works and shops. Mr. Taylor will devote himself entirely to the sale and repair of motor-cars.

THE Electric Ignition Company have lately introduced a renewable wet battery for motor-cycles and cars. It consists of two twin cells giving four to five volts, and, as the name implies, has the advantage of being renewable when exhausted.

THE Jackson Duplicate Tyre Syndicate, Limited, has been registered with a capital of £2,000, to carry on the general business of cycle manufacturers and dealers, indiarubber tyre manufacturers, carriage and motor-car builders, etc. The registered office is at 5, Crouch Hill, London, N.

IMPROVEMENTS IN PETROL MOTORS

WE illustrate this week two small attachments to an internal combustion engine invented by Messrs. E. F. Bradley and W. R. Pidgeon, which they have found to be of great service. One is a small spring attachment placed on the induction-valve, which keeps the valve just off its seat except during compression. It consists of a strong spring *A*, pressing down on a plug *B*, which has a very limited travel, and which itself presses on top of the valve-spindle *C*, as shown to the right of the drawing. The amount the valve is held open by this spring is adjusted by the gland *D* and lock-nut *E* to about one-hundredth of an inch, and the strength of the spring *A* is made amply sufficient to overcome the stickiness of a greasy valve seat, but not enough to resist the compression. Thus when the engine is turned round slowly, at starting, for instance, there is no back pressure, but as soon as the piston moves quickly the pressure



closes the valve, and the engine works in the ordinary way, except that the valve opens more readily, and so admits a larger charge, thereby slightly increasing the power of the engine. The valves, moreover, seldom need cleaning, and will even, if necessary, work with common benzoline. The use of this spring also renders unnecessary the application of an exhaust-valve lifter.

The other attachment is shown to the left of the drawing, and consists of a small valve inserted in the air-pipe, between the carburettor and the induction-valves. This valve opens to the air, and is closed by a light spring, and is so proportioned that at slow speeds it remains shut, but as the engine speeds up it begins to work, and continues to open wider and wider as the speed, and therefore the suck on the air, increases. Messrs. Bradley and Pidgeon have found, by experiment, that the jet of the carburettor must be larger for low speeds than for high ones to get the maximum power out of the engine at any particular number of revolutions per minute, and as it is difficult to adjust so small a thing as the hole in the jet, they put on the snifting-valve, mentioned above, which automatically keeps the mixture approximately correct for all speeds. At starting, the jet being large, the supply of petrol is also large, and the engine starts readily, then, as it speeds up, the snifting-valve comes into action, and automatically lets in more and more pure air as the speed increases, thus keeping the mixture correct, and the power of the engine at its maximum for all speeds. When both attachments are put on to an engine, its power is claimed to be increased, and it is much more easy to start. It can also be almost pulled up on a hill without stopping, and when allowed to, picks up more strongly. Back-fires also do not occur, provided the charge is ignited electrically; indeed, the supply can be slowly throttled between the snifting-valve and induction-valves, until entirely shut off, without causing a back-fire. The drawing also shows

one of Messrs. Bradley and Pidgeon's improved springs (*F*) on the induction-valve, which renders nuts or stops on the valve stem unnecessary.

THE NEW ROOTS AND VENABLES HEAVY OIL CAR.

MESSRS. Roots and Venable have lately introduced several improvements in their two-seated heavy oil car. The accompanying illustration gives a general view of the latest model, which is, it will be noticed, fitted with inclined wheel steering in place of the old tiller. The engine, which uses ordinary petroleum as fuel, is located about the centre of the frame. It is of the horizontal type having a cylinder $4\frac{1}{2}$ in. in diameter by $5\frac{1}{2}$ in. stroke and developing $3\frac{1}{2}$ h.p. at a speed of 750 revolutions per minute. The water circulation is maintained by means of a pump and a special radiator consisting of a number of coils of copper tubing, mounted so as to surround the fly-wheel of the motor, advantage in this way being taken of the cooling effect produced by the air set in motion by the flywheel. In addition a radiator is mounted between the front wheels. Tube ignition is adopted, the vaporiser and the ignition tube being heated, at starting, by a blow lamp for about five minutes. The vaporiser consists of a gunmetal cylinder, in the centre of which is arranged the admission tube. A part of the air drawn in by the engine enters through a side tube and circulates round spiral passages in the walls of the cylinder, after which it emerges in a heated condition into the intake pipe. Here it catches up and sprays paraffin oil, which is delivered into its path at periodical intervals by a reciprocating plunger reciprocating between the intake passage and a recess filled with oil. The oil, sprayed and vaporised by the intruding heated air, is carried in through the induction valve, additional air for combustion being supplied by a valve situated in the rear end of the cylinder. The engine is fitted with a governor, which automatically acts on the reciprocating oil-delivering mechanism so as to cut off the supply while the governor is in action.

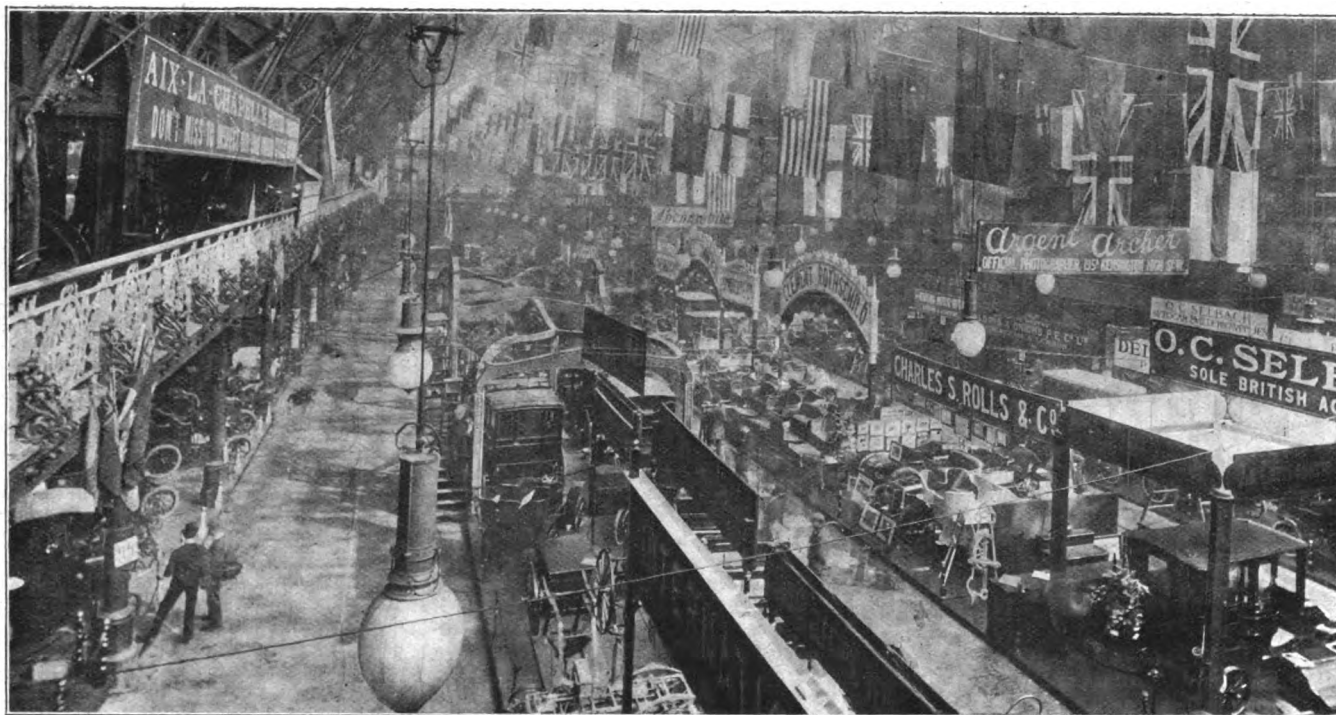


By means of a lever operated by a button near the driver's seat the speed of the engine can be reduced down to 400 revolutions, so as to limit vibration and noise when for short periods the car is stationary. Coming now to the transmission, two speeds are provided. The power is conveyed from the engine shaft to the rear axle through two friction clutches and two chains, intermediate speeds being obtained by putting the clutches in such a position as to allow a little slip. When fully engaged the two drives provide for speeds of the car of five to fifteen miles an hour, with the engine running at a normal speed. One of the drawbacks to heavy oil cars has hitherto been the unpleasant odour they give off. The makers claim that with their latest engine, the combustion is so complete that they make no more smell, although using heavy oil, than petroleum spirit motors. In fact, they state that if smoke is made either by their heavy oil motor, or by a petrol motor, it is due in each case to excess of lubricating oil in the crank chamber.

THE Motor-Car Exhibition at the Agricultural Hall.



FOURTH NOTICE.



SCENE AT THE AGRICULTURAL HALL.

PROBABLY no display in the Exhibition attracted more attention than did that of the Daimler Motor Company, Limited. So extensive has been the booking for their new types of cars that, in order to keep faith with customers in the matter of deliveries, the company were compelled to partially sacrifice the comprehensive collection of carriages originally arranged for. Notwithstanding, the company's exhibit was exceedingly interesting, particularly from an engineering point of view, illustrating as it did the great advantages of the new over the old types of cars. Apart from this, the fact that there was also shown, in an incomplete condition, the magnificent 22-h.p. carriage of the 1902 type, designed and built to the order of the King, and of which we published an illustration in our issue of the 26th ult., rendered the stand attractive to visitors. The *chassis* is similar to the standard type described, with the difference that its wheel base is 9 ft. The body is exceptionally roomy, and gives accommodation for eight passengers—two on the front seat, and six in the back of the car. The two rear seats of the *tonneau* are provided with rounded-back rests, and the occupants are completely protected from dust by curved glass panels, reaching to the top of the canopy which covers the carriage. This canopy is also provided with side curtains, as well as a glass panel above the door which gives access to the rear part of the carriage. The car is painted crimson-lake lined red, and is to be luxuriously upholstered with blue morocco leather. The wheels are of equal size, and are fitted with Goodyear pneumatic tyres. Another handsome carriage was the 22-h.p. *tonneau* built to the order of the Earl of Craven. The body is painted ivory-white with crimson lining, and is upholstered with red morocco leather. It is fitted with a new type Daimler motor, and is provided with four forward and reverse speeds. The equal-sized wheels (36 in.) are shod with 4½ in. Michelin Clipper pneumatic tyres. A 22-h.p. *chassis* was

also staged, likewise one of the 12-h.p. cars, at the side of which was a 12-h.p. *chassis* of the old type, in order that comparison might be made between the two. We do not propose to deal at length with the new models, as a lengthy description, with illustrations, was given in our issue of February 22nd last. A few details of the new 12-h.p. Daimler may, however, be of interest. With regard to the engine, this comprises two cylinders, the cam-shaft, with its valve motion, being entirely encased. The cylinders are cast in one piece with the heads, thus avoiding any water joint. The governor is fitted on one end of the cam-shaft, and it acts on to two throttle-valves, placed immediately above the induction-valves. Both electrical ignition and tube ignition are provided for in a particularly convenient manner. A single block carries the ignition tube and the electric ignition plug. The commutator is placed upon the dashboard of the car, so as to be easily accessible. The float-feed carburettor has a deep float to permit any sediment or foreign matter to fall to the bottom below the suction outlet; the carburettor is also, it may be noted, fitted with a water-jacket which can be supplied with hot water from the cylinder jacket. Other features of this vehicle are the automatic lubricator, which supplies the motor with the exact quantity of the oil required, and the facility with which the valves can be removed. The water-tank is now situated immediately below the radiator in front of the car, thus shortening the water connections very considerably. The radiator is built up of small flanged pipes set into aluminium chambers at each end. The friction-clutch has a single conical surface, instead of the double concentric device formerly employed. The change-speed gear is exceedingly compact, and is now arranged behind the countershaft instead of in front. It is fitted in an aluminium casing, which encloses the first motion shaft, the second shaft with its sliding wheels, the differential gear, and the bearings for the countershaft. The motor is carried in an angle steel frame, which is separate from

and suspended below the main frame itself. The main frame is built up of wood strengthened by steel plates. The different speeds are operated by a single lever which is securely held in a central position in a special quadrant, and which, after being moved either to the right or the left, can be moved forward or backward, thus giving four positions. The brakes on the rear wheels are applied through a compensating device which consists of a swinging beam, whose centre is connected with the operating pedal, and whose ends are each connected with one side brake-strap. Ring lubrication is employed for the countershaft bearings. The advance made was strikingly demonstrated on the stand by means of an old 12-h.p. placed side by side with a new type *chassis* of the same power. The former weighs 25 cwt., and the latter 15 cwt.—a saving of 10 cwt., without any loss of strength or stability. On the motor alone a saving in weight of $1\frac{1}{2}$ cwt. has been effected, while the difference between the two frames is even more pronounced, for a reduction of $8\frac{1}{2}$ cwt. has here been secured, and yet to the untechnical visitor it was evident that, in many respects, the new carriage is stronger than the old one. Of even more interest is the new 22-h.p. Daimler (Fig. 106). All four road-wheels are 36 in. in diameter, of the artillery pattern, with steel axle-

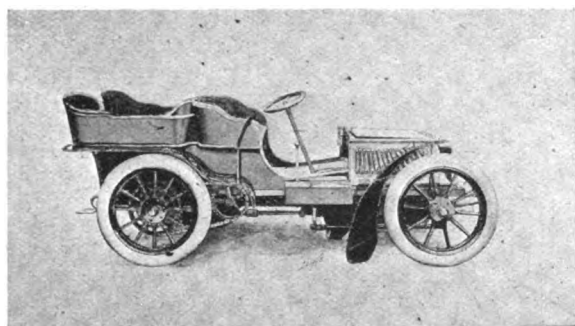
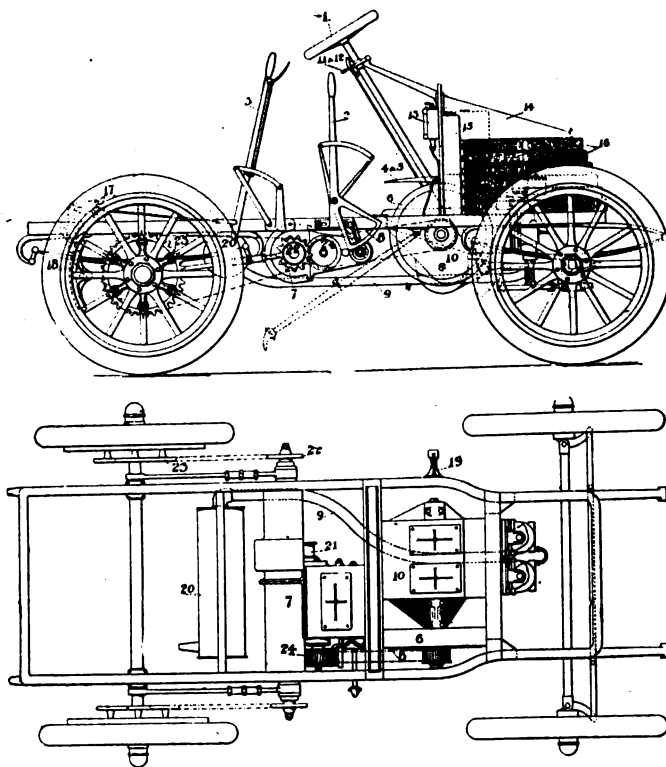


FIG. 106.—THE DAIMLER 22 H.P. CAR.

boxes, and thickened spokes for the attachment of the sprocket-wheels. The motor itself develops 22-h.p. at 720 revolutions per minute, and the four forward speeds are actuated by a single lever. A second small lever on the footboard is connected with the reverse gear. The weight of the *chassis* is under 22 cwt. The wheel base is 7 ft. 6 in., and the gauge 4 ft. $7\frac{1}{2}$ in. Another interesting car was Mr. Oliver Stanton's 24-h.p., "Le Chat Noir," which has done excellent service throughout the country. The last of the complete carriages was of the 6-h.p. type, now practically abandoned by the company on account of the demand for high-power cars. In addition to the exhibit of cars, specimens of the three new types of motor were also shown. One of these was a 9-h.p. two-cylinder engine, developing 11-h.p. at 900 revolutions per minute, the cylinder diameter being 86 mm. and the stroke 100 mm. It is fitted with combined tube and electric ignition, and a neat centrifugal governor on the cam-shaft connected direct to the throttle-valve. The other two were four-cylinder motors, one giving 14-h.p. at 900 revolutions, and the other 22-h.p. at 720 revolutions. Another interesting exhibit was a specimen of the 1902 12-h.p. transmission gear, shown separately, which provides for three forward speeds and a reverse, actuated by a single lever, and is fitted with special self-oiling bearings. The company also exhibited various types of car-bodies, designed to utilise all the available space.

One of the most important exhibits in the show, and one which was continually surrounded by interested enquirers, was that of the Wolseley Tool and Motor Car Company, Limited, who had on view a 5-h.p. *chassis*, a 10-h.p. *chassis*, a couple of 10-h.p. wagonettes, one of which was fitted with solid rubber tyres, a 10-h.p. Siamese phaeton, a 10-h.p. special cab referred to below, a $7\frac{1}{2}$ -h.p. *tonneau*, a new type for the Wolseley Co., and a handsome 20-h.p. car built for the Earl of Warwick; the latter was a large double *tonneau* at the rear, seating four persons, all of whom face forward. The body of the Siamese phaeton is of special construction; the glass wind shield in front can be used either

with or without the canopy, it being particularly strongly fixed although it has no bar across and above the dash. The canopy is arranged so that it can be quickly removed by loosening two nuts. The 20-h.p. cab, of which we give an illustration in Fig. 110, is, as will be seen, of unique design, the driver's seat being placed centrally, as also is the steering pillar. The seat itself is sufficiently narrow to permit of doors being fitted at angles between it and the sides of the main body. The doors open on to the same platform as that on which the driver's seat is placed and long footboards replace the ordinary type of step. The top of the cab projects forward in a peak above the driver and gives an unusual appear-



FIGS. 107 and 108.—PLAN AND ELEVATION OF WOLSELEY CAR.

- | | | |
|-----------------------------------|--------------------------|--------------------------------------|
| 1—Steering Wheel. | 8—Renold's Silent Chain. | 17—Equalising Levers for Rim Brakes. |
| 2—Speed Change and Reverse Lever. | 9—Exhaust Pipe. | 18—Brake Shoe. |
| 3—Hand Brake. | 10—Engine. | 19—Starting Handle Bracket. |
| 4—Pedal for Hand Brake. | 11—Ignition Lever. | 20—Exhaust Silencer. |
| 5—Pedal for Clutch. | 12—Choking Lever. | 21—Countershaft Band Brake. |
| 6—Friction Clutch and Fly Wheel. | 13—Gravity Lubricator. | 22—Sprocket Chain Wheel. |
| 7—Gear Box. | 14—Bonnet. | 23—Chain Wheel. |
| | 15—Water Tank. | 24—Renold's Chain Wheel. |
| | 16—Radiators. | |

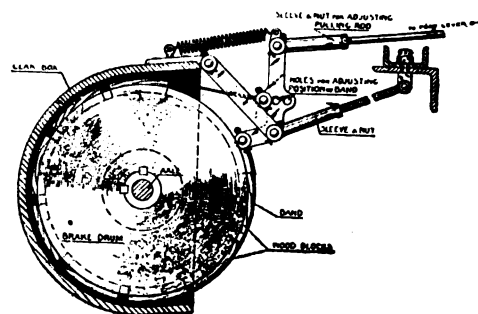


FIG. 109.—THE WOLSELEY BAND BRAKE.

ance to the whole vehicle. The road wheels are fitted with New York tyres, and the body is painted black, relieved by a band of imitation cane work between the body proper and the top. The driver's seat being in the middle, with all the control levers brought up to the centre, both occupants of the cab have a clear view ahead. In the construction of the Wolseley cars the first aim of the designers has been to obtain the utmost simplicity, consistent with reliability and economical working. The 5-h.p. and 10-h.p.

cars were fully described in our report of the 1901 show, but we may mention that the engine is in all sizes, horizontal, with the crank-shaft parallel to the car axles. The ignition is electric, high tension, the current being supplied by accumulators. The carburettor is of the float feed spray type, and a throttle-valve in the mixture pipe controls the quantity of vapour passed to the explosion chambers; this, combined with the advance sparking device, controls the speed and power of the engine, no governor or cutting-out mechanism being required. A leather-faced friction clutch is mounted on the crank-shaft inside the fly-wheel, and the power is transmitted to the gear-box by a Renold silent chain. The speed-change mechanism is of the sliding gear type, and gives in the 5 and $7\frac{1}{2}$ h.p. sizes three speeds forward, and one reverse, and in the 10 and 20 h.p. sizes four speeds forward and one reverse, all changes in each case being made with one lever. The power is transmitted from the gear box, which also contains

petrol is contained in a tank under the bonnet, and is fed to the carburettor by gravity, sufficient spirit being carried to run the car about 150 miles, and in addition to this, if desired, a spare tank can be fitted, which holds about six gallons. The radiators for the cooling water form the sides of the bonnet, and are all above the engine, so that in case of failure of the pump the water will circulate by convection. The body and all the mechanism is mounted on a frame of channel steel, which is supported on the axles by four long semi-elliptical springs. Steering is locked, and is by an inclined wheel operating a worm and wheel mounted on the front axle, connection to the steering pillar being through universal couplings. The 5-h.p. cars are fitted with a single cylinder engine ($4\frac{1}{2}$ in. bore by 5 in. stroke), giving about 5.5 b.h.p. at a speed of 750 revolutions per minute. The 10-h.p. vehicles have a motor comprising two cylinders parallel ($4\frac{1}{2}$ in. bore by 5 in. stroke) giving about 11-b.h.p. at 750 revolutions

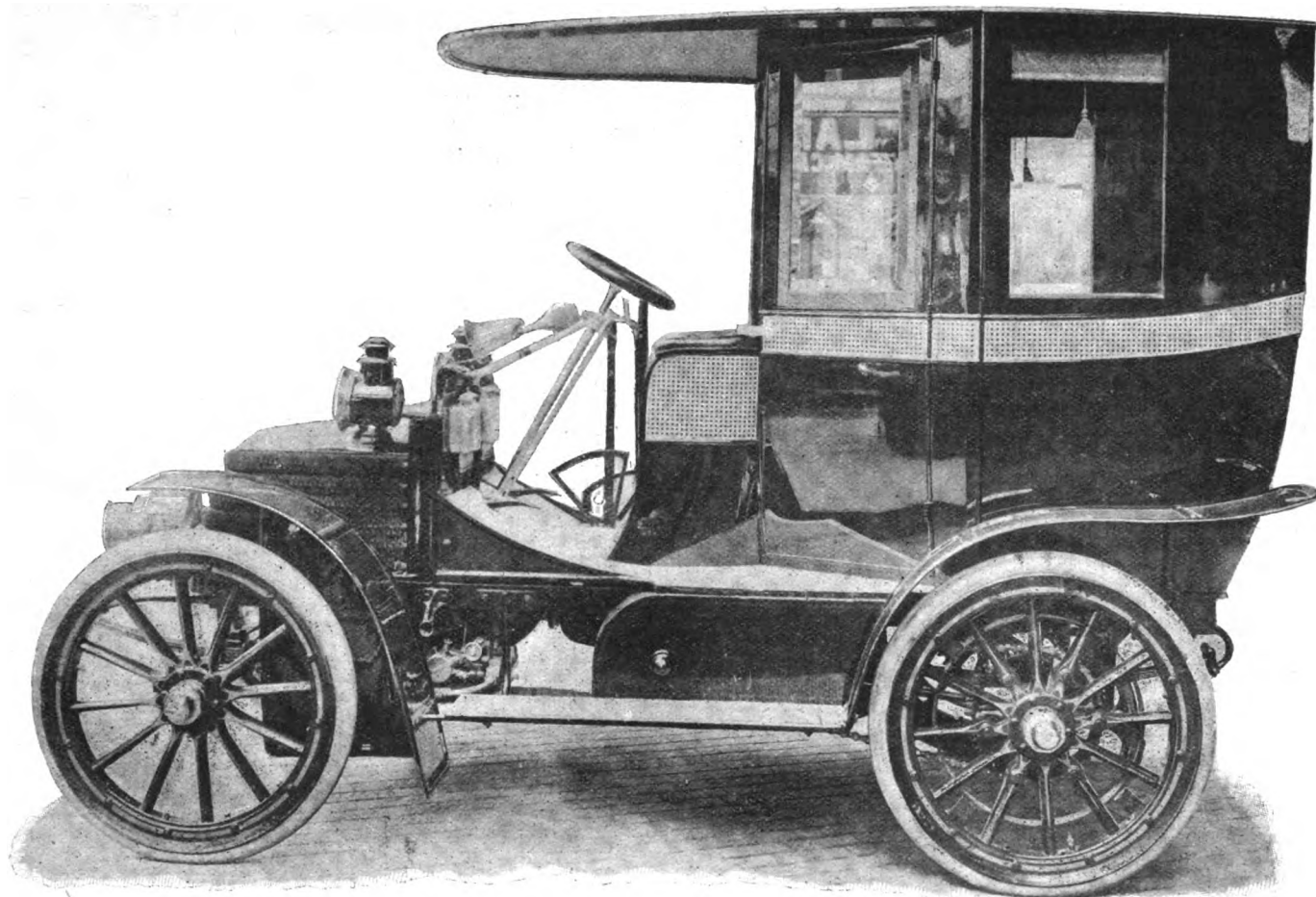


FIG. 110.—THE WOLSELEY 10-H.P. SPECIAL CAB.

the balance gear to the rear road wheels by two roller chains, thus keeping all possible dead weight off the tyres. In Figs. 107 and 108, are given an outline elevation and plan of the Wolseley cars, from which the general arrangement can easily be followed. Two independent brakes are fitted in all sizes: a countershaft double-acting band brake operated by a pedal, and a hand-applied rim brake acting on rims bolted to the felloes of the rear road wheels. The countershaft brake, which is illustrated in Fig. 109, is not connected up as is usual with the clutch, this arrangement having been adopted after careful trial, chiefly because it obviates all risk of the clutch mechanism fouling that of the brake, and preventing it working when much worn or partly fired. The drum on which the band presses is hollow, and is so made that water can be poured in at one side. A small separate tank may be fitted under the seat to supply the brake with water for very hilly districts, though it is not absolutely necessary if the driver uses the side brakes, instead of the foot brake, on all long descents. The

per minute, and running up to about 1,000 revolutions when accelerated. The 20-h.p. cars have a four cylinder engine ($4\frac{1}{2}$ in. bore by 5 in. stroke), giving about 21-b.h.p. Two cylinders are located in front of the crank shaft and two behind it. In this vehicle two clutches are used, one at each end of the crankshaft, both simultaneously operated by one pedal, and the driver is taken to the speed gear box by two Renold silent chain, one at each side. As already mentioned the $7\frac{1}{2}$ -h.p. car is a new size for the Wolseley Co.; it has been really introduced to meet the demand of those who desire a small car, but faster than the 5-h.p. The engine has two cylinders (4 in. bore by 4 in. stroke), placed parallel with balanced crank-shaft, giving about 8-b.h.p. at 900 revolutions per minute, and accelerating to about 1,200 revolutions when desired. The car is fitted with three speeds instead of four, but is in all particulars a reduced facsimile of the 10-h.p. As regards the general improvements in the details, we may first state that the hand throttle has been improved by the interpola-

tion of a diaphragm between the two throttle plates, so that there is no possibility, when it is moved, of one plate pulling the other with it, thus rendering the adjustment more positive and delicate. The springs have all been lengthened, and the second plate is turned over the shackle bolt, so that in passing over any very serious obstruction or depression the strain is not taken on the top plate only. An important modification is the adoption of a jaw clutch inside the sprocket wheel on the first motion shaft. This clutch is automatically thrown out of engagement when changing from one speed to another without any additional action on the part of the driver, the bulk of the strain which is put on the teeth of the gear wheels owing to the momentum of the clutch and the chain when they are being brought into play being thus removed. In the steering gear a larger worm with double thread than hitherto used, is now fitted. The radiator is also now stepped instead of having the tubes immediately above one another. Nearly all the bearings are lubricated from the dashboard, and only one kind of lubricating oil is used. The bearings not lubricated from the dashboard, such as the clutch, steering gear, contact breaker, and pump, are fitted with grease lubricators. Altogether the Wolseley cars deserve the appreciation they are receiving at the hands of motorists—an appreciation which is shown by the fact that the Company is stated to have orders on hand for over 400 cars. |

A new firm at the Agricultural Hall display is Messrs. Wilson and Pilcher, Limited, who showed a 8-h.p. tonneau (Fig.

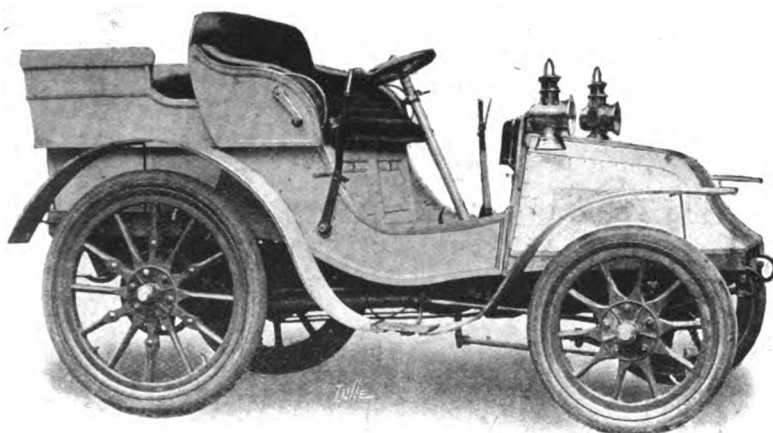


FIG. 111.—THE WILSON AND PILCHER CAR.

111), remarkable for its quiet and easy running. The motor is of the 4-cylinder horizontal balanced type, the cylinders being arranged in pairs, one pair being located on each side of the crank shaft, which is in line with the transmission gear. The water circulation is maintained by radiator and pump; the water for cooling purposes is, however, carried above the engine, so that natural circulation can be employed in case of emergency. The ignition is electrical, with automatic timing device. A governor is provided, acting on the admission pipe; in connection with it is a pedal-actuated accelerator which enables the speed of the engine to be varied between 300 to 1,400 revolutions per minute. It will be noticed from Fig. 113 that the flywheel is so shaped that the rim overhangs the forward part of the engine, and the arms act as a fan to direct air on to the radiator. Provision is made by a small trap door on the footboard for easy access to the circulating pump and commutator, which are arranged on the left-hand side of the casing. Vibration is claimed to be practically eliminated by the perfect balance of the engine, which is suspended from the frame. This balance is obtained without the aid of any additional parts or joints. In transmitting power from the engine to the driving-wheels no chains or belts are employed, the car being gear-driven throughout. There are four speeds forward and a reverse, giving, with governor control, any speed from two and a half to thirty-five miles an hour. The power is transmitted from the engine shaft through a friction clutch longitudinal shaft and bevel gearing to the rear live axle, all parts being entirely cased in, as a glance at the plan view given in Fig. 112 will show. Two epicyclic reduc-

tion gears are fitted on the longitudinal shaft between the clutch and the bevel wheel on the rear. The change gear wheels are always in mesh, and are only running when actually required, wear and noise being thus reduced to a minimum. On the highest speed no gear wheels, excepting only the main bevel, are in motion. The speed change gear has the advantage of being

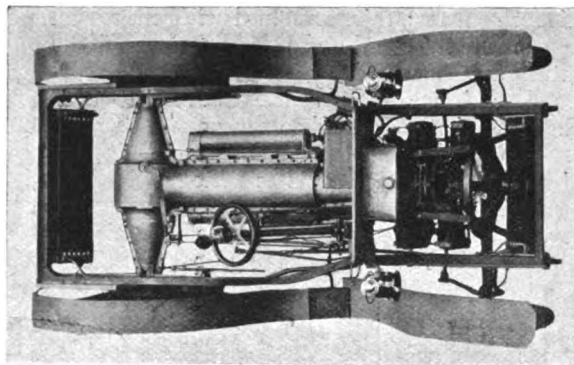


FIG. 112.—PLAN OF WILSON AND PILCHER CAR.

capable of being changed under full load, and without using the main clutch. The change gear is worked by friction-clutches of the direct-acting cone type, no toggles being employed; and these are so designed that the wear of the cone (which is very slight) does not affect the action of the change gear. Whether the speed-reducing gear is in or out of use, the pressure from the spring driving the cone home is never on a moving, and so a rubbing, face; this enables large springs to be employed without in any way affecting the efficiency of the transmission. The forward speeds are controlled by a handle conveniently placed to the driver's right hand, the four speeds being controlled by one lever. The reverse motion is operated by a lever placed on the footboard beside the steering pillar. As regards the general arrangement, the engine and gearing are quite separate from the car body; and they are so arranged that the bearings cannot be thrown out of line by the inequalities of the road. The method of lubrication is particularly effective, and, while freeing the dashboard and body of the car from all lubricators, ensures that a proper supply shall reach every bearing. Considerable economy, moreover, is

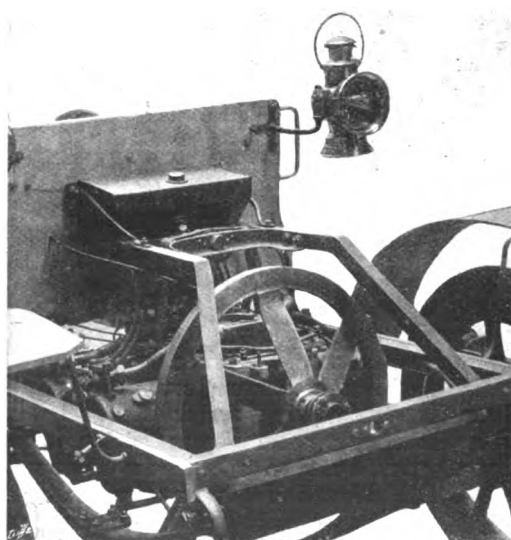


FIG. 113.—FRONT VIEW OF WILSON AND PILCHER CAR WITH BONNET REMOVED.

secured, as by this system of casing in the waste of oil is reduced to a minimum. Arrangements are also made so that it can be seen at a glance if the working parts are receiving their due amount of oil. A feature of the machine is the three-point suspension of the body on the driving mechanism, it being supported

on a pair of rear springs and at a single point above the engine. Inclined wheel steering is adopted, while the artillery wood wheels are 32 in. diameter at the front and 40 in. diameter at the rear, shod with pneumatic tires. A band brake on the hubs of the rear road wheels is worked by a hand lever which also disengages the clutch. There is also a band-brake on the differential gear, worked by a pedal. These brakes all act equally well either forwards or backwards. The car complete with water and petrol weighs about 18 cwt. In addition to the complete car, Messrs. Wilson and Pilcher had on view some useful improvements in connection with the details of petrol motors, notably a new commutator, a new induction valve, and a modified form of piston ring, which we hope to illustrate in an early issue.

We have already described some of the features of the Chatel-Jeannin cars (see *Motor-Car Journal*, March 1st, 1902), but an examination of the vehicles exhibited in the Gallery brought to light so many new points that a further reference to this interesting type of car may not be out of place. Two vehicles were displayed—a four-seated *tonneau* (Fig. 114) and a two-seated car with an attractive form of body, comprising two basket-work arm-chair seats. The frame is of tubular construction, large diameter tubes being used. Built in this at the rear is a horizontal motor of 7-h.p. (Fig. 115). The cylinder is 105mm. diameter by 105mm. stroke, the normal speed being 700 revolutions per minute.



FIG. 114.—THE CHATEL-JEANNIN TONNEAU.

Electrical ignition is fitted, the trembler being on the coil, and the make and break device on the engine running in oil. A Longuemare carburettor is employed to furnish the explosive mixture. The water circulation is on the thermo-syphon arrangement, the water being contained in the torpedo-pointed false bonnet in the fore part of the car. The engine has two fly-wheels, which, as also the differential change speed gear and the rear axle, are entirely enclosed in a double cylindro-conical gear-case, the rear end of which is provided with a detachable cover, which can be readily removed to give access to all the working parts. The gear-case also forms the bearings for the short engine shaft. The two fly-wheels are placed close together, with the connecting-rod head between. A novel feature is the fitting of the usual differential gear in the connecting-rod head instead of on the axle. Two speeds forward and a reverse motion are provided. The rear live axle is in two halves, the inner ends of which are provided with internally-toothed wheels, which mesh with small pinions on the exterior ends of the short engine-shaft set, the latter being located to the rear of the axle. On top speed the engine drives these half rear axles direct through its pinions, but the low speed and reverse are obtained by epicyclic gear brought into action by means of the tightening of spiral springs on the outer cases of the same. The forward speeds

are controlled by a lever, and the reverse by a pedal. The arrangement is exceedingly simple and compact, and, judging from a short run on one of the cars, it appears to work extremely well. Equally-sized artillery type road-wheels, inclined steering, hand and pedal controlled brakes, are other features of these interesting cars, of which more is likely to be heard in the near future.

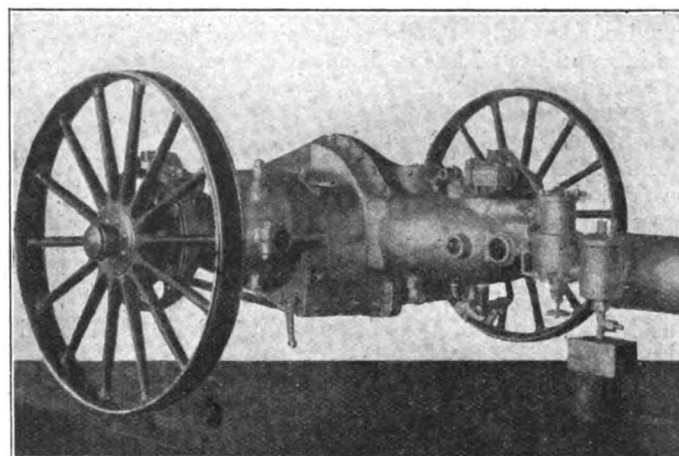


FIG. 115.—REAR AXLE AND MOTOR OF CHATEL-JEANNIN CAR.

Madame Louis Lockert, of *Le Chauffeur*, the oldest automobile journal in France, is becoming a familiar and welcome visitor at these Shows. She brought an unique collection of caricatures of leading French automobilists, which have interest both from the artistic and motoring points of view.

The New Grappler pneumatic tyres were shown by the company bearing that name. The general features are so well known that detailed description is now unnecessary. With a view to prevent the tyres being used on vehicles heavier than those for which they were intended, the New Grappler tyres have now stamped on them the weight they will satisfactorily carry. Class A tyre will carry 120 lbs. per wheel when loaded, Class B 150 lbs., Class C 250 lbs., Class D 400 lbs., Class E 500 lbs., and Class G 1,200 lbs. per wheel when loaded. A 5-inch tyre for heavy cars was a special exhibit on the stand.

As usual, the Motor Manufacturing Company, Limited, had a varied and interesting display of their M.M.C. cars, ranging from 12-h.p. down to 7-h.p. To begin with the first-named, a *tonneau* to seat five, the body being tastefully finished in cream

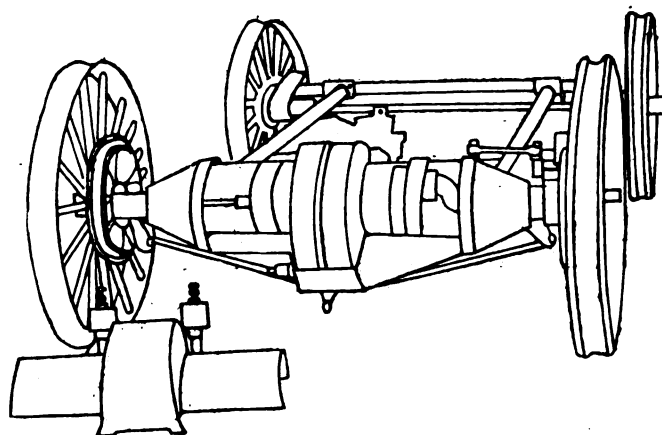


FIG. 116.—REAR VIEW OF FRAME OF CHATEL-JEANNIN CAR.

with brown lines, the steering standard, brake-gear, reversing-rods, steering-rods, and starting-handle all being in brass, the vehicle, of which we give an illustration in Fig. 117, is fitted with a four-cylinder motor nominally rated at 12-h.p., but working up to 16-h.p. Both tube and electric ignition are provided, while the governor, in connection with which is a hand "accelerator,"

acts on the admission pipe. Four speeds forward and a reverse motion are provided, the transmission being on the usual lines—that is to say, through a friction-clutch to the gear box, the countershaft in the latter being connected by bevel-gearing to a differential cross shaft, from which the power is conveyed to the rear road wheels by means of two chains. The frame is low, and is mounted on equal-sized road-wheels, 32 in. in diameter, shod with pneumatic tyres. It is claimed that this car can attain a speed of forty miles an hour—a claim which was substantiated during a private trial we made on a vehicle of this type so recently as Saturday last. From the 12-h.p. cars we pass to the 10-h.p.—a new type, of which a *chassis*, as well as a complete *tonneau*, were shown. This vehicle is fitted with a two-cylinder engine, the normal speed of which is about 900 revolutions per minute. The two cylinders are each cast separately, without water-joint, and are mounted on a crank-chamber common to both cylinders. The cam-shaft is enclosed, and the contact breaker is placed on the dashboard, and is driven by a chain. A centrifugal governor on the front end of the cam-shaft actuates a throttle valve on the left-hand side of the engine. A Bowden wire is used for

in connection with the electrical ignition has been superseded by a fibre disc with brass contact piece let into it, against which the spring contact presses, and makes and breaks circuit with the sparking coil, on which the trembler is fitted. Three speeds forward and a reverse motion are available, the transmission being by means of a gear-box and two chains. In this car the change-gear is not of the sliding pinion type; the spur-wheels are always in mesh, any one pair being made to convey the power by means of a sliding feather. Across the end of the stand was staged the 8-h.p. two-cylinder car, which did so well in the recent non-stop trial between Glasgow and London, getting through with a total of no less than 974 marks out of a possible 1,000. Two double-cylinder 7-h.p. cars were also on view, both fitted with *tonneau* bodies, but as these have already been described in the *Journal* no lengthy reference is necessary on the present occasion. The industrial vehicle department was represented by a delivery-van fitted with a 7-h.p. double-cylinder motor, and intended to carry a load of one ton. This car is fitted with solid rubber tyres, and is well supplied with brakes, there being one on the countershaft, band-brakes on the rear wheel sprockets and

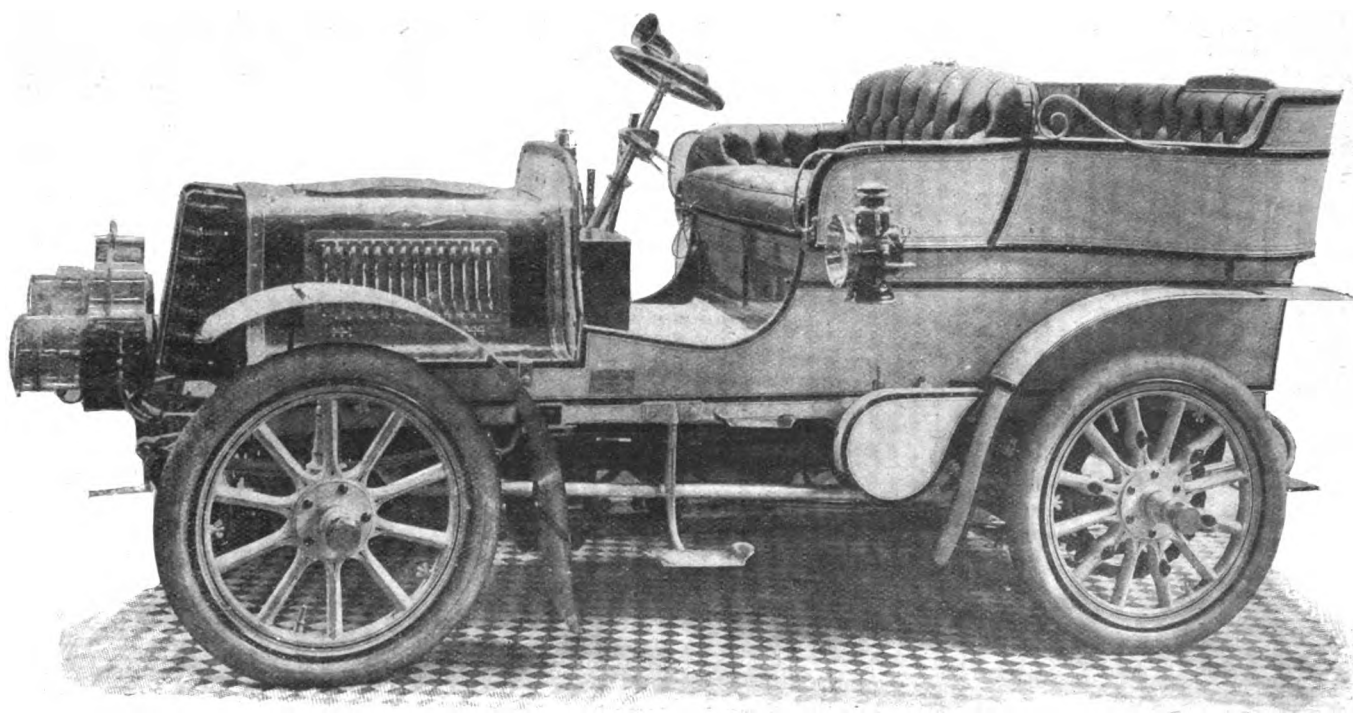


FIG. 117.—THE M.M.C. 12 H.P. CAR.

working the accelerator, and for advancing or retarding the ignition, the wires being actuated by levers on the top of the steering-column, above the hand-wheel. Both tube and electric ignition are employed, while the water-circulation is maintained by pump and radiators. The motor on this car is covered by an unusually light bonnet, made of aluminium. Lubrication to the cylinder and cranks is maintained by a sight-feed lubricator fixed to the dashboard. Three speeds forward and a reverse motion, controlled by a single lever, are provided. The clutch-shaft is, as usual, in line with the crank-shaft; the sliding wheels are mounted on the second motion-shaft, which is in the same horizontal plane, but on the right-hand side. The differential gear is also enclosed in the change gear-box. Two brakes are fitted, each acting independently of the other, and each automatically disconnecting the engine from the gear when they are applied. Passing a stage lower in horse-power, we come to the latest model of the M.M.C. voiturette, fitted with double phaeton body, finished in cream and brown, and provided with light leather-bound, wood-framed, collapsible twilled hood, upholstered in pigskin. The motive power in this car is provided by a single-cylinder engine, somewhat on De Dion lines, and developing 8-h.p., and located in the fore part of a tubular frame. The usual trembler

shoe-brakes on the tyres of the driving wheels. Three 8-h.p. single-cylinder engines and samples of carriage-wheels completed an interesting exhibit.

An imposing display of Milnes petrol pleasure-cars was made by Messrs. G. F. Milnes and Company—four large vehicles, all fitted with highly-finished *tonneau* bodies. Two were fitted with 12-h.p. motors, while a third had a four-cylinder 16-h.p. motor. In general arrangement these vehicles closely follow the lines of the Cannstatt-Daimlers. The novelty on the stand was the new 20-h.p. *tonneau*. The motive power is supplied by a four-cylinder engine located in the fore part of the frame under a bonnet, and fitted with Simms-Bosch magneto-electric ignition. The Cannstatt-Daimler type of combined water-tank and cooler is adopted. Four speeds forward and a reverse motion are provided, these being controlled by a single lever at the side of the driver. The power of the engine is conveyed through a pedal-actuated friction-clutch to the gear-box, which contains a train of sliding gears. The gear-box is connected by bevel pinions to the differential cross-shaft, which in turn transmits the power to the rear road-wheels by chain-gearing. Inclined wheel-steering is fitted, while there is a pedal-operated band-brake on the differential shaft and band-brakes on drums connected with the hubs

of the rear road-wheels, the latter being put in action by means of a hand-lever. The motor is fitted with a governor which acts on the admission and ignition simultaneously, there being also a hand accelerator fitted in connection therewith. The road-wheels

to the satisfaction of the Post Office authorities. It is designed to carry a load of 35 cwts. at a speed of 11 miles per hour. Of the 6-h.p. two-cylinder size two vehicles were shown—a covered lorry with solid rubber tyres, to carry 35 cwts., and a van, also

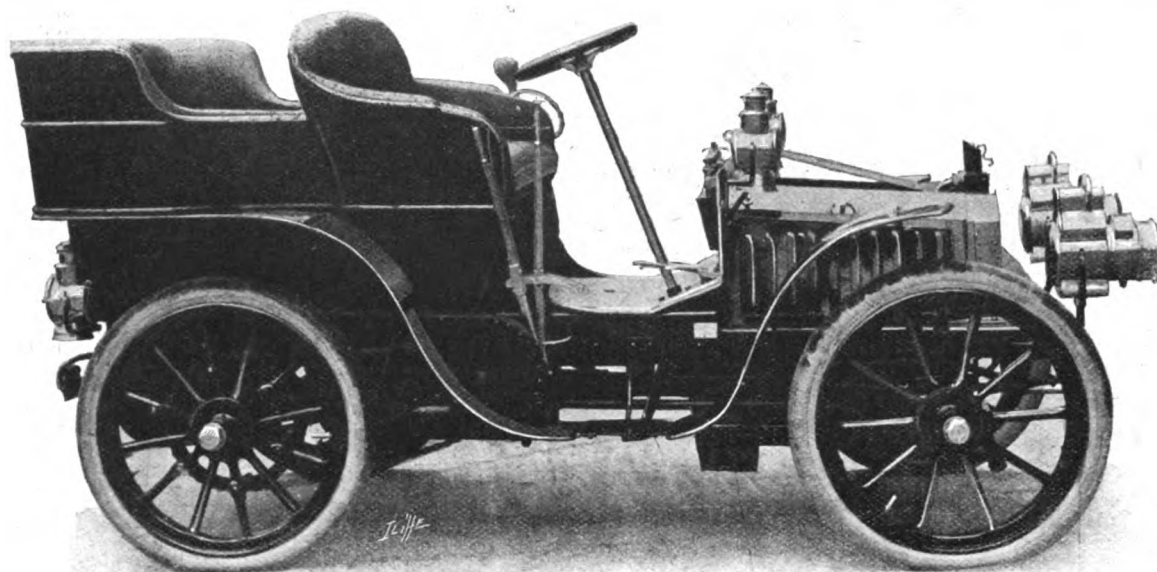


FIG. 118.—THE MILNES 16-H.P. TONNEAU.

are all the same size, while the noticeable feature of the car is its relatively long wheel base and low centre of gravity. On another stand Messrs. Milnes displayed four other heavy petrol lorries and waggons, chief amongst which was the Royal Mail van, fitted with 16-h.p. four-cylinder motor with Simms-Bosch magneto-

with solid rubber tyres, to carry 30 cwt. at a speed of 8 miles per hour. A lorry, with iron tyres, to carry up to 2½ tons, was also staged. As regards the chassis, this is identical with the van illustrated in Fig. 119, recently supplied to the Caledonian Railway for use in Glasgow. The vehicle is 17 ft. long by 5 ft. 3 in. wide.



FIG. 119.—THE MILNES 2½-TON PETROL MOTOR VAN.

ignition, and Cannstatt cooler, with induced draught. It is built to carry mails between Manchester and Liverpool, and is one of an order from the Motor Haulage Company for three vehicles. It has already been tested on the Mount Pleasant-Red Hill route

The wheelbase is 11 ft., and the floor space 11 ft. 6 in. by 5 ft. 6 in. The frame is constructed of U channel-steel, and will bear a total dead load up to 2½ tons. The motor comprises two cylinders, the diameter of the pistons being 105 mm. and the stroke 130 mm. The

number of revolutions per minute is 750, at which the engine develops 8-b.h.p. The power is transmitted from the main longitudinal shaft through the differential gear on the Cannstatt system, by means of two pinions engaging two internal gear-wheels fixed to the rear road-wheels. The speed-changing gear gives four speeds, viz., $1\frac{1}{2}$, $3\frac{1}{2}$, 6, and 8 miles per hour. The first and second and the third and fourth speeds are each controlled by one lever, by which means, as the two couples of speeds are independent of each other when changing, neither couple affects the other set of gear-wheels. The friction-cone is automatically disengaged when either speed-lever is actuated. The reverse-speed is obtained by dropping into gear a special cog-wheel, giving a speed of 4 miles per hour. Two circumferential brakes, worked by worm-gear from the driver's seat by hand, act on the hind wheels. There is also a double-acting brake-clutch on the first speed shaft, and a sprag on the back axle.

On Messrs. Milnes' heavy vehicle stand Mr. F. Stadler exhibited Williams' patent counter-skid, a device to prevent that

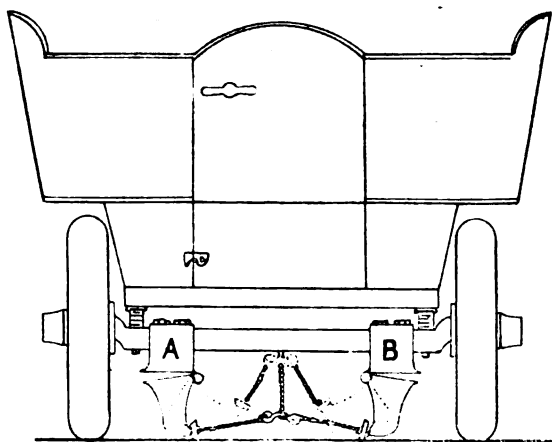


FIG. 120.—WILLIAMS COUNTER-SKID.

bugbear, sideslip. It consists of two hinged brackets (A and B, Fig. 120), working on the positive and negative principle, fixed one at each end of the back-axle of the car. At the bottom of each of the brackets there is a disc, or steel wheel, which runs loosely, carrying its own weight only. This disc has a sharp edge. The whole arrangement can be raised or lowered by a lever placed at the side of the driver. As to the operation of the device, let us suppose a vehicle which, having started on roads which were dry, is obliged to make its return journey on those which are wet and greasy. As soon as the driver gets into his seat, he lowers the counter-skid apparatus and goes forward. Directly the slightest tendency to side-slip occurs, the sharp edge of the disc is forced into the road; it engages instantly and automatically with the wood or macadam, as the case may be, and as it continues to revolve, the check on the car is infinitesimal. Moreover, the disc is so set with regard to the car, i.e., by a slight inward inclination, that, having performed its work, it at once disengages itself. To whichever side the car inclines to slip, the result is said to be the same; on the one side it is checked by the positive arm, on the other by the negative. The device can be made for all sizes of cars, the one exhibited being of a heavy type, and intended for use on a 5-ton lorry.

Two Hallamshire cars—7 h.p. and 14 h.p.—were shown by Messrs. Durham, Churchill and Company, who also staged a 7-h.p. chassis in order to permit the arrangement to be inspected. The 14-h.p. car is fitted with double phaeton body and the 7-h.p. with a tonneau. No portion is occupied by the mechanism of the car, the space under the front seat being fitted to carry petrol, etc., for long journeys. The body can be removed by slackening two screws. Simms motors are employed with magneto-ignition and timing gear, and admission regulator. The 7-h.p. motor is of the single-cylinder type, while the 14-h.p. is a twin-cylinder governed engine; in both cars the motor is located under a bonnet in the fore part of the frame. Two speeds forward and a

reverse motion are provided. The flywheel of the motor is adapted to receive a "Champion" clutch, actuated by a rocking lever from a pedal on the footboard. The clutch shaft, which is an extension of the motor-shaft, carries at its extreme end a spur wheel, gearing with a pinion on a parallel shaft which carries the change gear. The latter consists of a pair of clutches combined with an epicyclic gear, which gives the two speeds, and a further clutch gear which gives the reverse at either speed. From the change-gear shaft the power is conveyed by spur gearing to a differential countershaft, and thence, by means of a centrally-located Brampton chain, to the rear axle. A feature of the change gear is that it is so arranged that, on the high speed, the whole gear runs solid, thus reducing loss of power by friction, and wear and tear. Another point to which our attention was drawn is, that only one operation is necessary to change, stop or reverse. The frame is of a special compensating design, which is claimed to entirely prevent "racking" even on the roughest roads, and to ensure the driving gear being always in line; it is built up of channel steel and ash, with tubular radius rods. The wheels are of the artillery pattern shod with solid or pneumatic tyres. The steering is of the irreversible type, controlled in the 7-h.p. car by a horizontal hand wheel, and in the 14-h.p. by an inclined one. Messrs. Durham, Churchill and Company also showed a large range of their largely-used "Champion" clutches, including

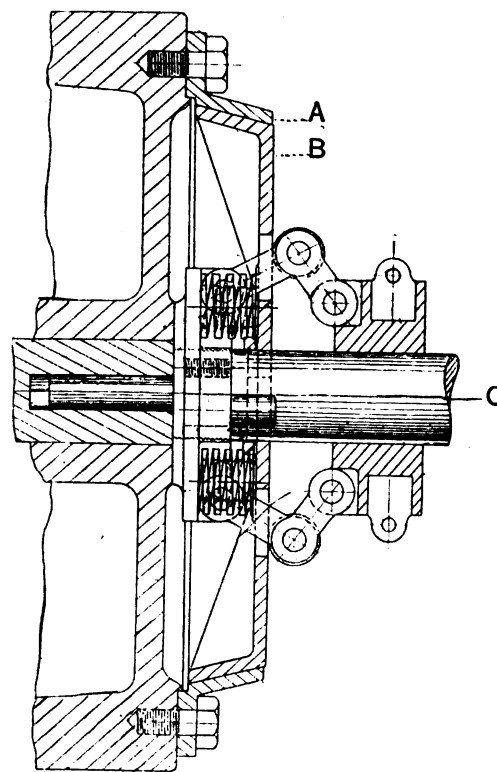


FIG. 121.—SECTION OF THE "CHAMPION" FLY-WHEEL FRICTION CLUTCH.

adaptations in connection with belt pulleys, gear, and chain drives. They also showed a launch gear, in which two clutches are combined to give free engine, solid drive ahead, and drive astern through epicyclic gear contained in the forward clutch. Fig. 121 gives a section of the "Champion" fly wheel clutch. The outer cone *a*, which is bolted to the fly wheel, runs continuously with the motor; the inner cone *b* transmitting the power to the gear shaft. It is claimed for this clutch that it is self-adjusting for wear, and gives an instantaneous release. There is an absence of end thrust both when driving or when idle, while no screw or wedge action occurs when the clutch is in operation.

Several modifications have been introduced into the little car made by Messrs. Eastmead and Biggs, and which is now known as the "Velomobile," since we gave an illustrated description of it last autumn. Fig. 122 gives an outline illustration of the latest model, which is fitted with a tonneau body, the tonneau being

detachable, so converting the vehicle into a two-seated touring car with large luggage capacity. A feature of the design is the employment of two separate tubular frames; one which carries the body and is supported by springs on the front and rear axles in the usual manner, and another which carries the whole of the propelling mechanism, the latter being hinged to the body frame at its forward end, and pivoted to the rear axle at its rearward end in such a manner as to allow the axle perfect freedom to oscillate so as to accommodate itself to any irregularities of the road. Owing to the particular arrangement of the pivots, this oscillation

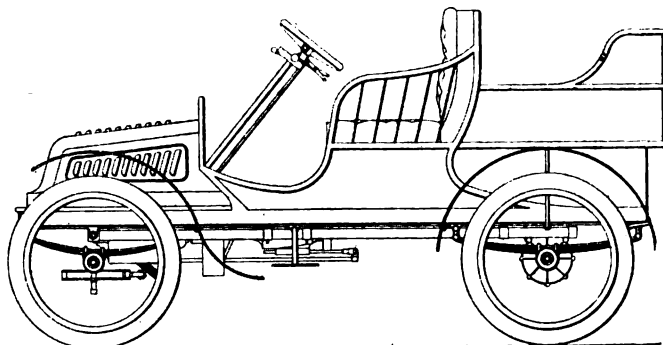


FIG. 122.—THE "VELOMOBILE" 8-H.P. CAR

can only take place in a vertical plane and co-axial with the transmission shaft, which passes through the pivots or trunnions on the gear box and the bearings in the running gear frame into which the trunnions fit. It is claimed that in this way the driving and braking strains which the outer casing of the rear axle has to resist are not imposed upon the springs or on the bolts by which they are attached to the axles, the trunnions themselves taking these strains and any others which may be set up. The motive power is supplied by a Simms 8-h.p. water-cooled vertical single motor, with Simms Bosch magneto ignition, and hand-operated throttle valve. The water circulation is maintained by a pump driven off the half-speed shaft. A single-cone clutch is now fitted, and the gear-box, which gives three forward speeds and a reverse motion, is controlled by handles on the steering column. The top speed is, as before, a direct through drive from the engine to the rear axle, thus avoiding the friction losses of any gearing when on the high speed, the connection between the gear-box and the rear axle being by means of a longitudinal shaft and worm gear. The clutch cone is fitted with a brake for facilitating the operation of changing from one speed to another. Two pedal-operated brakes are fitted—a coil brake on the rear axle and a double-acting one on the transmission shaft, which can be applied without disconnecting the clutch, and may, therefore, be used in conjunction with the throttle. On applying the rear axle brake the clutch is first released, and a brake brought into contact with the clutch cone. Steering is controlled by an inclined hand-wheel, while the road-wheels are of the cycle type, 30 in. in diameter. The wheel base has been lengthened to 6 ft. 6 in., which permits a roomy *tonneau* body to be fitted. A petrol tank, holding eight gallons, is carried behind the back cushion of the driver's seat; the motor-bonnet is hinged so as to be readily lifted clear of the engine, and the whole of the body can be removed after taking out half a dozen screws.

Considerable interest was shown during the week in the liquid fuel firing system for steam boilers displayed in action by the Hydroleum Company, Limited, by means of which all descriptions of liquid hydro-carbons, from petroleum to the various tars and tar refuse, can, it is claimed, be completely consumed without smoke or smell. The Hydroleum Company's devices, under which the system is carried into effect, comprise a feeder and a combustion chamber of novel construction, which can be applied to existing stationary, locomotive, or marine boilers and other furnaces as well as to steam motor-cars. The burner or feeder (Fig. 123) has two passages through it, one passage being connected with the oil supply and the other being a steam connection from the boiler or otherwise. The feeder is so constructed as to concentrate

the issuing products instead of, as heretofore, to spread the vapours too abruptly; the oil is only at atmospheric pressure, and the reservoir from which the feeder takes its supply is slightly lower than the outlet nozzle of the latter, thus preventing any flow of oil into the furnace when the feeder is not in action, and also allowing the feeder to suck its proper quantity of oil, no matter whether it be going fast or slow. The two passages through the feeder are arranged concentrically, the oil outlet being the central one and in advance of the steam one which surrounds it. This formation permits of a vacuum being formed in front of the oil orifice, which vacuum produces a "suck" of oil from the reservoir. The outflow of oil relatively to the volume of outcoming steam is regulated by a needle valve operating at the point of outlet. The issuing products are directed on to a dash-brick; but it is essential, in order to produce complete combustion, that the dash-brick should be of a certain size, and located in a certain position, and that between the feeder nozzle and the dash-brick there should be an enveloping constricted way or passage of refractory material, the area of which bears a certain proportion to the size of the feeder employed. By these means every particle of vapour is kept together until it fires on the dash-brick, which, owing to the concentration of the vapours at that point and its comparatively small area, rapidly becomes sufficiently heated to split up the vapour into its component gases, which, after leaving the brick, re-unite and give out heat in the main combustion chamber. No vapourisation of the oil occurs in the feeder, every particle of oil reaching the firing point. A feeder to generate steam in a 14-h.p. boiler is stated to consume from $1\frac{1}{2}$ to $2\frac{1}{2}$ gallons of heavy oil per hour. The Hydroleum water-tube boiler is claimed to comprise many advantageous features. The design admits of considerably increased surface in actual contact with the source of heat, thus giving a greater evaporative power. It is compact, and as there is very rapid circulation, the tubes can be of much smaller diameter than usual. The principal point of distinction, however, in the boiler is that the heat, instead of passing across the tubes, is made to run parallel with them. This is effected by enclosing the tubes within a flue of refractory material, running from the feeder to the point of exit. The boiler shown weighed only 70 lbs., and was capable of evaporating 20 gallons of water per hour. The Hydroleum steam engine is of simple design, there being no complicated parts, and all its working members are lubricated from one lubricator. It is of the three-cylinder single-acting type, but can be worked high-pressure or compound, the change being effected in a simple manner. The absence of internal friction is evidenced by the high rate of speed attainable, which can be anything from 100 to 3,000 revolutions per minute. The engine shown weighed only 30 lbs., and yet was capable of developing 4-b.h.p. when working as a compound motor. The Hydroleum system has given most satisfactory results in the way of economy in the case of a large stationary water-tube boiler. Whether the system can be successfully

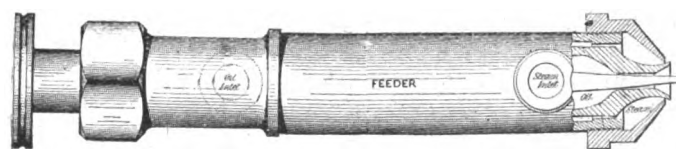


FIG. 123.—THE "HYDROLEUM" BURNER.

applied to steam cars remains to be seen, and we shall watch any experiments in this connection with interest.

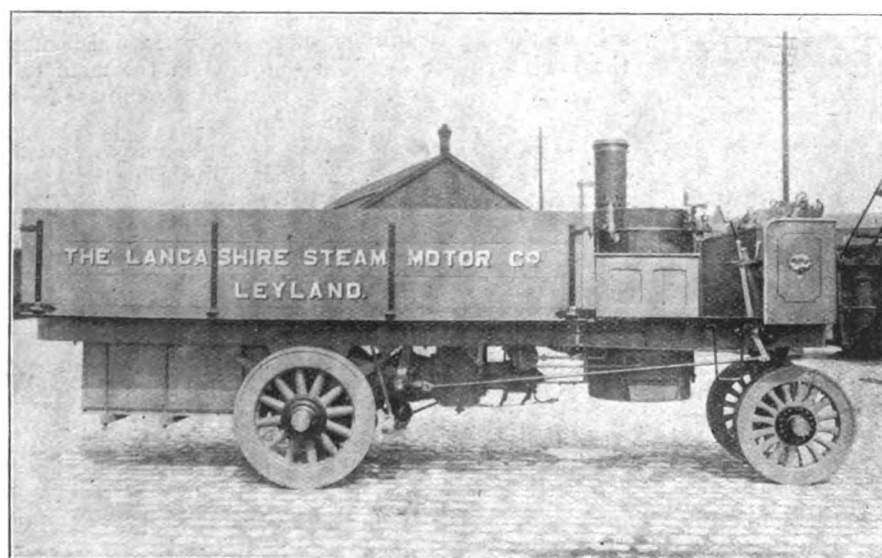
A capital display of aluminium motor-car accessories formed the feature of the display made by Messrs. Matterson, Huxley, and Watson, Limited, notably gear-cases, base-chambers, cooler-covers, silencer-covers, plates for contact-breakers, and sheets for panels. The firm also devote attention to phosphor bronze bushes and levers, gun metal brackets, float-chambers and covers, mild steel crank forgings, wrought and cast iron hardening pots, silver steel, etc.—a varied selection of which was shown at the Exhibition.

Messrs. Trier Brothers made a bold display of Stauffer's lubricant of "Tell Tale," and unbreakable Stauffer lubricators, check valve lubricators specially designed for service on automobiles, grease syringes, split grip collars for shafting, grindstone dressers, etc. In the check valve lubricator the reservoir, which is firmly locked and dust-proof, contains a piston, which is actuated by a spiral spring. A threaded piston-rod is screwed through this and projects below the reservoir, closing the exit in the shank like a valve. Thus the loss of lubricant, owing to vibration, is effectually prevented. The quantity of grease used can be efficiently regulated, and although the lubricator may be full it will not act until set for that purpose. The central screw lubricators introduced by Messrs. Trier Brothers are used for grease, an exact regulation of the supply being possible, the outlet hole being closed by a screw as soon as the requisite quantity has passed.

Tyres for motor-cars, in almost every size, from those for voituresses to those for large cars, were shown by the New York Tyre Company, Limited. New York tyres, which had been run over 7,000 miles, were also on this stand. The tyre is of the single-tube pattern; but an inner tube of rubber is vulcanised to the

lens were also shown by M. Godin, whose display was completed by a selection of Hommen's coils.

Two large steam waggons were displayed by the Lancashire Steam Motor Company. To deal first with the vehicle which bore the legend "Corporation of Liverpool," this was fitted with an open tip body, and is intended to carry a load of four tons. The under-frame is of channel steel, well stayed with cross channels and angle plates. The boiler is of the fire-tube type, having 80 square feet of heating surface, constructed for a working pressure of 200 lbs. per square inch. It is constructed so that the outside shell can be lifted off for cleaning purposes, and is located in the fore part of the frame. The engine is of the horizontal compound type, having cylinders $3\frac{1}{2}$ by $6\frac{1}{4}$ by 6 in. stroke. It is fitted with link motion; the low-pressure cylinder can, in case of emergency, be worked with high pressure steam. It is entirely covered in, the cranks working in oil. The transmission is by spur-gearing to the countershaft, two speeds being provided, the change-gear wheels working in a dust-proof and oil-tight case. A special arrangement known as a cushion drive is fixed on the ends of the compensating gear-shaft. This allows the engine shaft to make almost a revolution before full power is exerted upon the rims of the road-



FIGS. 124 AND 125.—SIDE AND FRONT VIEW OF LANCASHIRE STEAM MOTOR CO.'S 7-TON WAGON.

outer cover, which has very heavy walls of fabric and pure para. There is but 1 in. (diameter) cross section of air space in the centre, the rest of the tyre being material built up to $3\frac{1}{2}$ in. diameter cross section. The outer cover is pure para about $\frac{1}{2}$ in. thick, next inside of which come layers of fabric wound transversely all around the tyre. This is done to cause the grain of the fabric to run diagonally in opposite directions, which, it is claimed, prevents any ordinary punctures. The tyre will stand enormous air pressure, and is claimed to be very resilient. The company has issued a new pamphlet of instructions with regard to its tyres, and at its stand also exhibited the Midgeley steel tubular wheel, and a 7 h.p. De Dion engine.

Of varied interest was the display made by M. André A. Godin, which included some useful accessories. Much space was given to a display of Sclaverand's valves, pumps, greasers, lubricators, reservoirs, etc. The interchangeable valve for voituresses and larger cars was shown in sizes ranging from $1\frac{3}{8}$ in. to $3\frac{1}{8}$ in. in length, with diameter measurements ranging from $\frac{1}{16}$ in. to $\frac{1}{8}$ in. M. Godin also supplies the motor-cycle valves by the same maker. Ducellier's lamps were on view at this stand, prominence being given the Lenticular motor lamps fitted with a lens similar to that used in the naval search-lights. In the ordinary carbide lamp one tap only is required for lighting or extinguishing, while the ease with which the cleaning can be done is a useful feature. Paraffin-oil lamps for use as side lights and a lamp with a combination of conical radial reflector and optical

wheel, thus considerably reducing the shock that would otherwise be put upon the engine and gearing when starting a heavy load. An automatic feed-pump is driven by an eccentric from the compensating gear-shaft; it is fitted with double-check valves to both suction and delivery. There is also a steam pump for supplying the boiler when the engine is standing; an arrangement is also provided for working this pump by hand when steam is down. A water-lifter is fitted to the side of frame, and 30 feet of suction hose, with rose, is provided. The water-tank has a capacity of 130 gallons. A new departure was seen in a vehicle to carry 7 tons, two views of which are given in Figs. 124 and 125. The first feature of novelty to attract attention is that the front wheels are located much nearer together than the driving wheels. They are carried on a solid axle which is pivoted in a guide-block sliding in horn plates in the centre of the car. A single helical spring supports the front of the vehicle upon its front axle, a turntable being interposed between the two parts. The chief advantage claimed for this arrangement over the ordinary form of steering is that the wagon can turn in a shorter radius. Steering gear, having a vertical pillar carrying the wheel, operates the turntable by means of bevel and worm gearing. The power equipment consists of a 35-h.p. engine having cylinders 4 in. and 7 in. diameter by 6 in. stroke. The boiler is of a new type, having a superheater, which practically forms the fire-box. Coke is used as fuel. The throttle-valve is so arranged that steam brakes are applied to the wheels if it is moved beyond the "off" position on its quadrant, so that

the driver can, therefore, not only shut off steam, but, by a continuation of the same movement, apply the brakes. Two speeds are provided. The cushion drive, which is fitted inside the sprocket-wheels of the countershaft in the chain-driven type, is still retained in the new type, but in this case it is enclosed in the hub of the rear wheel. The whole of the transmission gear, as also the moving parts of the engine, are enclosed in a casing, and there is a stationary sleeve surrounding the live rear axle. The arrange-

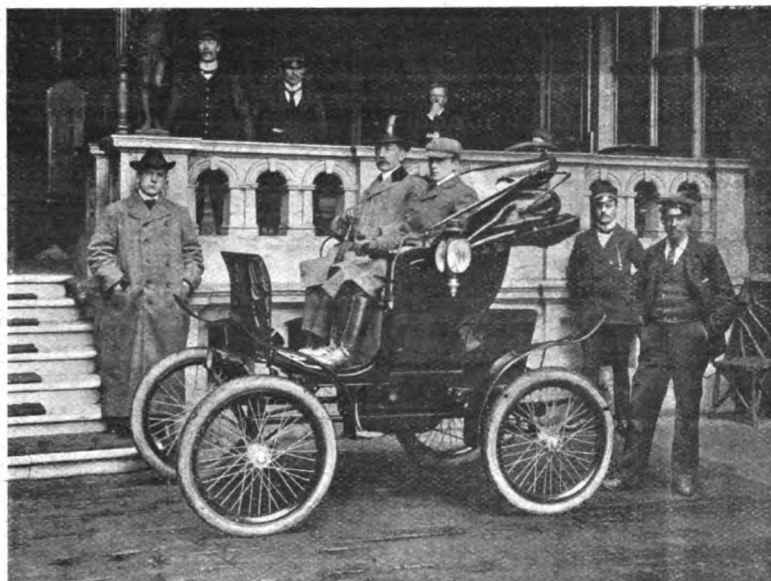


FIG. 126.—THE BAKER ELECTRICAL PHAETON (see page 182 ante)

ment cannot, however, be clearly explained without a drawing.

The exhibit of the British and Foreign Motor Car Co., Limited consisted of a display of the Rochet light cars, voiturettes, and motor-cycles. To deal first with the light cars, of which two were staged, both with well-finished *tonneau* bodies. These comprise a number of interesting features. The main frame is of weldless steel tubing, in addition to which is an underframe of T-shaped channel steel, reaching downward and upward to the frame proper. It consists of two parallel girders laterally braced and strengthened, and carries the motor and gear-box, the centre of the shafts of which are in line. The engine is of the slow-running type, and comprises two vertical cylinders. It develops 10-h.p. at a normal speed of 750 revolutions per minute. The valve-chambers as well as the cylinders are water-jacketed, the valves themselves being so arranged as to be capable of being readily withdrawn. The water-circulation is maintained by a slow-running pump, which forms an extension of the motor-shaft. A feature worthy of notice is that the tubular frame is ingeniously made use of in connection with the water-circulation. Electrical ignition is adopted. The timing-gear is enclosed in the crank-case and runs in oil. The tremblers are fitted on the coil, and, as the latter is fixed near the engine, only short lengths of wire are necessary. The carburettor is of the constant-level spray type. A governor of the centrifugal type is provided. It acts on the exhaust valve, cutting out when the engine exceeds the normal speed mentioned above. In connection with it is an "accelerator." The power is transmitted through a friction-clutch to the change-gear box, which is adapted to give four speeds forward and a reverse motion, all being controlled by a single lever. The Rochet change speed gear is of a special form, and has been described at length in the *Journal*. It has only one gear in mesh at a time, and can be instantly changed from first to fourth, or from fourth to first speed, the clutch being automatically disengaged when the gear is being changed. A pedal applies a band-brake

on the countershaft, while the brakes on the hubs of the rear road-wheels can be actuated either by hand or foot; the first action of applying any of the brakes is to disengage the motor from the transmission. The road-wheels are of the artillery type shod with pneumatic tyres. One of the cars was fitted with bar-steering and the other with the standard inclined hand-wheel. The weight of the complete vehicle is about 18 cwt. Of the Rochet voiturettes two were shown, one having a phaeton body and the other a *vis-a-vis*. The engine, a $4\frac{1}{2}$ -h.p. Aster, is located in the rear part of the frame. Two speeds are provided, the engine driving the rear-axle direct on the high speed. Two powerful brakes are fitted, one acting on the differential, applied by foot pedal, and a double band brake acting on the hubs of the driving-wheels, the latter being intended for use in case of emergency. The frame is of tubular construction suspended on laminated steel springs. Steering is controlled by an inclined hand-wheel. The car complete weighs about $5\frac{1}{2}$ cwt. One of them took part in the Dashwood Hill trials on Saturday last, the results being given on another page. Our report of this stand may be concluded by a brief reference to the Rochet quadricycle, fitted with $4\frac{1}{2}$ -h.p. water-cooled Aster motor and a Bozier gear giving two speeds and a free engine. A modification in this machine is that the current is now switched on and off by means of the brake-lever.

The Richter Manufacturing Company showed their patent automatic oil economiser—a tank which is not only a safe means of storing liquids, but also an effective method of distributing them without loss. A pump takes the place of the usual "draw off" tap, thus obviating all risk of leakage or any possibility of a tap being left open. No "save-alls" are required, and the risk of storing petroleum spirit is reduced to a minimum by the adoption of this firm's speciality. The tank is rectangular in form,

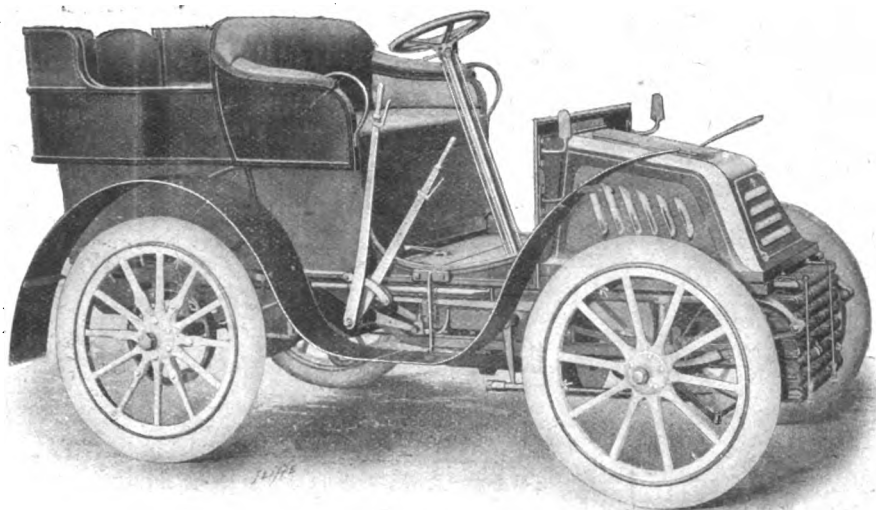


FIG. 127.—THE ROCHET LIGHT CAR.

and provided with a lid which affords protection against evaporation, pollution, or abstraction. The act of lifting the lid raises the discharge pipe automatically into a working position, whilst the closing of the lid causes the depression of the discharge pipe to hermetically seal the well by means of a valve. The Richter Company also exhibited a rotary lubricating pump for the continuous lubrication of steam-engine and other large shafts and bearings. Altogether the firm's display, though small in extent, was of much practical interest.

A large display of the Dennis light cars was made by Messrs. Dennis Brothers, Limited, including one in the rough to show the workmanship, and also a chassis. These vehicles were illustrated in the *Journal* a few months ago, but we may mention that they are fitted with 8-h.p. De Dion water-cooled engines, the circulation being maintained by a Panhard-type pump and large radiators. By means of a device which acts on the exhaust-valve the speed of

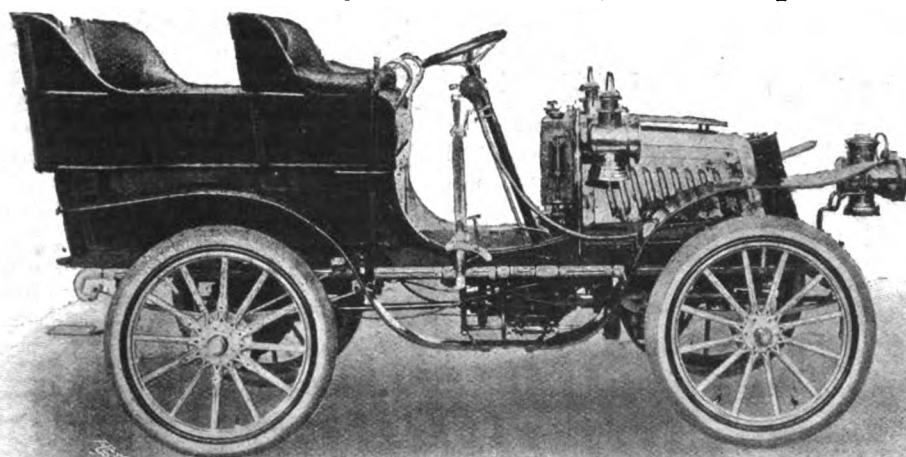


FIG. 128.—THE DENNIS 8-H.P. LIGHT CAR.

the engine can be reduced as desired, minimising the consumption of petrol, and rendering it practically noiseless, without affecting the carburation. The regulator is brought into action when the friction clutch is released, either of the brakes applied, or by a pedal specially fitted for this purpose. Three speeds and a reverse are provided, the power being transmitted through a friction-clutch, gear-box, universally-jointed shaft, and bevel-gearing to the rear live axle. On the high speed the engine drives the axle direct, the pinions in the gear-box being only brought into use when the lower gears are employed. The hubs of the rear wheels are fitted with drums inside which are double-acting (equally well backwards or forwards) expanding metal brakes. There is also a brake, applied by a pedal, acting on a drum on the universal shaft; the application of either of the brakes first disengages the friction-clutch. The road-wheels are of equal size, shod with pneumatic tyres. The cars complete weigh about 11 cwt. The *tonneau* bodies are well finished, and are provided with high backs to the rear seats. Our report of this stand may be concluded by a brief reference to the Dennis motor-tricycles and quadricycles, both fitted with 2½-h.p. De Dion motors with water-cooled heads. The quad is fitted with a Dupont gear, giving two speeds and free engine. The coils are mounted on the left-hand side of the axle-bridge above the silencer, so that there is only a short length of high tension wire from the coil to the sparking-plug. In addition to the usual balance-gear band-brake, band-brakes on the hub flanges of the rear wheels are fitted to both machines.

Fig. 129 illustrates the neat two-seated car exhibited by the Swift Motor Co., of which a chassis was also shown to enable the arrangement to be inspected. The car, which comprises several special features, is built to carry two persons. The seat is well upholstered, broad, and wide. There is ample foot room, and in the back of the car is a neat boot for the carriage of luggage. The frame is of tubular construction. It is of considerable length and breadth for a two-seated car. A genuine De Dion 4½-h.p. engine is carried under a bonnet in the fore part of the frame. The water circulation is maintained by chain-driven pump and radia-

tor; the water tank is set forward of the dash-board inside the motor bonnet. Two speeds are provided, the method of transmission being on novel lines. The engine drives by spur-reducing gear on to the clutch shaft, the power being transmitted from the latter through a universally-jointed shaft on to the rear axle. This jointed shaft has two bevel pinions, of different sizes, running free on the end of it, and these are always in mesh with a large bevel pinion fixed to the back axle in the usual way, and a smaller one inside the large one in the space usually occupied by the differential. Between the two bevel pinions on the jointed shaft there is a positive clutch operated by a lever on the steering wheel, which locks either at will, and so gives the high or low speed. When this clutch is in a central position both the pinions revolve idly, and the power of the engine is not communicated to the road wheels. No differential gear of the ordinary type is employed; as a substitute both the road wheels are fitted with free-wheel clutches of the ratchet type, such as are in use on bicycles, but of course much larger. The clutch, which is held in position by a strong spiral spring, is used in the ordinary way for starting or

disconnecting the engine suddenly when stopping or in traffic. If it is desired to disconnect the gear altogether, as when the car is left standing with the engine running, the positive clutch on the gear box is put in a central position. The free wheel clutches on the rear road wheels not only permit one wheel to overrun the other on turning corners, but enable the car to run absolutely free down-hill just as a free-wheel bicycle runs free. In other words, the moment the speed of the car exceeds that of the gear the engine runs free, so that it is impossible, therefore, for the car to drive the engine. There are three small levers on the inclined steering column; one works the positive

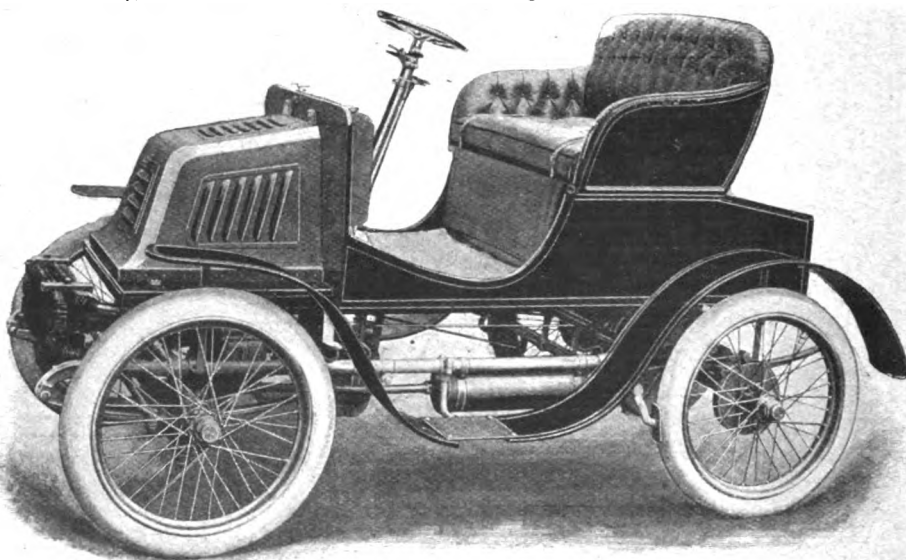


FIG. 129.—THE SWIFT VOITURETTE.

clutch for changing the gears, the second regulates the mixture and the third the ignition. A pedal actuates band brakes on the hubs of each of the rear road wheels, to which emergency hand-operated tyre brakes are also fitted. The frame is carried on semi-elliptical springs forward; the body rests on elliptical springs at the rear, and upon spiral springs above the frame at the front end. Cycle type wheels, 26 in. diameter, are fitted throughout, they being shod with 3 in. pneumatics. The weight

of the little car complete is $6\frac{1}{2}$ cwt. Other cars on the stand were a double phaeton fitted with $5\frac{1}{2}$ h.p. M.M.C. motor, and a four-seated *tonneau* with 8 h.p. M.M.C. engine. These vehicles were described at length in our report of the 1901 Show. Several small improvements have been made, but to all intents and purposes the specification is as before. The main alteration is the use of a Renold silent chain to convey the power from the engine to the countershaft. The motor-cycle section of the Swift Co.'s exhibit comprised a $2\frac{3}{4}$ h.p. motor-quadracycle, fitted with Components engine behind the axle bridge, and a $2\frac{3}{4}$ h.p. motor-tricycle with balance-gear band brake, and a rubber-covered spoon brake on the front tyre.

The display of Messrs. G. Straus and Co. consisted of a large array of the petrol motors and change-speed gears made by the

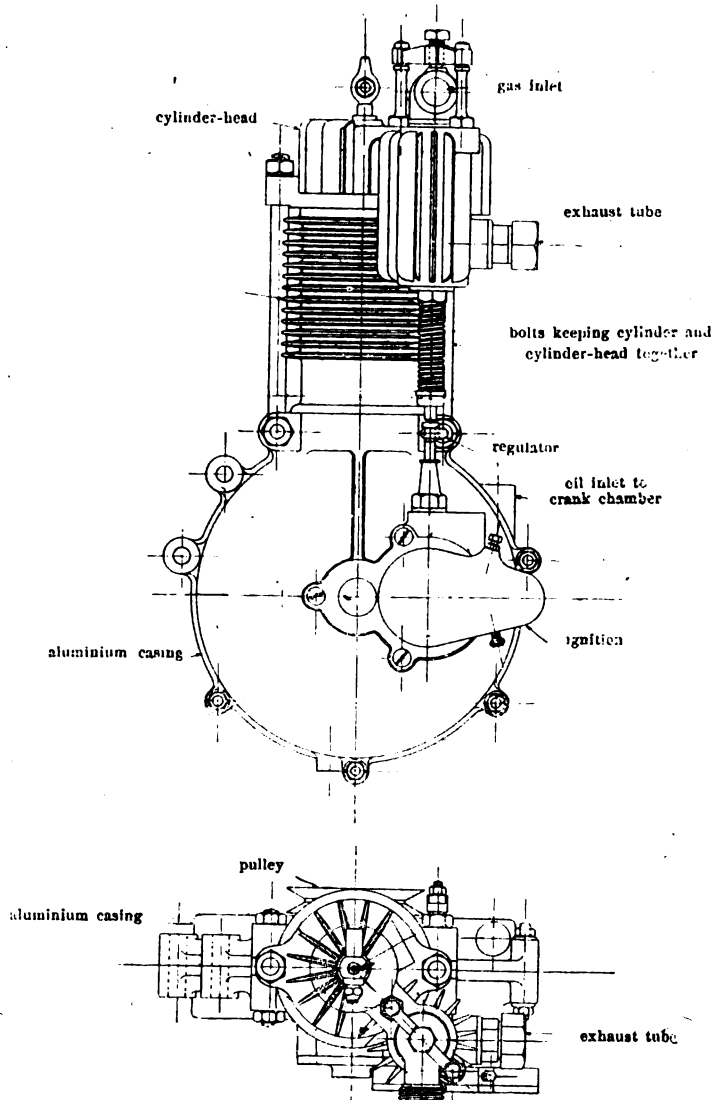


FIG. 130.—ELEVATION AND PLAN OF AACHENER & CO.'S $1\frac{1}{2}$ H.P. BICYCLE MOTOR.

Aachener Stahlwaarenfabrik. The bicycle-motor (Fig. 130) is of the air-cooled type, and has a cylinder 65mm. diameter by 71mm. stroke, the power developed being $1\frac{1}{2}$ h.p. The bearings are made of specially-prepared phosphor-bronze; the valves are easily accessible, the suction valve can be removed by the loosening of a single bolt; the suction valve itself is not screwed on, but is held in position by a bridge-fastening device. The exhaust valve is provided with a regulator to control the speed of the motor; this arrangement does away with the usual compression tap, as, by raising the exhaust valve, the compression is non-acting. The engine is also provided with a small ball-shaped valve to balance the counter-pressure, which is caused by the downward stroke of the piston. Larger sizes of the Aachener Company's water-

cooled motors were to be seen in a 5-h.p. water-cooled single-cylinder (90mm. diameter by 100mm. stroke) running at a normal speed of 1,500 revolutions per minute; a 8-h.p. single-cylinder and a two-cylinder (90mm. by 100mm.) motor having external flywheel and running at 1,400 revolutions per minute. Change-speed gear boxes, rear axles with differential gears are other specialities of the company, samples of which were displayed.

Messrs. Peto and Radford, Limited, made a varied display of their specialities, these including the "armoured" accumulator, in which the plates are protected so as to preserve them from mechanical injury. Each plate consists of a pasted lead grid of extremely light section, thus securing a maximum of active capacity for the size of plate employed. Around this is a case of lead perforated with circular holes. This case gives the necessary strength and mechanical support to the grid. Between the case and the grid itself, on both sides, is placed a sheet of perforated ebonite or celluloid. These act as separators, entirely preventing the paste from falling out of the grid, and from causing a short circuit through bridging across the plates. Primary batteries and accumulators for motor-cars, quads, voiturettes, and petrol launches formed an attractive feature of this firm's

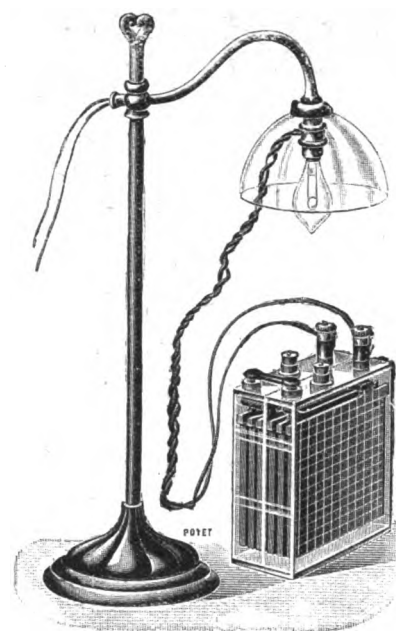


FIG. 131.—PETO AND RADFORD'S ACCUMULATOR-CHARGING DEVICE.

display. Volt and ampere meters, testing and inspection lamps, pole testers, etc., were also included in the general selection of electrical accessories for the use of automobilists. A charging button was shown, which enables the accumulator to be connected in series with the lamp when being charged from an electric light circuit. The socket is inserted into the lamp-holder, the poles are tested by a pole-tester or paper, and the accumulator connected up as shown in Fig. 131.

Oil-cans of many forms and of various types were shown by Messrs. Joseph Kaye and Sons, Limited. The firm's patent seamless oil-cans are admirably adapted for their purpose, and the specialities exhibited included seamless copper, brass, and steel oil-cans with interchangeable and fixed spouts. An improved oil economiser or "save-all" for storing quantities of thick lubricating oil was shown. This can also be adapted for storing petrol, and is made in sizes to contain 4 to 200 gallons. A special feature was being made of an oil-can with a long spout intended to reach those parts of the machinery of a car inaccessible by the ordinary cans.

(To be continued.)

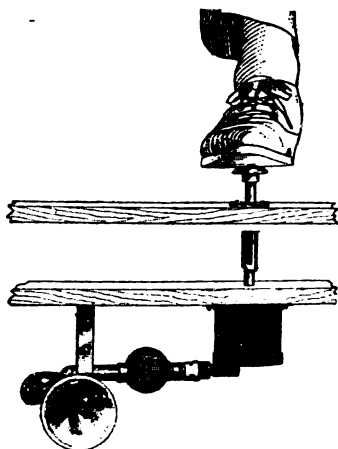
A THREE miles motor-cycle handicap is to be held at Worthington on Whit-Monday.

TO-DAY (Saturday) the members of the Irish Automobile Club leave Dublin for a two-days' tour to Rostrevor.

HERE AND THERE.



A PEDAL-OPERATED motor horn, as shown in the accompanying illustration, has recently been introduced by the Gleason Peters Air Pump Company, of Houston Street, New York. The pump is fastened underneath the body of the vehicle, and has a sleeve which fits over the plunger rod, thus allowing the foot-board



to be readily removed without disconnecting any part of the apparatus. The horn can either be connected directly to the pump as shown in the illustration, or may be fixed in any suitable position, a rubber tube connecting it with the pump.

MESSRS. LAMPLUGH AND CIE, of Levallois-Perret, near Paris, have sent us a photograph of a Limousine body they have specially designed and built for a 10-h.p. Mors frame. The back seats are arranged to give seating capacity for three people, and the front one for two persons. The entrance is in front by a sliding door; all the windows can be removed in order to have plenty of air in summer time, and can be entirely closed for winter and wet weather. At the rear part of the car a large tool box is arranged to open outwardly, and extra tyres can be carried on the top of the car. The mud-guards are built up close to the car, enabling wicker baskets to be secured on the top of them.

MR. W. JOHNSON, of the British and Foreign Motor-Car Company, Limited, has just completed and patented a two-speed gear suitable for motor-bicycles, which is all contained within the hub, and which is worked by two friction clutches. The drive from the motor is by chain, although belts may be used, and the motor can be kept running without affecting the speed of the bicycle in traffic. Mr Johnson intends to fit the device to the 1. h.p. motor-bicycle, which will, he considers, be sufficiently powerful on a properly designed bicycle fitted with the new hub.

A NEW motor tube has been introduced by the Collier Tyre Company, in which the durability of the red rubber tube and the facility of repair associated with the grey rubber tube are combined. The tube is made of red rubber, which, being cured with salts of antimony, wears better than the grey variety, which is cured with sulphur only. But the presence of an outer skin of grey rubber assists the motorist in repairing his tube by the roadside instead of having to drive his car on a deflated tyre and ultimately send the tube to the makers for the necessary repair. The new Collier tubes are made in various sizes to suit different makes of tyres.

THE Hon. C. S. Rolls gave a lecture before the Birmingham Municipal Engineering Society, at the Technical Schools, a few days ago. The lecture was illustrated by lantern slides, and dealt with the past history as well as a review of the present state of the motor industry. The lecture was well attended, there being evidently much interest taken in Birmingham in automobilism.

A CAPITAL map of London, on a sheet 36 in. by 26½ in., has been brought out by Messrs. George Philip and Son, which should be useful to Metropolitan motorists, whose name is legion. It is on the scale of one mile to an inch, and the way in which the roads are marked is clearness exemplified. Railways, too, are indicated, thus providing a kind of stand-by in the case of breakdowns or punctures.

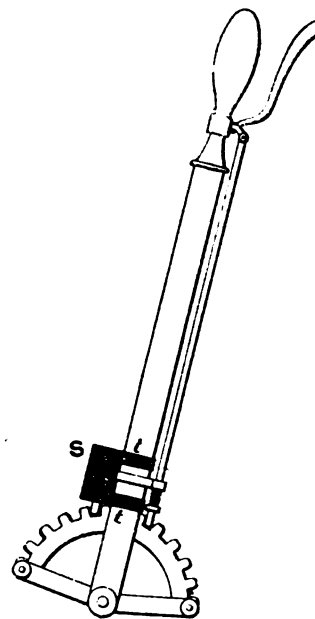
THE Century Engineering and Motor Company have just issued a useful sheet of instructions for the management of Century motor tandems. It is divided into eleven paragraphs, and is written with the idea of enabling the user of one of these machines to start it for the first time with a minimum amount of trouble when he receives it from the works.

MOTORISTS touring along the Great North Road and through Grantham will find, close to the parish church and the Angel Hotel, well equipped workshops and storage room for motor-cars. Mr. George R. Burton has every facility there for the execution of repairs and the supply of petrol. His address is Motor Works, Church Trees, Grantham.

THE Caledonian Motor-Car and Bicycle Company have erected a new factory in Rosebank Terrace, Aberdeen, and have provided accommodation for storing motor-cars at fixed rates. An owner may have a separate apartment for his car for £6 per annum, and facilities for cleaning and repairing are also provided.

THE Brighton and Sussex Motor and Carriage Works Company is establishing a garage in Conway Street, Hove; their showrooms are at 29, King's Road, Brighton, Mr. F. Constable being the general manager, and Mr. F. Parker being in charge of the Hove establishment.

M. H. ARNAL, a French motorist, employs a simple device to lock his motor-car when he has occasion to leave it unattended for any length of time. To the bottom of the hand brake lever there is brazed a small lock, S, the bolt of which can enter the



notches of the tooth sector. When leaving the car, the brake is put hard on and locked. When not in use the lock in no way interferes with the use of the brake lever. M. Arnal, who has had the device in use on a 6-h.p. car for over a year, adds that any locksmith ought to be able to quickly fit brake levers with a similar locking arrangement.

MESSRS. R. STEPHENSON AND COMPANY, LIMITED, the well-known engineering firm of Newcastle-on-Tyne, have placed an order with Messrs. George and Jobling of that town for a 8-h.p. Argyll car which will be used by them for business purposes.

CORRESPONDENCE.

WARNINGS TO MOTORISTS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In your issue of the 3rd inst. a letter appeared from Mr. Scriven on the subject of alleged police intolerance on the road between Bradford and Stanningley, and as a motorist who, in common with most others in the locality, has received consideration at the hands of the police in the district, I have been down and interviewed the inspector and sergeant at Stanningley to ascertain the facts.

I would say that the road there has a lot of traffic on it in addition to a double line of electric trams. There are two turnings each at a sharp angle, and the distance between the two bends is (approximately) half a mile. The police have measured out two lengths, and it was on these lengths that two people were timed and proceedings taken. One car travelled 438 yards in 30 seconds, and the other 840 yards in 65 seconds. Owing to the sharpness of the angles of the bends there is not the least difficulty in accurately timing these stretches. After the second bend there is a sharp dip in the hill which leads to the Stanningley tram terminus (where there are generally one or two cars waiting), and thence into the somewhat congested main street of Stanningley. Any broad or fair-minded person would admit that this corner is a dangerous one, or at least one requiring caution and a slow speed. I must say that both the inspector and sergeant were very courteous, and said that action had only been taken when warnings had become of no use; they say that it is against any interest of theirs to be antagonistic to motor-owners, and they are quite open-minded on the subject of higher speeds on open country roads. They argue (quite properly) that they are bound to carry out the law, and from what I have seen I cannot say that there has been an injustice done to your correspondent or others who were fined. I have gone to some trouble to get at the facts of this matter, in fairness to our local police, who, as above mentioned, have as a rule been fair to myself and a number of brother motorists in Bradford. In conclusion I would remark that the best way to get the speed limit raised is by exercising caution on all such roads as above described, and a little cultivation of the police would also help to smooth matters.—Yours faithfully

HERBERT A. JONES.

PUNCTURES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having read "Doc's" letter in the issue of the *Journal* of the 3rd inst., and also your reference to it, I send you my experiences with Michelin tyres. I have had them fitted to three of my cars. The first was a light one, the third I have not yet driven very far. The second was a 6-h.p. Panhard, weighing about 16 cwt. The tyres were 65 mm. voiturette. I have found that genuine punctures were of rare occurrence, the cause of the trouble being much more often faulty replacement of the tube in the cover, and an insufficient quantity of French chalk. When I had become used to the detachment and replacement of these particular tyres I was practically free from trouble, and had not even to use the pump for weeks together.

A friend accompanied me on a run from Cirencester to Birkenhead just before Christmas. We both had luggage, and the car must have weighed over a ton on that trip. The roads were alternately covered with water, mud, and frozen snow. The tyres gave us no trouble whatever. On the return journey, and from Cirencester to Bridgewater, a month later, when the car was rather lighter, I experienced the same freedom from tyre troubles. I admit that this experience may be exceptional, but at the same time it goes to show that punctures are anything but inevitable. I think that they may be reduced to a minimum by using tyres with as tough a tread as possible; accurately fitted to the wheel rim, and carefully put on with plenty of French chalk inside the cover. In a motor tyre one does not look for the same resiliency as in bicycle tyres, even in proportion to their strength, and strength seems therefore the primary consideration.—Yours truly,

JOHN ASPINALL.

MILITARY AUTOMOBILES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to the article entitled "Military Automobiles," in last week's issue of your *Journal*, I can cordially endorse the views expressed therein. My company (the Automobile Transport Company) and, as I have reason to know, others also, received the circular letter from Captain Walker, given by you *in extenso*. In response we duly forwarded our quotations for the several goods mentioned, as, no doubt, did other firms who were asked to do so. At the recent Motor-Car Exhibition it must have been somewhat galling for Englishmen to see an American automobile used by our military men in the South African hostilities. I in no way wish to detract from the utility of these light cars, but it is sincerely to be regretted that enquiries for them should have been set afoot in the United States. In the new industry we have quite enough to occupy us in attempting to keep pace with such countries as France. Motor-cars will assuredly play a very important part in the battles of the future. If, therefore, British officials are predisposed in favour of alien products,

our manufacturers should be thoroughly "alive" and on the alert to successfully defeat foreign competition.

Englishmen, to say the least of it, would be furious were the Government to propose having our warships built at Stettin or Philadelphia. I contend, then, that the cap fits equally in the case of military motor-vehicles.—Yours truly,

E. HUGH OWEN.

MOTOR BALLOONING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In ascribing ignorance of airships to poor Severo, M. Santos Dumont forgets for the moment the exceedingly narrow escapes he has himself experienced. In my opinion it is only by a succession of lucky flukes that he is alive to-day. The fact cannot be sufficiently emphasised that motor-ballooning never will be safe; as also the fact that the inevitable casualties attendant on that perilous pursuit form no argument against legitimate mechanical flight, with which "the man in street" is too apt to associate it.—Yours faithfully,

SYDNEY H. HOLLANDS.

FURIOUS DRIVING CASES.

NORTHUMBERLAND BROWN, Blatchington Road, Hove, was summoned at the Haywards Heath Petty Sessions, on Monday, for driving a motor-car at a greater speed than twelve miles an hour on the London Road, Burgess Hill, on April 25th. James Williams, of the Junction Inn, Burgess Hill, said that on the afternoon of April 25th he was driving along the London Road, and when by Clayton Priory he saw a motor-car with five men on it coming from Burgess Hill at a very reckless speed. When within 160 yards of him, seeing they were swaying from one side of the road to the other, he signalled to them to keep on their proper side of the road. They took no notice, and when within thirty-five yards of him he shouted to them to stop, but they continued, and came right under his horse's head. He drew back, but there were three vehicles behind him, and he was driven back right on to the hedge. His trap overturned and was smashed. Ernest Travis, carman, who was driving a horse and van, said he saw the motor-car coming from the direction of Burgess Hill. He was about six yards behind Mr. Williams, and heard the latter shout out for the car to stop. It stopped about thirty yards in front. The car had to cross the road to stop. He estimated the speed at from twenty-five to thirty miles an hour. He saw the pony trap upset and Mr. Williams and the boy thrown out. William Wild, wheelwright, Burgess Hill, said he saw the motor-car coming towards Hassocks. He estimated the speed at from twenty-five to thirty miles an hour. The defendant said he had had five or six years' experience of motor-car driving. He had taken a party of gentlemen as passengers to Sagger's Farm, Bolney, and was driving the car. On the return journey, when by Clayton Priory gates, he saw nothing of Mr. Williams until his car had passed the bend of the road. He then saw Mr. Williams' trap passing Meeds' van. He was on his wrong side. The pony was restive, and he put on the brakes and stopped dead, forty yards in front of Mr. Williams, who threw the reins on the pony's back and jumped out. After other evidence, the Chairman of the Bench said there would be no conviction in the case.

MR. V. S. ALLPRESS, of King's Croft, Eltham, has been summoned before the Dartford magistrates for driving a motor-car at the alleged rate of twenty miles an hour. Two police officers were positive that a distance of 350 yards was covered in thirty-five seconds, but owing to the evidence adduced by the defence, and the point raised as to the inconclusive nature of attempts at timing speed without stop watches, the police were unable to establish their case. Sergeant Vouden said that on the afternoon of Sunday, the 13th of April, he saw the defendant driving a motor-car from the direction of London. He timed the progress of the car from the Chequers Inn to where he was standing at the Vicarage, a distance of 350 yards, and found it was covered in thirty-five seconds, being at the rate of about twenty miles an hour. He informed defendant he would be reported for travelling at excessive speed. After evidence by the defendant and his witnesses, and the Bench having deliberated in retirement, the Chairman announced that they had given the case most careful consideration, but they did not consider it had been proved to their satisfaction, and therefore it would be dismissed.

At the Haywards Heath Petty Sessions, on Monday, Albert Kessler, York Place, Brighton, was summoned for driving a motor-bicycle at a greater speed than twelve miles an hour, on the London Road, Burgess Hill, on April 27th. Defendant was fined 30s. and 10s. costs.

At Chertsey Petty Sessions, Arthur Jones, of Cobham, was summoned for furiously driving a motor-car at Weybridge, on April 9th. Inspector Marks stated that defendant covered a certain distance at a rate of thirty miles an hour. By the defendant: He believed that the defendant had the machine under proper control, and he passed the traffic in a proper manner. The defendant said he was not aware that he was going at thirty miles an hour, but he pleaded guilty to the charge. Fined 40s.

OSWALD EDWARD LORD, twenty-three, of Arundel Mansions, Fulham, has again appeared at Marlborough Street Police Court, London, on charges of being drunk and furiously driving a motor-car in Regent Street, thereby causing bodily harm to Henry Mejlach, a Russian Pole, and also of being while drunk, in the possession of loaded firearms. He explained the accident by stating that he got on the wrong side of the refuge, and in order to avoid a collision with a cab jammed the brakes on too suddenly. There

was too much momentum on the car, which was a powerful 40 h.p. one and that, with the steep gradient, caused it to skid and slip. Mr. Denman remarked that, according to his own showing, he was on the wrong side and going too fast. If it was contended that side-slip was sometimes unavoidable with motor-cars, then persons were liable at any time to be knocked down and perhaps killed. Mr. Leonard Gay said he was the owner of 91, Regent Street, and carried on business there as Boswell Hensman, silversmith. He roughly estimated the damage to the shop front (outside the damaged stock) at £300. Mr. Denham said that a remand was necessary, in view of the possibility that there might be a charge of manslaughter arising if the injured man died. Defendant was remanded on bail, as before, in £200.

At the Petty Sessions at Stony Stratford, before the Duke of Grafton, K.G. (in the chair), Mr. A. Grant-Thorold, Mr. E. H. Watts, and Mr. T. Byam Grounds, Ernest Ashby, of Kettering, was charged with driving a motor-car at an unreasonable speed, at Potterspurty, on April 19th. Mr. G. J. Phillips, of Northampton, appeared for the defendant. William Pratt, landlord of the Anchor Inn, Potterspurty, said he was standing in his bar at 4.15 p.m., and all at once he saw a horse and trap and a motor-car at the cross roads. A dog was run over by the motor-car and killed. He should imagine that the motor-car was travelling eighteen or twenty miles an hour. The driver of the car did not attempt to stop. Cross-examined by Mr. Phillips: The corner was very dangerous at the cross roads, and witness wondered accidents had not occurred previously, considering the speed vehicles travelled. The defendant came back two hours afterwards. Harry Jones said the motor-car in question passed him near Potterspurty at about twelve miles an hour. The speed was subsequently increased, and the car was going fifteen miles an hour through Potterspurty. Witness thought it was Mr. Victor Ashby who was driving, and not the defendant. After evidence for the defence the Bench, after consultation in private, concluded that there was not sufficient evidence, and, giving the defendant the benefit of the doubt, they dismissed the case.

At Huntingdon Police Court, Mr. G. Iden, Motor Mills, Coventry, has been summoned for driving a motor-car on the Great North Road, on April 17th, at a greater speed than twelve miles an hour. The Bench considered that the car was travelling above the legal limit, but as there was nothing to show that defendant was driving to the danger of anybody on the road they would only fine him £1 and costs.

T. S. MANNING, manager of the Southdown Brewery, East Grinstead, was fined £5 and 9s. cost at the Uckfield Petty Sessions, for driving a motor at a greater speed than twelve miles an hour. The constable stated that defendant covered 440 yards in 34 seconds.

FRANK G. BARTON, Oxford, was summoned at the Abingdon Petty Sessions for driving a motor-car at an excessive rate of speed along the Oxford Road. P.C. Ponsford said he timed defendant, and found he covered 530 yards in 36½ seconds. Mr. Andrew Walsh, for defendant, said the pace at which defendant drove was only fourteen miles an hour. A fine of £5 was imposed, with 8s. costs.

ALFRED RIVETT, 252, High Road, Leytonstone, was summoned at Chelmsford, but did not appear, for riding a motor-bicycle furiously between Brentwood and Chelmsford. Fined £2 10s. and £1 0s. 8d. costs.

THOMAS GILFORD, Stroud, was summoned at the Whitminster Police Court for having ridden a motor-cycle at a speed exceeding the legal limit. He was fined 27s., which included 17s. costs.

NEGLIGENCE.

THOMAS WALTER RUSH, 91, Church Street, Edgware Road, London, was summoned at the Bullingdon (Oxon) Petty Sessions for negligently driving a motor-car on the highway, on April 21st, to the common danger of passengers. He pleaded not guilty. W. Polley, of Cowley, who had instituted the prosecution, said he was driving towards Nuneham on the day in question, when the defendant's motor-car came down the hill and struck the off wheel of his trap. Both wheels were clean cut off, and he and his wife, who was driving with him, were thrown to the ground. After a long cross-examination Mrs. Polley was called, and corroborated the evidence of the previous witness. After other evidence had been given Mr. Forrest Fulton, who appeared for the defence, said the motor-car was not going at a pace of more than ten miles an hour, and that the accident was caused by the pony in the trap shying and backing the vehicle on to the motor-car. Several witnesses were called for the defence, and after a brief deliberation with the other magistrates the Chairman said they were satisfied that although the pony did shy the accident would not have happened had the driver of the motor-car been as careful as he could be, and as far as he ought to have been on his own side of the road. The defendant would be fined £2 and 5s. 6d. costs.

CANCELLING A CONTRACT.

MR. JUSTICE JELF, on Tuesday, heard the action brought by the General Automobile Agency against Mrs. Florence Waller, the actress, to recover £500, the value of a 6-h.p. motor-landaulette. Mr. Farman's case was that in August, 1901, he agreed to build the landaulette, one of the terms of the contract being that until this was completed he should lend Mrs. Waller a Peugeot coupe. Mrs. Waller paid Mr. Farman a deposit of £100, and his firm proceeded to build the Panhard; at the end of a month the defendant cancelled the contract. The result was that the Panhard landaulette was left on the firm's hand incomplete. The defence was that the firm had not carried out the terms of the contract.

NO LIGHTS.

At the Slough Petty Sessions Charles Pearce was summoned for driving a motor-car with out exhibiting red lights in the reverse direction to that in which the car was travelling, on April 17th, at Slough. Defendant pleaded not guilty. Police-constable Pearce said about 8.50 p.m. on 17th inst. he was on duty in the High Street, with Sergeant Shore, when he saw the defendant driving a motor-car and not showing a red light in a reverse direction to that which he was travelling. Defendant said it would be impossible for anyone to see the lamps if they were close behind the car, but vehicles approaching the car from the rear would be able to see the lights to within fifteen or twenty yards of the car. Police-constable Pearce said he was fifty yards behind and walked to within ten yards, and he could not see the light. Standing at an angle of forty-five degrees and three yards behind they could see the light, but not otherwise. The Chairman said the Bench were much divided on the matter, and they thought the defendant should have the benefit of the doubt, and the case would therefore be dismissed.

REFUSING TO STOP.

F. W. RUMSEY, of Winchester, was summoned before the Winchester County Bench for refusing to stop his motor-car when desired to do so, on April 16th, at Twyford. It appeared from the evidence of A. Smee, coachman to Colonel Little, and also from the Colonel himself, that the carriage drawn by a mare of restive temperament, and containing the Colonel and Mrs. Little, was being driven home to Twyford by Smee, about 4.30 p.m., near Twyford Lodge. As there had been some trouble with the mare and a motor-car some days before, Smee, on seeing defendant coming towards them, raised his hand and whip as a signal to stop till the horse had passed, but no attention was paid to the signal nor to the shouts of Colonel Little, and defendant passed the carriage, happily without accident. The Bench said drivers of motor-cars were bound in law to stop when called on. Here, happily, there was no accident nor charge of excessive speed. Fined 20s. and 11s. costs.

ALLEGED POLICE PERJURY.

At the Grantham (Spittlegate) Police Court Mr. Samuel Harvey, florist, of Blyth Street, Nottingham, made application to the magistrates for summonses against the Spittlegate police authorities for procuring a local witness, an old man, to commit perjury. Mr. Harvey said that he was convicted in December last for furiously driving a motor-car. He (Mr. Harvey) was prepared to prove not only perjury against the police, but also conspiracy. The Clerk said Mr. Harvey ought to have given notice of his application. The Magistrates said they would consider the matter, and Mr. Harvey must apply at the next court.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

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COMMENTS.



LAST week we referred to an interview between motor-cyclists, and the First Commissioner of Works, with regard to motor-cycles being allowed in London parks, and it was suggested that the present position was unreasonable and might easily be remedied without hurt to anyone. Mr. Akers-Douglas has since announced in the House of Commons that the position will be altered after July 1st, when

the restrictions will be removed so far as Hyde Park is concerned. If motor-cars and ordinary bicycles are allowed to run through the park, there is no reason why such a right should be withheld from motor-cyclists and hence we congratulate Mr. Akers-Douglas on so quickly conforming the regulations to common sense as soon as his attention was drawn to the matter.

Roads in the Parks.

THE discussion which preceded the announcement of the decision recorded above was interesting in many ways. It took place on the vote of £66,200 for the maintenance of the Royal parks and pleasure gardens. Mr. T. Lough, the member for one of the divisions of Islington, pleaded for the motor-cyclists, and Mr. H. J. Tennant, who said he happened to be one "of the unpopular brigade of four-wheeled motorists," not only urged the case of the motor-cyclist, but also drew attention to the necessity of the roads in the parks and pleasure gardens being kept in something like decent order. He assured the First Commissioner of Works and his fellow-legislators that if they ever went on a motor-car down Constitution Hill they would find little pleasure in the proceeding, for they would be apt to be made sea-sick owing to the unevenness of the roads. He therefore impressed on the authorities the urgent need for those roads to be put into better order. This is a point which ought not to be allowed to drop, and now that Mr. Akers-Douglas has secured something like uniformity in the regulations, we hope he will be equally solicitous in securing uniformity in the surface of the roads.

British v. Foreign Cars.

WITH regard to Constitution Hill being used by motorists, only one M.P. seems to have revived the spirit of prejudice which was shown in the earlier days of the movement. Mr. H. C. Richards protested against the invasion of Constitution Hill by motorists. He had constantly seen ladies unhorsed, and had been nearly unhorsed himself, through the horses being frightened by motor-cars dashing along at high speed. On the other hand, the police said "it was difficult to catch these motorists, some of whom were Members of Parliament." In concluding his speech, which seems to have evoked as much laughter as approval, he asked the Commissioner of Works to do something for those who preferred to encourage the breed of English horses rather than drive French machines with American oil. On this point Mr. Richards should read the *Motor-Car Journal*, when he will probably recognise that while

his gibe may have been true five or six years ago, its accuracy can now be safely questioned in view of the great advance that has been made by British makers.

The Taxation of Motor-Cars.

IN the discussion on the Finance Bill just before the House rose for the Whitsun holidays, Mr. Joseph Walton urged, as an alternative to the tax proposed by the Chancellor of the Exchequer, a graduated income-tax, the taxation of land values, and—strangest thing of all—the taxation of automobiles. What the motor cars have done to Mr. Walton that he should thus show his animus we do not know, but we are glad to see that Sir Michael Hicks Beach was not inclined to accede to the suggestion. Already motorists pay sufficient in fines and the costs of prosecutions to the county rates, without having to contribute an unfair proportion to the general revenue of the country. To add to the cost of a comparatively new industry is certainly not the way to promote the general prosperity of our national industries, and we hope that if Chancellors of the Exchequer will avoid taking such hints as that suggested by Mr. Walton, the time is not far distant when the manufacture of automobiles will be one of the leading trades of the country.

The Speed of Cars.

SCOTCH and Irish representatives in Parliament seem to take far more interest in the subject of motor-cars in London thoroughfares than do the representatives of metropolitan constituencies. A few weeks ago a member from the Emerald Isle asked two or three questions on the subject, and later a gentleman representing a Highland constituency sought to secure an assurance that motor-cars should be made to crawl rather than travel along the main highways. Last week Dr. Farquharson, another Scotch member, put a question of similar effect to Mr. Ritchie, who in reply said that strict orders had been given to the police in respect to the infringement of the law as to the speed of motor-cars. He acknowledged that difficulty exists in estimating even approximately the pace at which an automobile is travelling, and this is a point that we would ask county magistrates, who seem to regard the police as infallible judges of speed, to notice. The suggestion as to numbering motor-cars having been made to Mr. Ritchie, he rightly pointed out that if anyone has power to make such an order it is the President of the Local Government Board, but the Home Secretary expressed a doubt whether under the existing laws he has any such authority.

Municipalities and Automobilism.

WHILE many corporations at places around the coast are showing an unwise and foolish antipathy to motor-cars, some of the large municipalities are regarding the matter with enlightened visions. From Maidenhead to Glasgow we have lately received news of Councils considering the adoption of motor-vans for dust collection and of adopting the same system for the watering of streets. Everywhere interest is growing in this

department of the movement—further evidence of the utilitarian nature of the British people. Now we hear that the Corporation of Newcastle-on-Tyne are devoting attention to the matter, and we hope their deliberations may result in the adoption of a practical vehicle which will prove not only acceptable to the town, but the cause of imitation in others.

A Point for Drivers.

A CORRESPONDENT favours us with an inquisitorial letter which he has received in reply to an application for the position of driver with a public service company in the South of England. He complains of the multitude of questions which he was asked, but we are afraid that should he compare them with the form of application in connection with the Motor Service Register, just established by the Automobile Club, he will find cold comfort. The truth is that motor-car owners will have to exercise even more care than heretofore with regard to the employment of drivers. One point, however, he makes which seems far more reasonable, for it appears that one condition of employment was that he should make eight journeys per day, each averaging one hour and a quarter. In addition to this it would be part of his duty to spend an hour and a half overhauling the car every morning. On Saturday an extra journey would have to be made, and on Sundays six journeys would be

It was decided that a Motor Cycle Club would be a great advantage to all motor cycle riders, and a club was formed to be called the Lincolnshire Motor Cycle Club. A committee was elected *pro tem*. The following matters are to be discussed at a general meeting to be held this week:—Draft rules, designs for a suitable badge, opening dinner, runs, etc.

The Education of Horses.

ON Friday next the annual sale of the harness horses of the famous Brookfield Stud, the property of Mr. Burdett-Coutts, M.P., will take place on the Stud grounds at Highgate, and on Monday and Wednesday next there will be two public shows, to which intending buyers are invited. In connection with the sale the auctioneers announce that "A motor car—of more than usually hideous proportions, colour, noise and smell—will be going in the stud grounds up to the time of the sale, in order to thoroughly accustom the horses to the conditions under which they have to meet these machines on country roads, which is a very different thing from meeting them in the town traffic." This is a development in the education of horses which may possibly lead to some guarantee being given in future that the animals are not only quiet to drive but also sensible enough to regard the automobile with something like



A SNAPSHOT AT THE DASHWOOD HILL TRIALS.

Photo by]

[Mr. T. B. Percy.

expected. This, it seems, is rather unreasonable, for while the work may not be hard, it is tedious when too long continued without rest. Arrangements should be made by which motor-car drivers could have one day's rest in seven, especially if, as in this particular instance, they are expected to work thirteen or fourteen hours in the ordinary day.

The London and Oxford Road.

WHEN the next Club trials take place on Dashwood Hill, on June 3rd, it is fervently to be hoped that the principal roads will be free of unrolled stones. On May 10th a long length of granite at Loudwater played havoc with many a costly tyre, and it is not creditable to the usually well-kept main roads of Bucks that in the middle of May the whole width of this road should have been almost impassable even for a whole day.

A Lincolnshire Motor-Cycle Club.

Now that riders of motor cycles are becoming numerous in the county of Lincolnshire, a feeling has been expressed that a Motor Cycling Club should be formed. A meeting was called at the Albion Hotel, Lincoln, on Wednesday last week, when a goodly number of motor-cyclists attended.

friendly feelings. In the catalogue of the sale we notice it is acknowledged that "the modern nobility and gentry of the realm will probably go to Westminster Abbey in motor cars, but there may be one or two old fossils left who would like to see a true Coronation pair." For these latter a pair of state coach or barouche horses are to be offered. They are now on regular work between Piccadilly and Holly Lodge, Highgate, and—again we quote from the catalogue—"if the motor-car craze has left room for any pride in the old-bred English harness horse, no apology will be needed for calling attention to the special characteristics of the Brookfield breed, which are derived by heredity of pure breeding."

Application against a Constable.

MR. SAMUEL HARVEY, of Nottingham, who was in December last convicted of furiously driving a motor-car on the Great North Road at Long Bennington, applied to the magistrates at the Spittlegate (Grantham) Petty Sessions on Saturday last for a summons against Police-constable Kirk for suborning a witness named Baxter to commit perjury. Colonel Parker, the Chairman, said the magistrates had given due consideration to the application, and they did not think they were justified in granting a summons. Mr. Harvey said he was sorry they had come to that decision, but if the magistrates protected the police

who committed perjury, he had only one course open. His case was quite clear, and he would carry it further, straight to the King.

Mails by Electric Cars.

At 8.20 on Tuesday morning a new electrical mail van started its daily run from Mount Pleasant, Clerkenwell, its first load being a special delivery of mails to Waterloo. This is the first occasion upon which an English-built electrical motor-van has been used for this purpose, and the postal authorities, being most anxious to adopt the latest and most improved means of transit, are now giving this new system an extended trial in the City and West-end services. The contractors, Messrs. Julius Harvey and Co., after considerable tests, selected one of the Oppermann electrical delivery vans, the motive power being furnished by a set of A.B.C. accumulators. From the result of the trials already made those interested are very sanguine of the ultimate success of this new system, and if their hopes are fulfilled a large number of electrical mail vans will soon be running in London. The vehicle now in use was shown by Mr. Oppermann at the recent Exhibition, and we may add that an illustration of it was published in our issue of the 3rd inst.

Tolls over the Lea.

WITH reference to a letter from Mr. C. T. Cutler in our issue of the 3rd inst., respecting the toll on the bridge over the Lea, leading to a road through Netherfield Park, Ware, we learn that our correspondent's conclusions were not strictly in accordance with the facts. The toll to which he referred has been in existence for many years. When Mr. H. Lawrence Prior came into possession of the property the bridge over the Lea was in a dangerous condition, and he rebuilt it. Before then no locomotive of any description was allowed along the road, but when the bridge was rebuilt Mr. Prior removed the restriction, and fixed the tolls in proportion to those existing for carriage traffic. The tolls on motor-vehicles are also fixed on a proportionate scale. Mr. Cutler's statement as to loose flints being on the road was another inaccuracy, as the road is in very good order and not a single flint has been used in its repair for years. The road is intended for the traffic of the district, and is really a short cut for local convenience. Mr. Prior has no antipathy to automobiles, and we would advise our correspondent to be less hasty in writing to the newspapers in future.

Services in the Midlands.

A CORRESPONDENT in a Midland town, who feels that he could successfully start a garage therein, writes asking if gentlemen who have had experience of the work elsewhere will make suggestions that might be helpful in organising excursions and trips to neighbouring places of interest. He would propose to seek permission to stand a car at all the important cab stands in the town, to compete with the ordinary cabs. Only one consideration dissuades our reader from early commencement of the enterprise, and he asks, "Is the time ripe?" This is a question that is being asked in many places and by people in various walks in life. Probably, it may be useful in inaugurating an interesting discussion in the *Journal*.

Motor-Car Imports and Exports.

PROOF of the enormous development that is taking place in the automobile movement in this country is to be found in the figures now available, relating to the imports and exports of motor-cars and cycles during April. To deal first with the imports, no less than 434 cars and cycles were imported into this country last month, the value of the same being returned at £109,587. The value of the "parts thereof" is given as £11,593, so that we get a combined total of £121,180, as compared with £70,513 in March last. Some of

these imports were only of a temporary character, being re-shipped to foreign destinations. Thus last month the re-shipments comprised seventeen vehicles amounting in value to £4,499, and £261 of parts, bringing down the net imports in April to £116,420. During the first three months of the current year imports of foreign automobiles and parts in Great Britain have reached a total of £273,695, representing over 1,000 cars and cycles. As regards the exports of automobiles of home manufacture, the shipments during the past month amounted to twenty-nine vehicles of a value of £11,533. Of parts the exports attained a value of £569, making a combined total for April of £12,102, as compared with £5,576 in March last. It is satisfactory to find that, so far as the year has gone, that is to say during the four months ending with April, ninety-one British-built motor-cars and cycles have been exported, their value being roundly £30,600.

In Essex.

MOTORISTS passing through Essex, especially on the high road between Romford and Brentwood, have need to be careful, for the police are unnecessarily watchful in that locality, and just before the holidays four drivers of motor-cars who covered the six miles between the two towns named in twelve, fourteen, eighteen, and twenty minutes respectively—according to the police evidence—were fined. The defendants who did not attend at the police court hearing was fined 50 per cent. more for his inattention to the magisterial matinee. Elsewhere in Essex, too, the police have shown their antipathy to motorists, and we would urge readers who intend to investigate the glories of Epping Forest to do so at a moderate speed—not only to avoid bringing discredit upon automobilism, but also to better enjoy the scenery of the district.



THE EARL OF SHREWSBURY AND TALBOT GOING TO A MEET.

Marriages and Motor-Cars.

OFTEN have we recorded motor-car weddings, and recently a newly-married couple, well known in society, departed for their honeymoon on a friend's automobile. A further instance of the utility of the motor-car is furnished by the experience of a Welsh couple about to wed. Two young people of Llangollen had, last week, intended to enter into a matrimonial alliance, and all the preliminary arrangements had been made. The wedding party arrived at the office of the local registrar—only to find that official was absent. The nearest gentleman qualified to act in his stead was at Corwen, many miles away. No train was available, and horses were absolutely worthless in such a contingency. But a motor-car was within call, and at one o'clock the driver set off. Meanwhile, the agitated couple passed an uneasy time, but their despondency was turned to jubilation when, at half-past two, the car returned with another registrar, who tied the knot in the legal time. There have been many converts to automobilism in Llangollen since that event.

Licences for Motor-Bicycles.

A GENTLEMAN in North London, who has just become the owner of a motor-tricycle, has expressed surprise at the local police-court at having to take out a licence for his automobile. When summoned by the Board of Inland Revenue last week he pleaded that he had not had it long, and that he was ignorant of the fact that it was liable to taxation. On being warned, he had taken out a licence; but this did not save him from having to pay a fine of 10s., with 2s. costs. On this point, our correspondent asks if a motor-cycle used by probable customers for trial trips is liable to taxation. Probably, he will find it save much trouble with the Board of Inland Revenue to take out a licence, for they recognise it is very difficult to know where to draw the line. Perhaps some of our readers who have had experience on this point will favour us with their views.

"If he had
had a
gun."

THOSE automobilists who passed through Beaconsfield on the occasion of the Dash-wood Hill climb little knew the risks they ran, and perhaps the party of half-a-dozen who seemed halting between the Saracen's Head and the White Hart when we passed on the return journey may congratulate themselves

shorter time while insufficiently inflated. He points out than an insufficiently inflated tyre rolls in its rim, and soon causes the cover to tear away at its junction with its thickened edge. M. Michelin also advises the careful wiping and drying of covers after running through mud or water before detachment. This will prevent the formation of boils, which are so inimical to the life of a cover, and are often very difficult to repair. A rusty rim tends to rot the canvas and cut the thin portion of the tyre cover where it makes junction with the stiffened edge.

THE Motor Cycling Club will hold a run to Dunstable on Sunday next. Members will meet at Tally Ho Corner, North Finchley, at 10.30 a.m.

THE East Riding Cycle and Motor Company held a two days' show of motor-cars at the Central Hall, Hull, last week their 9 h.p. Viper light car coming in for a large amount of attention.

A MEET of the Lincolnshire Automobile Club will take place to-day (Saturday) at Brigg. Tea will be taken at the Angel Hotel at 5 p.m.

ON the suggestion of Lord Suffield, the Committee of the Automobile Club is making enquiries as to the cost of an enclosure at Goodwood. Motor-cars are forbidden at Ascot during the races.



THE SCENE ON THE FRONT AT BEXHILL ON SUNDAY.

that none of the local Council were about at the time. At the meeting of that distinguished body the other evening one member referred to the running down of a small dog by a large motor-car, and added the declaration that if a dog of his had been similarly mangled and he had had a gun handy he would have marked the driver of the car in such a way as to have afforded complete evidence of identification. Needless to say, after such a declaration from the Chairman, the Council resolved to call the attention of the police to the excessive speed at which motor-cars travelled through the town. This is another instance of the harm that is being done to the movement by those drivers who have little regard for the convenience of others.

The Care of Tyres.

WRITING with regard to the condition of the many outer covers sent to his concern to repair, M. Michelin says that many of these damaged covers are found with the thickened edge, which slips under the overturned edge of the rim, torn away from the cover for a considerable length. M. Michelin complains that many automobilists have not hesitated to ascribe this condition of affairs to bad workmanship and poor material. He, however, denies that this is so, and attributes destruction to the fact that the tyres have remained and been used for a longer or

THE Corporation of Royal Leamington Spa is inviting tenders, specifications, and designs until the 27th inst. for a motor fire tender, capable of carrying six firemen, a light fire escape, 300 yards of hose and other appliances.

IN Mr. Justice Grantham's court last week the case of Reuter v. Pollard was heard, being an action for the recovery of £400 paid to the defendant to build a motor-car. Baron Reuter having given evidence, the jury was directed to give a verdict for plaintiff for £400.

THE Cleansing Committee of the Manchester Corporation are inviting tenders until the 27th inst. for the supply of a motor-wagon. Specifications may be obtained from Mr. G. Plait, Superintendent of the Cleansing Department, Town Hall, Manchester.

THE next quarterly 100 miles trial of the A.C.G.B.I. will be held on June 3rd, and entries should reach the secretary not later than the 31st inst. The route will be via Beaconsfield and High Wycombe to the 52nd milestone from London, and back again without stopping.

MR. H. HEWETSON has undertaken to drive his motor-car 100 miles per day for fifty consecutive days. When the 5,000 miles is completed, he will sell the car by public auction, handing over the full amount realised to the Prince of Wales's Hospital Fund. The trial runs will commence on Monday, the 9th prox., the start being made every morning at 9 a.m. from the Carlton Hotel, W.

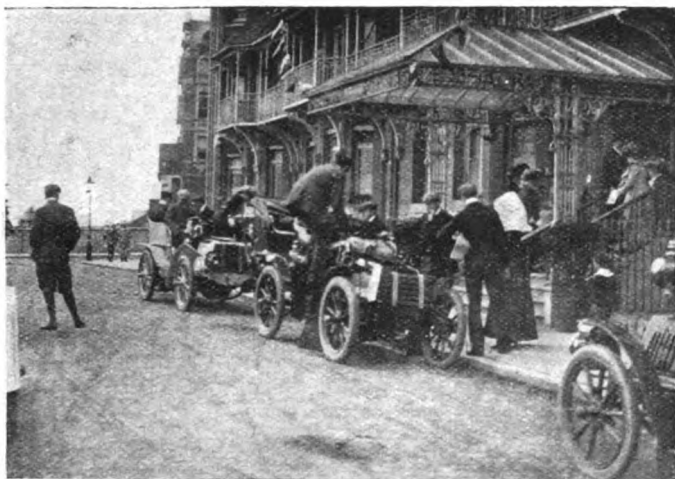
The Bexhill Fête.



IN last week's issue we gave preliminary particulars of the interesting series of events arranged to take place on Whit-Monday at Bexhill, under the auspices of the A.C.G.B.I., and hearing that several of the officials of the Club had arranged to start on the preceding Friday, we decided to do the same. The car chosen for the run was our four-cylindere M.M.C., a most satisfactory and silent-running vehicle. A start was made from Shoe Lane shortly after ten o'clock, and the route followed was *via* Westminster Bridge, Crystal Palace, Bromley, Tonbridge, and Battle. This was a foolish diversion, as there was a better, although rather longer, route, *via* East Grin-

kept them in sight until a hill near Bromley was encountered, where we passed them, due, no doubt, to the very large sprockets put on the Gladiator for the purpose of Monday's races.

It was not until near Farnborough that we saw our friends again, where they passed us. The roads had been very greasy, and as "side-slip" is our bugbear, we had travelled at a comfortable speed of about twelve miles an hour. At this point we changed to "third" and instantly began to "move" and pick up the Gladiator again, but as the grease once more became troublesome and our back wheels seemed to have an inclination to change positions with the front, we "slowed" down again.



SCENES AT THE SACKVILLE, BEXHILL, ON SATURDAY.

stead. For once the tram rails were fairly dry, and consequently no inconvenience was suffered, but after getting off the wood pavements the roads became heavy, causing us to travel on our second speed with the engine running alone. At Penge the familiar sound of a motor was heard, and shortly after a 12-h.p. Gladiator passed us. It was minus its usual *tonneau* body, giving the car a somewhat unfinished appearance. The passenger and driver were two neat-looking fellows, in nautical caps and brown suits of a material new to us. We afterwards discovered that the motorists in question were Mr. Gregson and his brother-in-law. They were travelling at a commendably moderate rate, and we

On Pollhill we bespied the Gladiator's passengers off the car, but before we reached them a fresh start had been made, and it was not until the arrival at Bexhill, between four and five, that we saw them again, bespattered with mud and very damp. They had in the interval made a stoppage at Tunbridge Wells for lunch. Our first stoppage was at Tonbridge, where rain was falling, at 12.40, for lunch. Although warmly clad, the dampness and rawness of the air had made us all feel chilly, and we were glad when the host of the "Rose and Crown," in response to our enquiry, informed us that the good old English fare of stewed steak would be "on" at one o'clock. Otherwise there was a nice

larger of cold meats. But Friday was no day for the latter, and so we waited and were rewarded.

The rain, which had begun with a drizzle, had settled into a downpour, and the prospect at two o'clock, when a restart was made, was not of the most inviting. However, being motorists of lengthy experience, we were all prepared—the two ladies included—with suitable garments, and so restarted, feeling, as a matter of fact, much fitter to face the weather than when we had arrived. The rain drove, and seemed half-frozen, as it stung the face, but, as we had to reach Bexhill—grease or no grease—the third speed went in, and we progressed. Riverhead Hill was in a dreadful state of thick clay, and great care had to be exercised in descending it. The same tale could be continued all the way to Bexhill, but we will not weary our readers—suffice it only to

to be moved into line. In each instance the lanes were narrow, and at each side the earth was soft. The traction engines did not want, naturally, to get on to this, nor did we, so very skilful manœuvring had to be indulged in. However, "all's well that ends well," and we duly reached our destination at 3.45. We were all wet and cold—but, the outer garments being removed, and having had a wash, we felt nothing worse than a desire to have a second luncheon.

The scene at the hotel was a busy one. Many motorists had already arrived, and additional arrivals were recorded every few minutes a whole party, from Hampstead, coming down per train. Some did not arrive till nearly ten o'clock; one gentleman driving a 15-h.p. Mors arrived in such a state from the mud that his friends scarcely recognised him. It was, however,



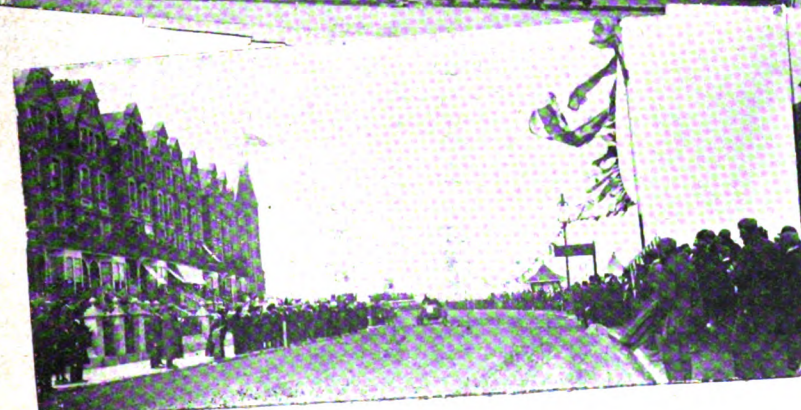
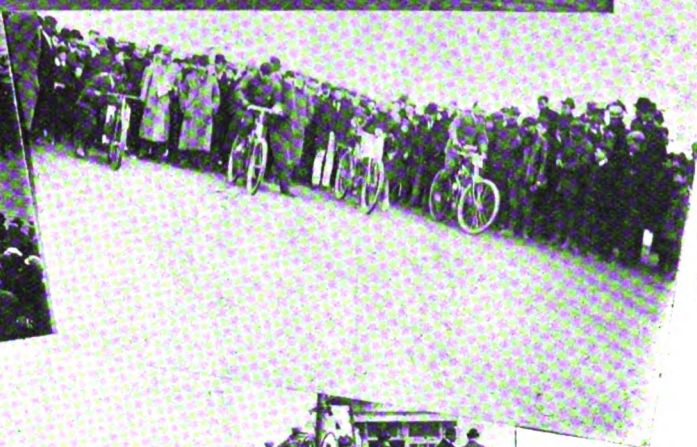
SNAPSHOTS AT BEXHILL ON SATURDAY.

remark that our experiences were varied, between Battle and Bexhill, by striking a hill having a gradient, we should imagine, of one in seven, inches deep in soft clay. On this we were baulked by a wagon with a team of three horses, and again by a restless horse. The consequence was that passengers had to get out and walk, and friendly hands had to "push" to get the car out of the rut into which it had sunk. We saw the hole—not yet filled up—which had been made on our last visit to the Sackville Hotel, and we were in dread lest restless horses should again force us into a like predicament. Then several traction engines were met in narrow lanes—one drawing five wagons laden with stones, and another a complete circus. This latter placed us in an awkward predicament, as the trailers had wobbled all over the road, and had

fortunate for this individual that his extreme length favoured the identification. The weather right up to midnight continued the same—a high wind and a driving rain.

Saturday morning at first broke doubtful but sunshine in conjunction with a high wind, at last prevailed. The steam-roller was early at work, and the officials, with Lord De la Warr busily assisting, were also, after breakfast, engaged in surveying the track, measuring distances, and laying the telephone wire. Cars were buzzing about, and numbers of the public were interested onlookers, the policemen also in attendance being, on this occasion, friends of the automobilists. After luncheon many members and friends arrived, mostly by train. Mr. Mayhew had a comfortable journey on his 20-h.p. Panhard; the Messrs.

SNAPSHOTS AT BEXHILL.



A MOTOR CYCLE HEAT.

THE SCENE IN FRONT OF THE SACKVILLE.

START OF THE MOTOR BICYCLES.

THE FINISHING POINT.

A STRAIGHT VIEW OF THE COURSE.

A HEAVY CAR HEAT

NEARING THE END.

CHALKING THE LINE.

Peall (*pere et fils*) came down on the former's 12-h.p. Daimler; and about three o'clock a 60-h.p. Mors arrived—sans nearly everything but motor-cover and inner tube hung on the back, mudguards tied with string, and the driver with a pair of dancing pumps on—the whole appearance of everything being most singular. All day excitement reigned supreme at the hotel; as the various vehicles arrived, the guests congregated at the doors, and questioned the mud-stained passengers of the cars as they appeared, the general opinion being that the state of the roads was most uncomfortable. Mr. Hewetson came in on one of his Benz cars; other old friends also turned up and were warmly welcomed, but the weather again, towards the latter part of the day, was dull and showery. In the evening, in the lounge, the scene was indeed a brilliant one, and scarcely at any Society function could a more striking sight be seen. The hotel was packed with motor folks, who were, of course, more or less known to each other. It was, therefore, not surprising that late hours were the rule, the topical subject of motoring keeping almost everyone up to the "wee sma'" hours of the morning.

Among the cars that had assembled at Bexhill up to Sunday morning we noticed the following:—

Mr. Astell, 9-h.p. New Orleans.	Mr. C. Johnson, 14 h.p. New Orleans.
Mr. Astell, 14-h.p. New Orleans.	Mr. C. Jarrott, 40-h.p. Panhard.
Mr. G. D. Barnes, 6-h.p. M.M.C.	Mr. R. Lawrence, 10-h.p. Miesse (steans).
Mr. Bird, 12-h.p. Panhard.	Mr. Ledger, 6-h.p. Daimler.
Mr. F. H. Butler, 8-h.p. Renault.	Mr. Midgley, 16-h.p. Napier.
Mr. W. S. Booker, 9-h.p. Napier.	Mr. Mark Mayhew, 7-h.p. Panhard.
Mr. Bramson, 50-h.p. Napier.	Mr. Mark Mayhew, 24-h.p. Panhard.
Mr. A. Burgess, 12-h.p. M.M.C.	Mr. McCalmont, 10-h.p. Panhard.
Mr. C. Browne, 10-h.p. Wolseley.	Mr. H. J. Mulliner, 8-h.p. De Dion.
Mr. C. Cordingley, 12-h.p. M.M.C.	Mr. A. F. Mulliner, 8-h.p. Daimler.
Mr. Cornell, 6-h.p. Benz.	Mr. Overton, 10-h.p. Georges Richard.
Mr. Cave, 10-h.p. Panhard.	Mr. C. Peach, 12-h.p. Gardner-Serpollet.
Mr. Crombie, 18-h.p. Daimler.	Mr. E. Pitman, 6-h.p. Daimler.
Mr. C. Chaplin, 24-h.p. Mors.	Mr. W. J. Peall, 12 h.p. Daimler.
Mr. E. Dangerfield, 6-h.p. M.M.C.	Hon. C. S. Rolls, 60-h.p. Mors.
Mr. G. Ducros, 12-h.p. Panhard.	Mr. P. Riviere, 16-h.p. Pieper.
Mr. H. Edmunds, 10-h.p. Daimler.	Mr. P. Riviere, 16-h.p. Pieper.
Mr. S. F. Edge, 16-h.p. Napier.	Dr. Shaw, 7-h.p. Panhard.
Mr. Elliott, 14-h.p. Dechamps.	Mr. Smith, 12-h.p. Panhard.
Mr. C. Friswell, 5-h.p. Baby Peugeot.	Mr. Sowell, 12-h.p. Daimler.
Mr. C. L. Freeston, 7-h.p. New Orleans.	Mr. Campbell Swinton, 12-h.p. Decauville.
Mr. Moffatt Ford, 12-h.p. Decauville.	Mr. Scelentheim, 12 M.M.C.
Mr. R. Fuller, 10-h.p. Panhard.	Mr. J. W. Stocks, 4½-h.p. De Dion.
Mr. Fletcher, 16-h.p. Panhard.	Mr. Warren Smith, 8-h.p. Argyll.
Mr. Gregson, 12-h.p. Gladiator.	Mr. Troy, 4½-h.p. Renault.
Mr. Terry Horsey, 6-h.p. Benz.	Mr. W. G. Wilson, 8-h.p. Wilson and Pilcher.
Mr. Hutton, 15-h.p. Mors.	Mr. Wolff, 12-h.p. Gladiator.
Mr. A. Harmsworth, 40-h.p. Mercedes (and two others).	Mr. Warne, 6-h.p. Daimler.
Mr. Hewetson, Benz.	
Mr. Isengberg, 8-h.p. Panhard.	
Mr. Jones, 6-h.p. Daimler.	

On Monday every train arriving at Bexhill was crowded with sightseers, who came not only from London and the South, but also from the Midlands. Every hotel, too, poured forth a stream of visitors, and hardly any of the residents stayed at home. They all made their way to the "course," and many took advantage of the early morning trial trips to have a look at the most famous vehicles. Between seven and eight o'clock several of the competitors took trial spins, and the curiosity to judge the performances of the flyers was almost as keen as interest in the event itself.

The course was a kilometre (1,098 yards) long, beginning at the top of Galley Hill at the east end of the track. A road about 160 yards, with a decline of about one in twelve, gave the cars a flying start, while 260 yards remained at the other end in which to bring the vehicles to a stop. The course itself was a smooth road of gravel stretching along the shore, a narrow paved walk separating it from the shingle. The road was nearly straight, but the curve near the finish required to be very carefully negotiated. On the ordinary road beside the track spectators had a good view of the sport.

In managing such an affair for the first time it was only to be expected that the programme should be subject to modifica-

tions; but, on the whole, the event was well organised, and the officials are to be congratulated on the way in which the meeting was carried through. Although it was hoped that the heats in the respective classes would be run in the order on the programme this was found impossible, and the spectators were treated to a very varied arrangement. First would come two voiturettes, then a motor-bicycle heat, and, next, a contest for heavier cars. Further variety was given by a trial run on his 40-h.p. Mercedes being allowed Baron Henri de Rothschild, who arrived while the trials were in progress.

Unfortunately, showers were intermittent during the day, but while these spoiled the pleasure somewhat, they did not materially dampen the spirits of the motorists, who are all assured of the success of the first gathering of the kind in this country. Those of the public who inspected the road at the conclusion of the day's proceedings must have been surprised at its condition, for the surface was not ploughed into furrows as would have been the case had ordinary horse-drawn vehicles been driven over the course. A week before at Dashwood Hill, on a dry road, a contest was held, after which the surface showed little evidence of wear; under the more trying conditions of drenching showers an equally good result was observable on Monday—a point we commend to the notice of county authorities.

Below we publish the results of the contests, from which it will be seen that Mr. Dew's 6-h.p. Gardner-Serpollet car covered the course at a speed of 46 miles an hour—being the fastest touring steam car. The Pape cup for the fastest car over the course in the tourist classes fell to Mr. W. G. H. Bramson's 50-h.p. Napier, driven by Mr. Cecil Edge, in 56 2-5 sec. The best time in the racing electric car section was that of Mr. E. W. Hart's 16-h.p. British Electromobile. The absence of an efficient silencer on the 4½-h.p. Soncin racing motor-bicycle led to the prize in that event going to H. Martin on an Excelsior. In the motor-tricycle class V. Lee was disqualified for pedalling beyond the limit mark, but the 8-h.p. De Dion would, otherwise, have been the winner. In the big racing class the Hon. C. S. Rolls beat Mr. C. Jarrott, whose car got into difficulties; Mr. Rolls, however, consented to a second trial, when Mr. Jarrott's 40-h.p. Panhard romped home at a speed of 52 miles an hour, the 40-h.p. Mors which Mr. Rolls was driving being second, despite the fact that the cylinder head joint was leaking. Mr. S. F. Edge was unable to use his fourth speed owing to the shortness of the course, but he guided his 50-h.p. Napier home in 47 sec., Mr. Rolls, on a 28-h.p. Mors, finishing in 45 4-5 sec. Two cups offered to starters covering the kilometre in less than 40 sec. were not awarded. The Mark Mayhew 25 guinea purse was won by Mr. C. Jarrott. During the day M. Serpollet covered the course four times, his fastest speed being 41 1-5 sec. (a rate of 54 miles an hour), a second faster than Baras on a 20-h.p. Darracq in the class for light racing cars under 650 kilogrammes.

After the racing, the competition for the car having the best appearance took place. The procession of cars was very striking, and as the smartness, combined with suitability of dress of the occupants of the car, was an item in the judging, care was taken with the passengers as well as the car. There were nearly fifty entries, the cup offered by members of the House of Commons being awarded to Mr. S. F. Edge.

TOURIST SECTION.

Class F II.—MOTOR-BICYCLES weighing not more than 112 lbs. (nine entries).

	Brake h.p.	Rider.	Time. M. S.
1 Humber	2	Bert Yates.	—
2 Werner	2	E. H. Arnott	1 3½

Class F I. Motor-cycles weighing not more than two cwt. The 4½-h.p. Soncin entered by W. J. Crampton to be driven by Moffat Ford, was disqualified, being overweight.

Class E.—LIGHT VOITURETTES. (seven entries).

Cars weighing less than 10 cwt., with seats for four persons.
Cars weighing less than 9 cwt., with seats for three persons.
Cars weighing less than 8 cwt., with seats for two persons.

1 Baby Peugeot	5	F Lewin	1 30½
2 M.M.C.	6	G. D. Barnes.	—

Class D.—VOITURETTES (twelve entries).

Cars weighing less than 15 cwt., with seats for four persons.

Cars weighing less than 13½ cwt., with seats for three persons.

Cars weighing less than 12 cwt., with seats for two persons.

				M. S.
1	Clement	8	b.h.p. D. M. Weigel	1 14
2	De Dion	8	E. De Wilton	—

Class C.—LIGHT CARS (twenty-one entries).

Cars weighing less than 18 cwt., with seats for four passengers.

Cars weighing less than 16 cwt., with seats for three persons.

Cars weighing less than 14 cwt., with seats for two persons.

1	Gladiator	12	C. K. Gregson	1 8½
2	14-h.p. New Orleans	20	W. D. Astell	—

Class B.—Cars weighing 18 cwt., or more, but less than 25 cwt., with seats for four passengers (twelve entries).

1	24 h.p. Mors	40	R. Bird	1 2½
2	12-h.p. Panhard	15	Yves Le Coadon	—

Class A.—Cars weighing 25 cwt. or more, with seats for four passengers (eight entries).

1	50-h.p. Napier	65	Cecil Edge	56½
2	16-h.p. Napier	24	E. Midgley	—

Class B.—LIGHT RACING CARS, vehicles under 650 kilogs. (five entries).

				Sec.
1	20-h.p. Darracq	25	b.h.p. Baras	43
2	20-h.p. Darracq	25	Gabriel	—

Class S.—SPECIAL 800 KILOGS. CLASS (four entries).

1	30-h.p. Gladiator	30	Mercier	56
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Class A.—1,000 KILOGS. RACERS (eight entries).

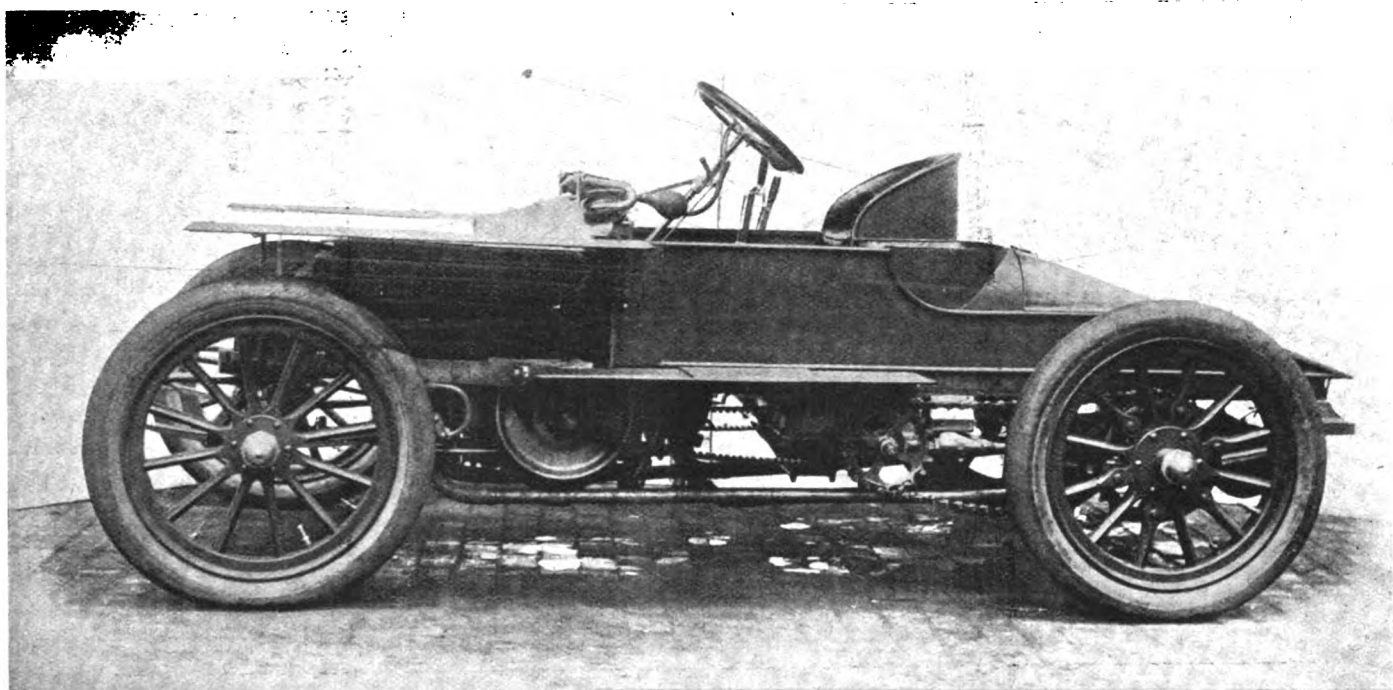
1	Panhard	40	C. Jarrott	43½
2	Mors	40	Hon. C. S. Rolls	44½
3	Mercedes	40	Campbell Muir	48½
4	Wolseley	30	H. Austin	49½
5	Mercedes	40	Baron de Rothschild	57½

No cup was awarded, the time limit being 40 sec. or equivalent to fifty-five miles an hour.

SPECIAL BIG RACERS CLASS OVER 1,000 KILOGS. (two entries).

1	28-h.p. Mors	60	Hon. C. S. Rolls	45½
2	50-h.p. Napier	75	S. F. Edge	47

Cup not awarded, as time limit of 40 sec. was exceeded.



THE 30-H.P. WOLSELEY RACER DRIVEN AT BEXHILL BY MR. H. AUSTIN.

TOURIST STEAM VEHICLES (six entries).

1	6-h.p. Serpollet	20	A. J. Dew	48½
2	Locomobile	5½	Ginder	—

ELECTRIC TOURIST VEHICLES (three entries).

1	City and Suburban	—	J. F. Ochs	1 54½
2	B. Electromobile	—	T. G. Chambers	—

SPEED SECTION.**Class E.—ELECTRIC RACING VEHICLES (two entries).**

1	16-h.p. B. Electromobile	—	Jeal	1 41½
2	Krieger	—	R. W. Wallace	—

Class D.—MOTOR-BICYCLES, weighing over 112lbs (nine entries).

1	Excelsior	2½	H. Martin	1 1½
2	Shaw	2½	S. A. East	—

Chase, on a 4½-h.p. Soncin, was disqualified for not having a proper silencer.

Class D I.—MOTOR-TRICYCLES, weighing under 250 kilogs. (four entries).

1	Eagle	8	R. Jackson	—
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V. Lee, on a 8-h.p. De Dion, was disqualified for pedalling over the mark.

Class C.—RACING VOITURETTES, under 400 kilogs. (three entries).

1	Georges Richard	10	J. S. Overton	1 17½
2	9-h.p. James and Browne	12	T. B. Browne	—

RACING STEAM CARS (three entries).

1	Serpollet	120	L. Serpollet	41½
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COMPETITION FOR CARS HAVING THE BEST APPEARANCE (forty-eight entries).

Entered by	Description.
1 S. F. Edge	16-h.p. Napier.
2 W. J. Peall	12-h.p. Daimler.
3 A. C. Harmsworth	20-h.p. Panhard.

AT Marlborough Street Police Court, on Tuesday, Dr. Edward E. Lehwess was summoned for unlawfully exhibiting an advertisement on a motor-car in Hyde Park on April 27th and 29th. Sergeant Pegg, the chief warrant officer, informed the magistrate that the defendant had started on a journey round the world by motor, and therefore the summons could not be served upon him.

THE Street Cleansing Committee of the Glasgow Corporation are in treaty for a motor-van to be fitted with a patent tipping arrangement.

WE are glad to see that the *Lancet* has taken up our plea for the utilisation of motor ambulances in the City of London.

THE King has been doing a good deal of motoring during his Whitsuntide visit to Windsor.

CONTINENTAL NOTES.

BY "AUTOMAN."

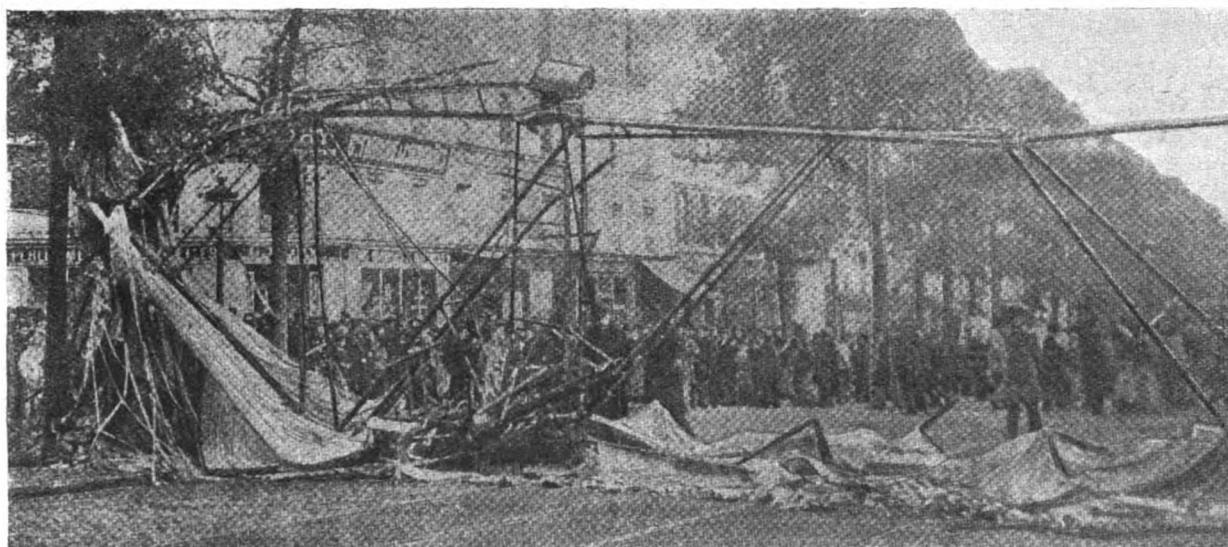
It is an odd turn of events that two of the most ancient heroes of France should make a tour of the country, in the guise of statues, on automobiles. It will be remembered that one of the exhibits at the Automobile Show in the Grand Palais, Paris, at the beginning of the year was the equestrian statue of Vercingetorix, mounted on a steam motor-wagon. The Gallic warrior travelled thus by the high roads to his birthplace—Clermont-Ferrand—where the inhabitants patriotically set him in the market square. Now another famous champion, Du Guesclin, has been sculptured by M. Fremiet, and, between now and July next, he will make a journey by motor-car to Dinan, where his habitation will be, even as it was in the fourteenth century.

Now that the "Circuit du Nord" is over the Paris-Vienna race is being talked about in motor-racing circles. Out of one hundred and seven mayors of French localities on the route of the proposed motor race whom the A.C.F. asked by telegram for their opinion as to the advisability of the contest taking place sixty-nine so far have wired back that they are looking eagerly forward to the event, and that they trust they may count on no

his object was to extinguish the flames. Saché was buried on Friday last week, and on Saturday Severo's funeral took place. Both were attended by many members of the Aero Club, and the funeral orations were made by M. de Castillon de St. Victor in the one case, and Count de La Vaulx in the other.

THE Minister of War of Belgium has written a letter to the President of the A.C.B., in which he expresses a desire to follow up in the manoeuvres this year the trials of motor-cars which were begun twelve months ago. He asks for the loan of two cars—one to carry six, and the other to carry four—for the use of the staff. There is no doubt that there will be plenty of suitable cars forthcoming.

AMONGST the disappointments of the "Circuit du Nord" must be numbered the non-appearance of the new Charron-Girardot-Voigt racing car. The race took place really before the makers were ready, and I learn that in a few days' time the C.G.V. will be on the road, with a motor which develops between 50 and 60-h.p., and weighs only 4 kilos. per horse-power. The complete car will, it is said, weigh less than 17 cwt. The cylinders are bored out of cannon steel, whilst the water-jackets are of copper. There is a distinct peculiarity in the frame, in that, instead of being square at each end, the rear end is pointed.



THE DEBRIS OF M. SEVERO'S MOTOR BALLOON IN THE AVENUE DE MAINE, PARIS.

[La Vie au Grand Air.

alteration being made in the itinerary. The A.C.F. is drawing up an itinerary for presentation to the French Minister of the Interior in view of obtaining his authorisation of the race.

MONT CENIS has recently been ascended by a motor-car for the first time, an Italian motorist, Signor Luigi Storero and three friends accomplishing the climb on a 12-h.p. car. They reached the highest point of the pass, 6,800 ft., and stayed the night at the hotel, as a snowstorm had begun. They had a very trying return journey, but succeeded in returning in safety to Turin, where they received an ovation.

LUNCHING the other day at the A.C.F. I met several members of the Aero Club who had studied the sad accident to Severo from the point of view of the indications shown by the remains of the two poor fellows who lost their lives. From the manner in which Saché, the *mecanicien*, was burnt they conclude that something went wrong with the motor, that the spirit took fire from some cause unexplained, and that the flames immediately leapt up the rigging and set the hydrogen in a blaze. This conclusion is arrived at from two facts; first, that the *mecanicien* was burned principally on the chest and face, and not at all on the back; and, secondly, that he was, when burned to death, in the position of a man trying to take his coat off. It is thought that

UNDER the auspices of the Austrian Automobile Club a hill-climbing competition from Neuwaldegg to Exelberg, a distance of 4.2 kilometres, was held on the 11th inst. In the heavy-car category Herr Porsche was first in a Lohner-Porsche combination petrol-electric car, his time being 7 min. 8½ sec. In the class for cars weighing less than 652 kilog. Herr Hieronymus was first in a 12-h.p. Spitz car, the time being 6 min. 52 sec. In the class for cars under 400 kilog. Herr Hrabil came in first on a Locomobile in 8 min. 21½ sec. In the motor-cycle class there were two competitors mounted on similar machines (Laurin and Klement), Laurent being first, time 8 min. 17½ sec.

AN International Motor-car Exhibition, held under the auspices of the German Automobile Club, the Mid-European Motor-Car Union, and the German Motor Traders' Society, was opened in Berlin on the 15th inst. Altogether there are 111 exhibitors, the show being the most important so far held in the Fatherland.

MR. P. HEBDEN, of 133, Woodhouse Lane, Leeds, has taken out a petrol licence, and now holds a stock of Pratt's motor spirit. He also keeps on hand one or two fully charged accumulators, sparking-plugs, De Dion parts, etc.

THE TOOL-BOX.

MUCH of the ease and comfort of motoring, especially on tour, depends on the care and forethought which has been bestowed on that too often neglected portion of the car's anatomy, the tool-box, and a glance at the interior thereof will often give the observant critic much insight into the character of the owner. The too familiar cupboard, in which spanners, oil-cans, wire, loose nuts, and—too often—inner tubes as well, wallow in a marsh of spilt oil, grease, and resin, sometimes has a variant in a clean and neatly-kept receptacle, in which the orthodox set of tools repose in assorted places, but from which all else that could be useful in an emergency has been carefully omitted; nor does it appear that anyone has as yet placed on record what, in his opinion, a well-regulated tool-box ought to contain, an omission deserving an attempt at remedy from more than one pen.

Lubricants will, of course, occupy an important place, and an oil-can and grease injector, with reserve stock of oil, grease, graphite, resin, and French chalk, also a small can of paraffin for valve grinding and lamps, and flour emery, will include most things necessary of this kind, a collection which is, if possible, best kept apart from the tools and replacements, in the interests of cleanliness. Screw-top tins, such as used for vaseline, form the best receptacles, on the whole, for such of these as are solid; but for resin, which is chiefly wanted for brakes, clutches, and the like, an "insufflator," like those commonly vended for distributing "insect powder," is very convenient, and enables it, if finely powdered, to be squirted easily into the refractory part. If belts are used, castor oil or belt dressing should not be forgotten.

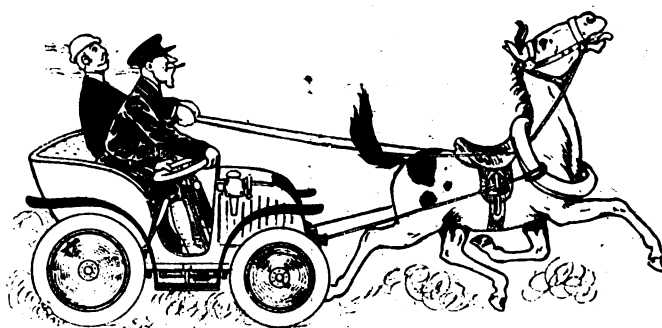
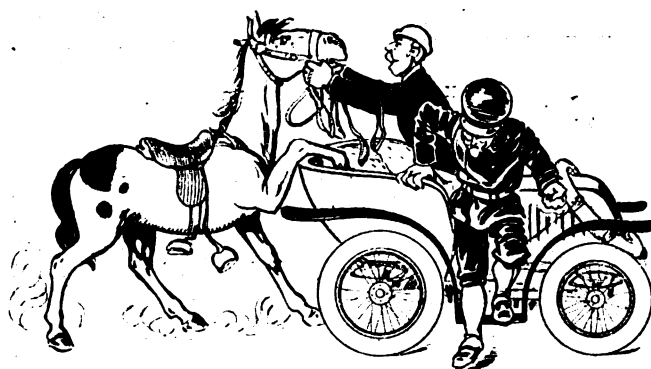
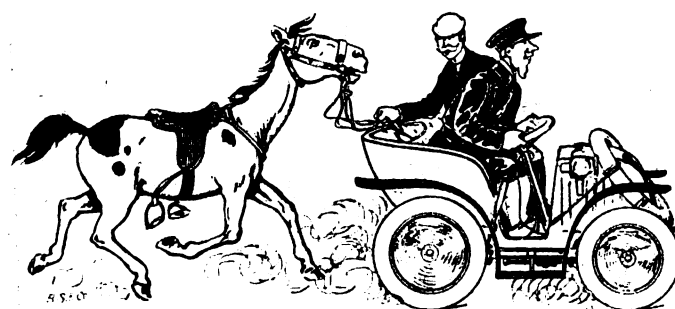
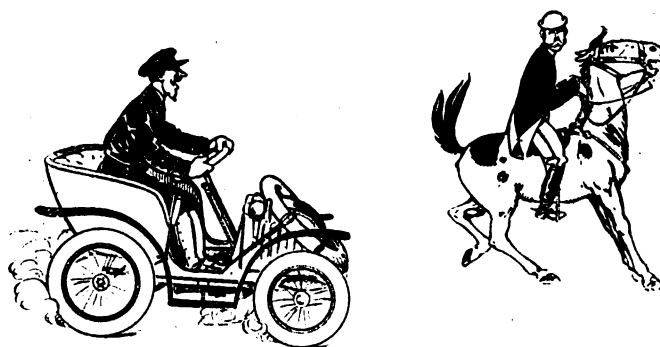
Sufficient spanners are generally supposed to accompany a car, a belief that it is not always superfluous to verify, and a large adjustable spanner, and hammer (unless the same tool serves for both) is always wanted, while a smaller one of the "Clyburn" type, most convenient for awkward corners, should accompany it. It is generally necessary also to have another one thin enough to be used on the lower of two lock-nuts, or such, if small, cannot be properly tightened, while some car-builders have a perfect genius for devising nuts in positions where a specially-shaped instrument is needful to tighten them. 'Screwdrivers, cutting pliers, a large file, and a watchmaker's file for coil, will also have their places, and a steel "tommy," and 6in. or 9in. "Footprint" pipe-wrench should be included. If touring in remote regions is intended, it is useful to have a small vice that can be clamped to the step of the car, which need not take up much room, and it is better to have a knife and scissors in the tool-box than not to have them in one's pocket.

Spare parts and sundries will vary with the type of car, but plenty of nuts, bolts, and split-pins should be carried, and replaced as they are used up, which precaution, though obvious, it seems almost necessary to mention, if experience of its neglect is a guide. Spare sparking-plugs, valves, and valve-springs suggest themselves, as also, in some cases, a spare circulating pump, while the necessary plates and bolts for patching up a broken spring are things very inadvisable to omit in the present state of road management. Asbestos sheet and string, and ready-cut packings, along with copper wire—plain and insulated—and cloths and waste, should all be there, and though it is very improbable that any one of all these multifarious items will be wanted on any particular run, like the Yankee's revolver, "when you want it you want it badly." We heard of an ultra-cautious automobilist who included a surgical bandage and plaster in his collection, and found even that come in useful at last—to mend a leaky water-pipe!

Finally, tyre-repairing necessities are a thing apart, and should be kept so, not being improved by rude contact either with tools or oil; and the harmless, necessary voltmeter is safer in the owner's pocket than elsewhere; it is doubtful even whether in the small sizes useful for ignition accumulators it can be safely screwed to the dashboard if it is to retain its accuracy, convenient as that arrangement is.

MANY motor-cars passed through Exeter on Saturday last en route for Torquay and the district further west.

A STORY WITHOUT WORDS IN FOUR CHAPTERS.



—Das Schnauferl, Munich—

THE Brighton and Sussex Motor and Carriage Works have secured the district agency for the Lux cars exhibited in England for the first time at the recent Show.

THE old axiom "A stitch in time saves nine" is particularly adaptable to a motor-car, as many serious accidents might be avoided were a little timely care exercised in keeping the various parts in proper working order.

A NEW drive has been constructed at The Hendre, Monmouthshire, by Lord Llangattock. This entailed much cutting through rock, and will probably be appreciated by the motorists of the family.

THE WHITSUNTIDE MEET OF THE PROVINCIAL AUTOMOBILE CLUBS.

IN accordance with the arrangements made at the conference between the honorary secretaries of the Liverpool, Manchester, and Yorkshire Automobile Clubs, held at Manchester at the end of last month, a joint run of members of the Local Centres of the Automobile Club took place on Saturday last at Buxton. No arrangements were made other than that members should assemble at the Empire Hotel in time for dinner on Saturday evening, and that those running from Liverpool should have luncheon at the Patten Arms, Warrington, shortly

8.30. Mr. Gerald Higginbottom, whose speed round corners on the grease was a revelation, had serious tyre troubles at the summit.

The first car to reach Buxton was Mr. Thornycroft Vernon's 7-h.p. Panhard at 5.30, and the party at Buxton on Saturday evening was as given below:—

Liverpool Self-Propelled Traffic Association:—Mr. Thornycroft Vernon's 7-h.p. Panhard, with Mr. and Mrs. Felix Rosenheim; Mr. Norman Fletcher's 10 h.p. Wolseley, with Mr. W. G. Garnett and Mr. W. Pearson; Mr. Leonard Williamson's 24-h.p. Daimler, "Sapho," with Mr. H. Randle Kay; Mr. J. A. Bradshaw's 6-h.p. Daimler, with Mrs. Bradshaw, Mr. and Mrs. Geo. Jamezon, Mr. and Mrs. H. S. Jackson; Mr. C. F. Boston's

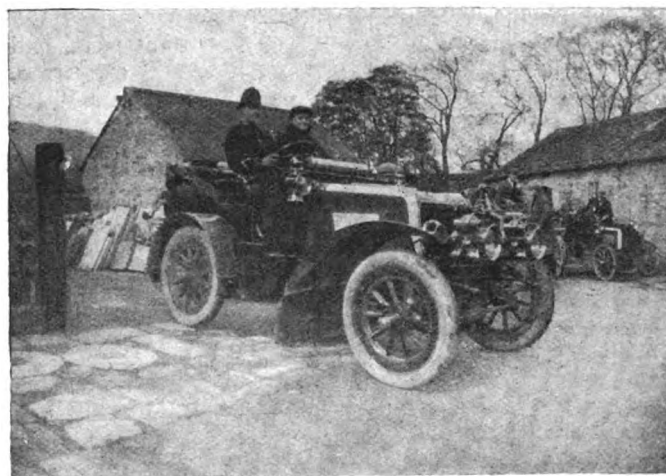


AT THE TOP OF TADDINGTON RISE.

Photo by

after one o'clock. Seven cars from Liverpool joined up here, and completed the run, with the exception of Mr. Boston's 12-h.p. Daimler, which had a burst tyre on one of the driving wheels at Knutsford. The storm delayed the party very much both at Warrington and Macclesfield, Mr. Thornycroft Vernon being the only driver to push through.

The weather, which had been threatening in the forenoon, proved even more unpropitious than had been thought probable the whole party being almost wet through by a tremendous thunder shower at Warrington, and by a second edition which came out shortly after the party left Macclesfield, where a halt was made for tea. The run to Buxton was completed non-stop by all the cars except Mr. Shrapnell Smith's 8-h.p. De Dion. This car was seen stopped two miles below the "Cat and Fiddle," with the driver and passengers looking for a squeaking joint. After an hour's careful examination, the fears that a bearing was heating proved to have arisen only through the scraping of the exhaust-valve spring on the valve stem. At the "Cat and Fiddle" they were again in difficulties from loss of compression through the inlet valve, which required a little grinding in before being in order again; but, notwithstanding these minor delays, the De Dion reached Buxton about

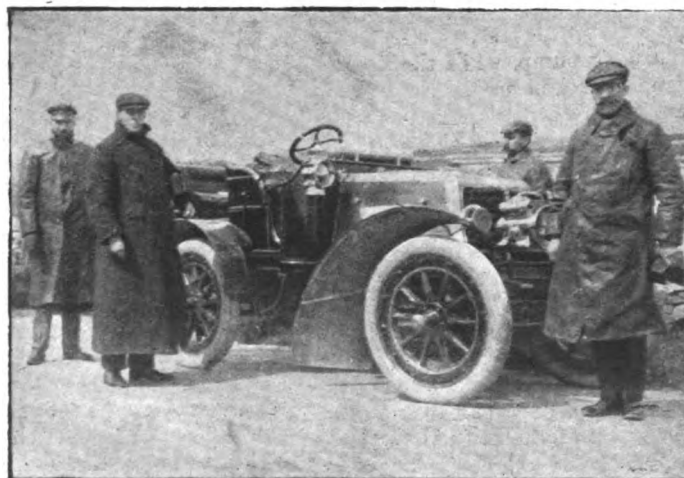


THE ROWSLEY POLICEMAN.

(Mr. Leonard Williamson.)

12-h.p. Daimler; Mr. G. H. Bechtel's 5-h.p. M.M.C. voiturette, with Mrs. and Miss Bechtel; Mr. Shrapnell Smith's 8-h.p. De Dion, driven by Mr. E. A. Rosenheim, with two friends. Manchester Automobile Club:—Mr. W. E. Rowcliffe's 5-h.p. Century tandem, with Mr. A. Noel Smith; Mr. R. C. C. Yates' 2½-h.p. Swift tricycle; Mr. Victor O'Neill's 6-h.p. Daimler; Mr. Gerald Higginbottom's 30-h.p. M.M.C. Yorkshire Automobile Club:—Mr. Walter Jackson's 10-h.p. Daimler, with Mrs. Jackson; Mr. Alfred F. Dougill's 8-h.p. Loidis, with Mr. T. Palmer (arrived on Sunday night). Mr. G. F. Dawson, Manchester, on an 8-h.p. Panhard, and Mr. Bennett, on an 8-h.p. Argyll, returned to Manchester on Saturday evening.

On Sunday morning a run was made to the Peacock at Rowsley, a distance of about 15 miles, and on the home journey a hill-climbing contest up Taddington Rise, between the identical points where records were taken during the 1,000-mile trial of 1900, was arranged. The roads were exceedingly heavy and trying, owing to their chalky nature and the heavy rain, it being almost impossible to avoid side-slips. After running to Bakewell in good form, the De Dion, with four passengers, including the Misses F. and M. Nelson, of Manchester, had the misfortune to charge a bank, and, being minus a starting handle and satisfactory water circulation, was



MR. LEONARD WILLIAMSON'S CAR "SAPHO"
(LATE "LE CHAT NOIR.")

Photo by

(Mr. W. G. Garnett.)

left at Bakewell until Monday, when the handle and radiator were tinkered up by a local blacksmith, and the car driven back to Liverpool without further mishap.

The following are the records of the hill-climbing contest, and a comparison with those obtained two years ago will be of interest to readers of the *Journal* :—

SPEEDS UP TADDINGTON RISE, 2·522 MILES, WITH A MEAN GRADE OF 1 IN 20.

Owner.	Car.	Passengers.	Miles p. hr.
Mr. Leonard Williamson ...	24-h.p. Daimler ...	4 ...	15·9
Mr. Gerald Higginbottom ...	30-h.p. M.M.C. ...	3 ...	14·0
Mr. R. C. C. Yates ...	2½-h.p. Swift ...	1 ...	*13·8
	tricycle		
Mr. Norman Fletcher ...	10-h.p. Wolseley ...	4 ...	12·6
Mr. Walter Jackson ...	9-h.p. Daimler ...	4 ...	11·2
Mr. Thornycroft Vernon ...	7-h.p. Panhard ...	4 ...	9·0
Mr. V. O'Neill ...	6-h.p. Daimler ...	3 ...	7·4
Mr. J. A. Bradshaw ...	6-h.p. Daimler ...	6 ...	†3·4

The tour was successful, though marred by wet weather and the condition of the roads. We learn, by a later advice from our representative, that an executive meeting held on Monday, before the dispersal of the members, decided to arrange a Coronation Run to Harrogate in June.

THE CLEANING OF MOTOR CARS.

FROM the handbook to the Wolseley car, lately issued by the Wolseley Tool and Motor-Car Company, Limited, we cull the following few notes regarding the cleaning of motor-cars, which we feel sure will be read with interest by all motorists :—

Owing to the careless way in which many motor-cars are treated, they have become associated with the idea that they are necessarily dirty, and only fit for those who wish to go tearing around the country. Many owners fail to recognise that their cars are depreciating very rapidly in value by not being properly cleaned. The mud is allowed to dry on the paint and leave spots, instead of being washed off immediately the car has returned to the coach house. The motor gets coated with grease and dust, and the car rapidly puts on a dirty and second-hand appearance. There are others who take a pride in their cars, which, after running many thousands of miles, look almost as well as they did the day they were turned out.

To remove dust from the paintwork a large common painter's brush is as good as anything; but in muddy weather, a soft sponge with plenty of water should be used. The sponge should be plunged frequently into the water and "dabbed" on the mud; do not attempt to wipe it off, as this will scratch the varnish. When every vestige of dust has been removed, the car may be wiped down with a soft chamois leather. Neither the brush, sponge, or leather should touch any greasy part, or they will spoil the gloss of the varnish. Separate cloths or leathers should be used for the motor and the gearing, these parts being finished last, care being taken that no grit or dust be wiped into the bearings. It is almost needless to add that all lubricators, tanks, etc., should be closed during cleaning operations.

A little paraffin oil on the cloths used in cleaning the engine greatly facilitates the removal of any grease. To clean the side chains use the same oil, well brushed in with a common paint-brush. After having removed all the dirt and water from the car, wipe the bright parts with a rag having a little vaseline on it, and give the side chains a coating of tallow and blacklead, which can be kept ready mixed, and applied with a brush similar to that used for cleaning.

All dirt should be washed off the tyres, and having dried them carefully, cuts and bad places should be cleaned out with benzine or petrol, and then plugged and cemented with pieces of pure rubber and solution, so that they may be allowed as much time as possible to harden before being again used. On no account

* Pedalled at parts.

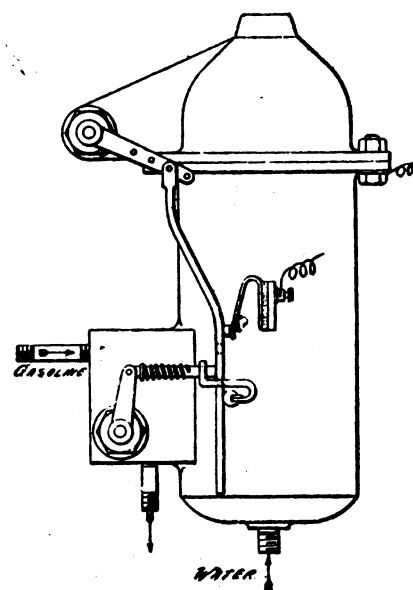
† Fifteen minutes stop to adjust chain.

should a deflated tyre be allowed to support the weight of the car. If it is not convenient to repair the tyre at once, the weight of the car should be taken off it by a jack or other support. There is nothing worse for tyres than to allow them to stand on greasy patches. As it is almost impossible to prevent oil dropping on the floor, it is best to get a sheet-iron tray, about five feet long by three feet wide, having sides about one inch high, and slide this underneath the car as soon as it is brought in.

To describe in detail the best method of cleaning a car doubtless gives an impression that it takes a great deal of time, more than most people could devote to the work, but it is surprising how quickly a motor-car can be cleaned, if the few necessary appliances are kept in readiness for use as soon as it is housed after a run. A little care and time spent in the methodical cleaning of the car in the manner described is more than repaid by the absence of trouble and worry, and the comfort of knowing that all is right beneath one when riding along the road.

A LOW-WATER ALARM FOR STEAM CARS.

A LOW water alarm for use on steam cars has lately been introduced by Messrs. Kennedy and Warren, of 623, Jefferson Street, Toledo, O., U.S.A. It is a float-operated device, the float chamber connecting as usual with the steam and water space of the boiler. The float operates an exterior lever, to which is connected a vertical sliding rod. On the outside of the float chamber is fastened an electric contact spring, a plate of wood fibre insulating the contact spring and its connection post from the chamber. The vertical sliding rod is provided at one point of its length with a projecting pin which, when the water level and the float reach a certain low mark, comes in contact with the insulated contact spring and



thus completes the circuit of an electric bell, which begins to ring and thus gives a warning that the feed to the boiler should be started or increased.

To provide an additional safeguard against accidents due to low water the petrol connection to the burner is brought up to this device and a valve is inserted in it there which is normally held open by the vertical sliding rod, as seen in the illustration. When the water level becomes so low that there is imminent danger of burning the boiler, a drill hole in the sliding rod comes opposite the rod attached to the valve lever, and this allows a helical spring on the latter rod to close the petrol valve, which will immediately put out the fire and prevent the possibility of burning out the boiler.

THE FRENCH ALCOHOL TRIALS.

ON Tuesday and Wednesday of last week the Place de la Concorde, Paris, was the scene of much coming and going of automobiles. At the Jardin des Tuileries, just inside the gates, had been installed a weighing machine with the object of checking the weights of the competing cars in the race organised by the French Minister of Agriculture, with the object of popularising alcohol as a motive power. Crowds of curious persons, amongst whom the leading members of the automobile trade, watched the proceedings with interest. Most of the officials chosen by the Government were members of the Automobile Club, and therein the Government showed a very wise discretion. Of course, the centres of attraction were the new Mors and Panhard cars, and the appearance of Chevalier de Knyff, with the only model of the Paris-Vienna type, caused the greatest excitement. This new car cannot be described otherwise than as a monster. The large cylinders of the motor are cast in steel as thin as possible, in order to reduce the weight, and the water-jacket is made of copper—quite a new departure.

The cooling arrangements of the Motor were evidently defective when I saw the car, for as soon as the stopper was unscrewed from the water reservoir volumes of steam escaped. There is a certain similarity in appearance between this monster and the big Napier car of last year, as the bonnet is of the square flat type. The car altogether gave me a bad impression, and seemed to be anything but ready.

Vanderbilt arrived on Wednesday afternoon on his Mercedes, and I had the opportunity to examine the car closely. It is a marvel as far as execution is concerned; every part of it has a mechanical finish which one cannot help admiring. On Wednesday night a steady drizzle commenced with thick darkness; but, notwithstanding this, crowds of motor-cars, horse-drawn vehicles, bicycles, and even pedestrians trooped out towards Champigny, from which place the cars were to start at four o'clock on Thursday morning. It might have been a repetition of Paris-Berlin last year, except that the weather was colder and the rain falling steadily. The trains to Champigny were absolutely crammed with enthusiasts, and the road through the Bois de Vincennes presented quite a picturesque appearance on account of the Chinese lanterns used by the cyclists. At Champigny every one was making a night of it—all the *cafés* were doing a brisk trade, and *consommations* of every kind were at a premium. Towards four o'clock the rain increased, notwithstanding which there was a constant coming and going along the line of cars prepared for the start.

At the stroke of four the first signal was given, and Rene de Knyff set off on his monster amidst the cannonade made by his enormous motor. There were fifty-six starters, but to the disappointment of everyone, the Mors stable was only represented by Baron de Caters. The light Mors cars had been withdrawn from the contest a few days before the start, and Fournier and Rolls, although at Champigny, turned back and did not start. Various reasons are given for their not starting, but I believe the correct one is that the cars were not really ready, and water was leaking into the cylinders. Soon after the start de Knyff had troubles with his clutch, and with his water-circulation, and fell back from the leading position, being replaced at the head of the list by Maurice Farman, quickly followed by Jarrott. Both of the two last men drove Paris-Berlin Panhard cars, lightened in weight to suit the new regulations, and called the "Nice-Abbazia" model. Baron de Caters soon broke down on his Mors and left the field open. Vanderbilt, on his "Mercedes," was going strong and had a lead, in time, on Maurice Farman, when the key of the chain-sprocket, for some unexplained reason, cut through the metal and literally burst it. It was impossible to repair the damage, and the car was towed back to Paris by Baron Henri de Rothschild, who was not competing in the race, but who happened to be out on his "Mercedes."

At 10.36 Maurice Farman arrived at Arras, followed by Marcellin (on a Darracq) and Jarrott. The next in order, making the time allowance, was Louis Renault on a light Renault car,

followed by Harry Farman on a light Panhard. Osmont was next on a motor-tricycle.

As to the result of the first day's racing in the heavy cars there is little of interest to say, as there was no serious competition, and one cannot judge of the Paris-Vienna Panhard model, which did not run evenly. In the second category Marcellin's performance on a Darracq is remarkable, as he not only wins in his class, but beats all but one in the heavier class. Louis Renault, too, made a remarkable performance, and these two last will give Messrs. Panhard and Levassor food for reflection. In the third class Guillaume made an even more remarkable performance, seeing that his car is under 400 kilos., and the four Renaults, as usual, arrived in a bunch. The scene at Arras was one of remarkable enthusiasm. A special train from Paris, chartered by the Government, and having on board, in addition to the celebrities of the automobile world and the press, M. Jean Dupuy, Minister of Agriculture, reached Arras at 10.10 a.m., and there was barely time for the occupants to reach the control before Maurice Farman arrived like a whirlwind.

Out of a total of fifty-six starters only thirty-six cars reached Arras, and on the following morning thirty-three lined up for the start. The morning was cold and cloudy, with a strong west wind blowing, and occasional showers. Notwithstanding the bad weather and the early hour of the start—4 a.m.—the whole town was alive to see Maurice Farman depart. All along the route crowds turned out to see the cars pass, although it rained in a pitiless manner. Through Doullens, Saint-Pol, Saint-Omer, Boulogne, Abbeville, and Dieppe Maurice Farman led, followed by Marcellin and Jarrott. Louis Renault broke his pinions at Doullens and had to give up; his brother Mareel skidded and smashed a wheel in Boulogne. Jarrott was hard pressed by Edmond at Abbeville, but slipped away from him at Dieppe. All along the road through Gournay-en-Bray, Gisors, Vernon, and Mantes Maurice Farman led, followed by Marcellin and Jarrott, who had a neck and neck contest all day. All the drivers were plastered with mud from head to foot, and were almost unrecognisable.

At St. Germain the winning post was fixed at "Hennemont" Gate, on the "Quarante-Sous" road, and there a large concourse of *chauffeurs* gathered, notwithstanding the awful weather. Amongst the spectators I noticed the Baron von Zuylen, the Marquis de Dion, Messrs. Darracq, Michelin, Bouton, Emile and Louis Mors, Clement, Fernand Renault, the Brothers Longue-mare, Dechamps, Journu, Henri Deutsch de la Meurthe, etc.

At 1.5 Maurice Farman loomed out, one may say, almost through the muddy dust, for although the roads were completely soaked, the speed of the car still managed somehow to get it through the mud and raise some dust. One of the springs of the car was broken, and he had done nearly the whole day's run with it in this condition. At a few minutes before two o'clock two cars appeared close together, and a most exciting finish took place between Jarrott and Marcellin. Jarrott came first, but so closely pressed was he by Marcellin that the cars were almost touching. Jarrott found himself in a most difficult position owing to the crowds in front and the other car at his heels; an injudicious police commissioner who rushed forward at the last moment was brushed aside, whilst a policeman fainted with excitement. All ended well, however, and Jarrott has the honour of holding the second place in the race. Only nineteen competitors out of 56 starters arrived.

The following is the classified result of the two days' running, subject, of course, to verification by the judges:—

PARIS-ARRAS-PARIS (845 kilometres) 526 miles.
Cars weighing from 650 to 1,000 kilos.

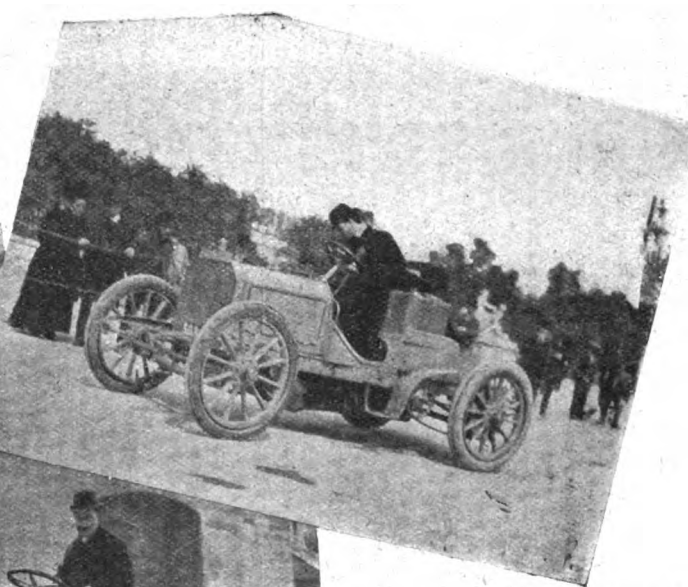
Name.	Make.	Net Time.
		H. M. S.
1. Maurice Farman ...	40-h.p. Panhard	12 1 52½
2. C. Jarrott	40-h.p. "	13 9 12½
3. Rütishauser	12-h.p. Gardner-Serpollet	16 6 54½
4. Le Blon	6-h.p. "	18 52 45½
5. Chailaud	12-h.p. "	19 3 22½
6. Barbereau	6-h.p. "	19 23 2½

Maurice Farman's average, 72 kilometres or 44½ miles per hour.

THE FRENCH ALCOHOL MOTOR TRIALS.



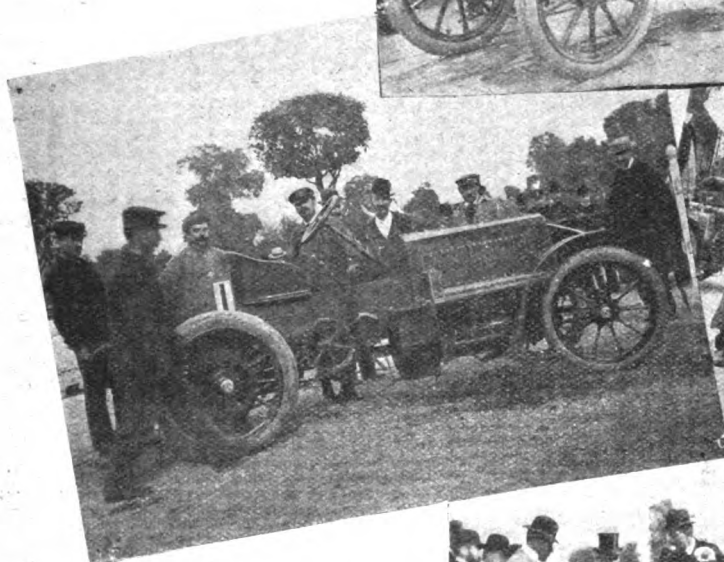
THE HON. C. S. ROLLS ON HIS
RACING MORS.



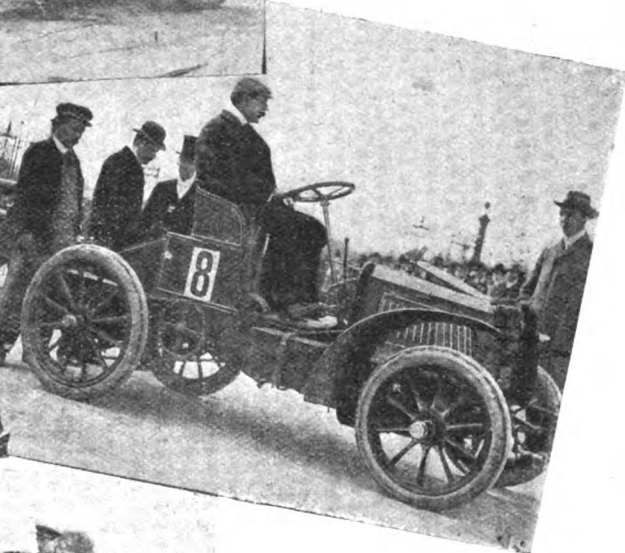
MR. VANDERBILT ON HIS 40-H.P.
MERCEDES.



MR. HARVEY DU CROS ON LIGHT
PANHARD RACER.



M. DE KNYFF'S PANHARD
RACER.



TESTE ON HIS PANHARD RACER (NICE-ABBZIA MODEL).
ONE OF THE PANHARD RACERS, SHOWING NEW FRONT SPRING.

LIGHT CARS, 400 TO 650 KILOS.

Name.	Make.	Net Time.
		H. M. S.
1. Marcellin.....	20-h.p. Darracq.....	13 9 22½
2. H. Farman.....	16-h.p. Panhard-Levassor.....	14 16 14½
3. Rigolly.....	18-h.p. Gobron-Brillié.....	16 37 9½
4. Jacques Gondoin.....	16-h.p. Panhard-Levassor.....	16 55 51½
5. Cozic.....	20-h.p. Déchamps.....	18 35 29½
6. Tart.....	16-h.p. Clément.....	18 53 10½
7. Ducros.....	16-h.p. Panhard-Levassor.....	19 6 19½

Marcellin's average, 65½ kilometres or 41 miles per hour.

CARS WEIGHING FROM 250 TO 400 KILOS.

1. Grus.....	9-h.p. Renault.....	16 10 30½
2. Oury.....	9-h.p. Renault.....	16 23 20½
3. Cormier.....	9-h.p. ".....	17 21 31½
4. Barbaroux.....	9-h.p. Clément.....	17 35 52½
5. Guillaume.....	12-h.p. Darracq.....	19 32 13½

MOTOR-CYCLES (50 TO 250 KILOS).

1. Bardeaux.....	6-h.p. De Dion-Bouton.....	16 18 36½
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In the first category only Panhard and Serpollet got through, and although in speed Panhard has the victory, Serpollet has made the record of the class and of the whole competition. Out of all the competing firms Serpollet alone got all his cars safely over the whole course. In the second category (the light cars) Darracq scored an easy win, beating the Paris-Berlin Panhards. Out of seven starters from Paris, however, only two arrived at the winning post, and from what I can learn the principal cause was the taking of bends in the road at too high a speed. Déchamps is to be congratulated in having the only foreign car which got through. Renault won the third category three times over, but strangely enough both of the brothers Renault broke down and abandoned the race under most unlucky circumstances.

The consumption of fuel trial took place on Thursday, Friday, and Saturday over a distance of 730 kilometres (454 miles) in the following stages—Paris to Arras, Arras to Abbeville, and Abbeville to Paris. The start was made from the A.C.F., on the Place de la Concorde, at 8 a.m., when forty-seven cars lined up for the competition, and only three failed to reach Arras. On Friday morning the forty-four remaining cars started for Abbeville. The weather was simply execrable and the conditions the worst possible for motor-cars, which are certainly not built to plough through seas of mud against a head wind. Skids and mishaps and general discouragement of the awful weather seriously thinned the ranks, and only twenty-four cars persevered and reached Abbeville. Saturday's weather was even worse than Friday's, and the twenty-four cars left in the competition started off from Abbeville after six o'clock in the morning, the occupants needing all their courage to face the ordeal. The competition ended at the premises of the A.C.F., on the Place de la Concorde, and, through the pitiless beating of rain, amongst a gathering of enthusiasts, I watched the Baron de Turckheim arrive first at 3.14 p.m. on a De Dietrich. All the afternoon and evening the rain continued until about eight o'clock when the clouds cleared away and the moon shone out, only however to glisten on oceans of mud. At 9 p.m. eighteen out of twenty-four competitors had arrived.

AUTOMAN.

A KILOMETRE competition was held at Antwerp a few days ago. In the heavy car section, Baron de Caters was first on a 50-h.p. Jenatzy.

AN electrical service wagon has lately been acquired by the fire brigade authorities at Stettin, Germany. The vehicle, which was built by a local firm, has seating capacity for four men, and is fitted with stand pipes and 100 metres of hose. It will run about sixty kilometres on one charge of the batteries, and can attain a speed of 12½ miles per hour.

MADAME LOCKERT, of *Le Chaffeur*, Paris, has sent us a set of illustrated picture postcards that she has recently issued. The pictures all relate to automobile subjects, and include M. Serpollet on his first steam tricycle built in 1887, and the Count De Dion on a steam tricycle constructed in 1883, and also on one of the 1902 model De Dion cars.

PETROL AS FUEL FOR EXPLOSION MOTORS.

BY CAPT. E. C. LONGRIDGE, M. INST. MECH. E.

THE value of petrol as fuel for explosion engines presents an interesting problem. Unfortunately, owing to the insufficient data now available, the true efficiency of various mixtures cannot be accurately determined. A few years ago Dr. Boverton Redwood contributed some valuable information on the subject. The results of his experiments, tabulated in "Transport of Petroleum," are as follows:—"With seven volumes of the liquid (pentane and gasoline) to 100,000 volumes of air, the combustion is a silent one; while, with four times that proportion of liquid, the mixture also burns without explosive violence. With between 8 and 9 volumes of liquid to 100,000 of air, there is a marked increase in the energy of the combustion; and, when the quantity of liquid is augmented to 10·5 volumes, a sharp explosion occurs. When the proportion of liquid is increased beyond about 17 volumes, there is a perceptible decrease in the violence of the explosion, with corresponding gain in the volume and duration of the flame; and, with 21 volumes of liquid to 100,000 of air, the explosion is as mild as with 8·4 volumes." These results, adequate for Dr. Redwood's purpose, are not sufficiently comprehensive for the requirements of the motor manufacturer. For his purpose, estimation of the value of any explosive mixture involves knowledge not only of the maximum explosion pressure as one factor, but also of the rates of cooling, as another factor. For gas mixtures, these data have been experimentally determined by Mr. Dugald Clerk (see "The Gas and Oil Engine"). The consideration of a few of these results will illustrate what remains to be done—mixtures with petrol, alcohol, etc. Taking one cubic inch of Glasgow coal gas, with cylinders of such areas that the depth of mixture, in every case, would be one inch, the maximum explosion pressures for various mixtures were:—

	Vol. 1/4 ..	Vol. 1/2 ..	Vol. 1 1/2 ..	Vol. 4 ..	Vol. 8 ..
Proportion of gas in mixture ..	1/4 ..	1/2 ..	1 1/2 ..	4 ..	8 ..
Lbs. pressure per sq. in. on pistons, 14, 12, 10, 8, 6, sq. in.	728 ..	756 ..	690 ..	712 ..	576

These figures show that the mixture of 1 1/2 gas gave the highest pressure, thus determining the first factor. To obtain the second, it is assumed that the duration of the gas engine stroke is roughly 0·2 sec. Mr. Clerk's diagrams indicating the fall of pressure—that is, the rate of cooling, during 0·2 sec. from complete explosion—gave the following results:—

	Vol. 1/4 ..	Vol. 1/2 ..	Vol. 1 1/2 ..	Vol. 4 ..	Vol. 8 ..
Proportion of gas in mixture ..	1/4 ..	1/2 ..	1 1/2 ..	4 ..	8 ..
Time, 0·2 sec. after max. pres. ..	0·48 ..	0·38 ..	0·33 ..	0·27 ..	0·25
Lbs. pressure per sq. in. ..	43 ..	48 ..	47 ..	55 ..	57
Pressures on pistons as before ..	608 ..	576 ..	470 ..	440 ..	342

By adding the two factors—power of producing pressure and capacity to resist cooling—we arrive at the mean pressure which determines the true efficiency of the mixture:—

	Vols. 1/4 ..	Vols. 1/2 ..	Vols. 1 1/2 ..	Vols. 4 ..	Vols. 8 ..
Proportion of gas in mixture ..	1/4 ..	1/2 ..	1 1/2 ..	4 ..	8 ..
Max. pressure on pistons, as above ..	728 ..	756 ..	690 ..	712 ..	576
Pressure on pistons after 0·2 sec. ..	602 ..	576 ..	470 ..	440 ..	342
Mean pressure ..	665 ..	666 ..	580 ..	576 ..	459

It is the determination of these factors for mixture of petrol, etc., that is still wanting. It is, however, likely that the deficiency will soon be supplied, for the writer is in a position to state that the necessary experiments are now in progress. The results will be awaited with very considerable interest, and there is little doubt that they will establish the value of petrol measuring devices for carburettors where efficiency and economy are rigorously followed.

THE Motor-Car Exhibition at the Agricultural Hall.



FIFTH NOTICE.



THE SCENE IN THE YARD.

THE "Kitto" motor-bicycle was shown by Mr. W. H. Kitto. The main features of this machine were described in our issue of December 7th last, and only a brief summary need now be given. The motor is placed on the lower tube near the head of the machine, the weight resting mainly on the front wheel. For the ordinary trembler in connection with the ignition there is substituted a forging that the maker claims cannot break, while special attention has been given to the position of the contact and the platinum points to prevent the former becoming fouled with oil, and the latter loose from vibration. A vaporiser is provided, by means of which the air and gas are mixed automatically. An automatic lubricator to carry a supply sufficient for a run of a hundred miles is provided, and the petrol tank will contain sufficient for a ride of seventy-five miles when the rider has become accustomed to the machine. The Kitto motor-bicycle has all its levers controlling the mechanism so placed that the rider can operate them from the saddle.

In the Gallery the London Motor Garage Company, Limited, had a stand from which they were able to draw attention to the facilities they possess for storing, washing and cleaning motor-cars. For an inclusive quarterly, annual, or other subscription, owners of cars can have their vehicles housed in Westminster, from whence they can be delivered to any address, ready for use, when desired. The Staunton speed indicator for motor-carriages, described in our columns on February 1st, was shown on the stand. This instrument enables motorists to tell at a glance the speed at which they are travelling. It registers the total number of miles travelled, and also the rate of speed, at any moment, up to 30 miles per hour. The instrument further registers automatically the maximum speed travelled during each 110 yards, so that on stopping, the dial shows the highest speed reached in the last 110 yards run. An attachment can be added to the dial recording the highest speed reached during each 110 yards, so that the pointer can be reset at zero, at the option of the driver. The indicator is enclosed in a strong metal case with clip for attaching to the car. It is put in operation by means of a self-containing gear fitted on the hub of one of the front wheels of the car, with which it is connected by means of a length of flexible steel shafting. Petrocene—a new fuel for motor-cars—was also brought to public notice at the stand of the London Motor Garage Company. A current of air is passed over a substance in the form of pebbles which is saturated with Petrocene, with

the result that oxidation takes place, and a hydrocarbon gas is discharged which possesses heating, lighting, and explosive qualities. It was suggested at the stand that an automobile carrying six gallons of Petrocene in this form would be able to travel double the distance that would be possible with liquid petrol.

At the stand of Messrs. H. W. Van Raden and Company woven-glass accumulators were shown. In these the active material is firmly held by the woven fabric, and cannot become detached from the electrode to cause short circuit or self discharge. Each electrode is wrapped in a sheet of spun glass, through which the electrolyte has free circulation. All plates are packed firmly together, making the whole a solid yet flexible mass, free to expand during the charging, and in which the plates of opposite mark cannot get into touch with each other. At this stand our attention was drawn to a Planté positive plate which the firm is making for electrical vehicles. In these plates square sections are connected together by stout lead rims, the sections being of very thin strips separated by a sort of paper which dissolves during formation. It is claimed that a very large effective service is thus ensured, and in the finished batteries the plates are combined with light pasted negatives. The weight capacity of the finished cell is about eight watt-hours per pound of cell—a very good result with Planté positive plates. Other exhibits at this stand included induction coils fitted with Carpenter's patent high-speed tremblers, an improved frictionless contact breaker, sparking plugs of various types, accumulator charging boards, electrical measuring instruments, cut-outs for charging cells, carburettors, etc. A two-cylinder voiturette engine and a slow speed sparking dynamo of the magneto type, designed to do away with the presence of batteries on cars, by giving a high tension jump spark even at the slow speed of revolution that is obtained when the engine is started by hand also attracted notice.

The exhibit of the Motormobile, Limited, comprised a couple of 7-h.p. cars with *tonneau* bodies and a 10-h.p. chassis, the arrangement in both types being to all intents and purposes identical. The cars, which are to be known as the Motormobiles, are built in accordance with the designs of M. A. Vilain, of Paris, and are such a radical departure from the usual practice that we hardly know which point to take up first. The frame of the car is built up of steel and ash. Supported in a central

line with the flywheel, about the middle of the frame (Fig. 132) is a horizontal single-cylinder motor having a water-jacketed cylinder 100 mm. diameter by 110 mm. stroke and developing 7-b.h.p. at a normal speed of about 900 revolutions per minute. Two large heavy fly-wheels are employed, the connecting rod passing between these after the manner of the ordinary De Dion engine. The two heavy flywheels are simply covered by a light metal guard. No enclosed crank chamber is fitted to the engine, the cylinders and connecting rod bearings being lubricated by a special device referred to below. Electrical ignition is adopted, a new departure being that this and the exhaust valve are not actuated off a special two-to-one shaft, but by a small half-speed intermediary shaft in connection with the transmission mechanism. The cylinder lies forward of the crank shaft, and the horizontal exhaust valve is on the right-hand side of the explosion chamber, the inlet valve being above. A half

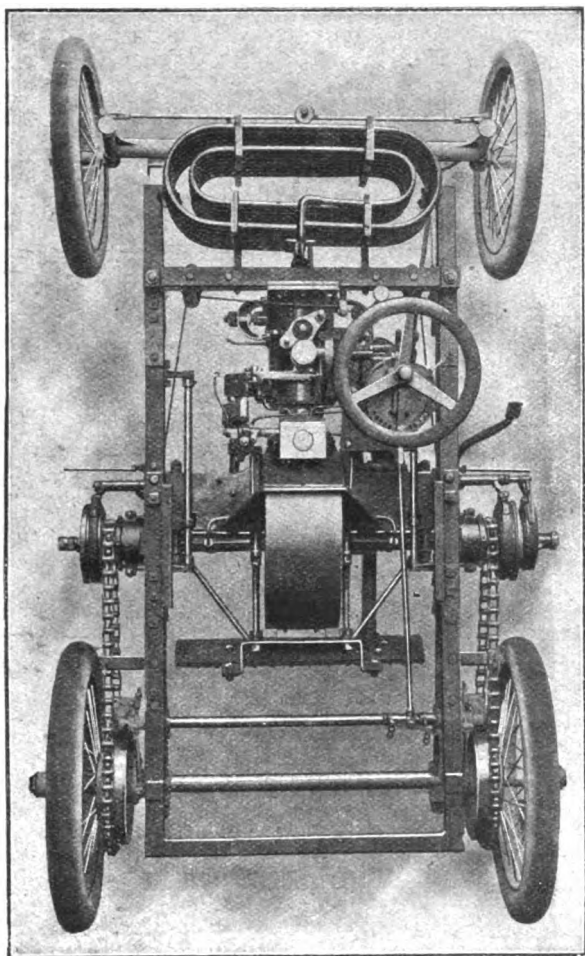


FIG. 132.—PLAN OF "MOTORMOBILE" CAR.

compression arrangement, operated by a pedal, is provided; another half-speed shaft on the left side drives a cam shaft running parallel with the cylinder to the head; this shaft terminates in a crank pin, operating the special diaphragm pump carburettor which supplies the petrol to the induction valve. The carburettor used is on exceedingly novel lines, as not only will it work, without any alteration, with petrol or alcohol or a mixture of either, but it is claimed to act equally well with a mixture of petrol and ordinary paraffin, or with one of alcohol (methylated spirit) and paraffin, so that there is little likelihood of a motorist being hung up on the road owing to lack of fuel. The carburettor consists practically of a diaphragm pump, which sucks in a certain amount of petrol, the quantity allowed to pass being regulated as desired. A general view and details of the carburetting device are shown in Figs. 133 and 134. It comprises a circular box, one face of which is flexible, like the bottom of an oil can. A pusher operated

by lever connections off the engine, and of which the extent of movement can be regulated, strikes the flexible face of the box at the necessary intervals. To the right, Figs. 133 and 134, is seen the petrol pipe, terminating in a small chamber in which is a small valve opening in one direction, and to which a gauze-fitted air-inlet is fitted. To the top of the box is connected

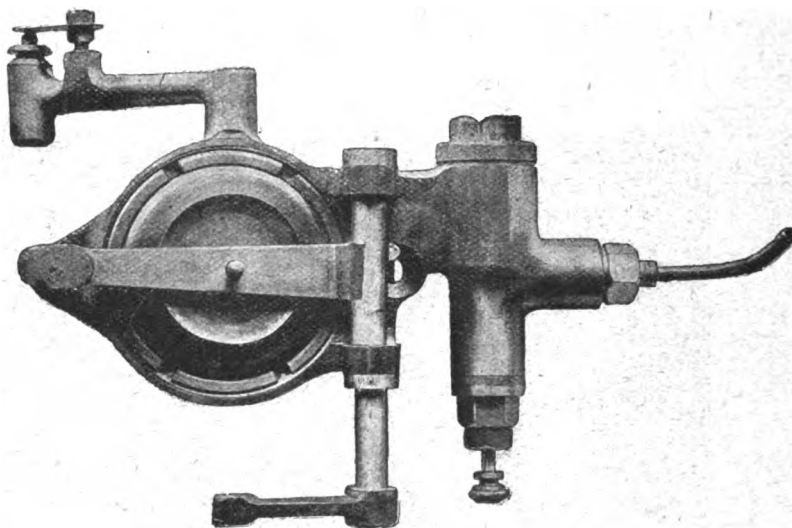


FIG. 133.—THE "MOTORMOBILE" CARBURETTOR.

another pipe terminating in a small chamber in which is another small valve which acts in the opposite direction to the one referred to above. When the pusher strikes the flexible face of the circular box, a charge of mixture is forced through the valve into the admission pipe connected to the explosion chamber of the motor. When the pressure of the pusher on the flexible face is released, the latter assumes its normal position, and in so doing opens the valve in the right hand chamber and allows another charge of petrol or alcohol to pass into the mixing chamber. The richness of the mixture is varied by the degree of movement allowed to the pusher on the flexible face, no throttling on the inlet pipe being necessary. In connection with the pusher is a hit-or-miss governor which comes into action when the

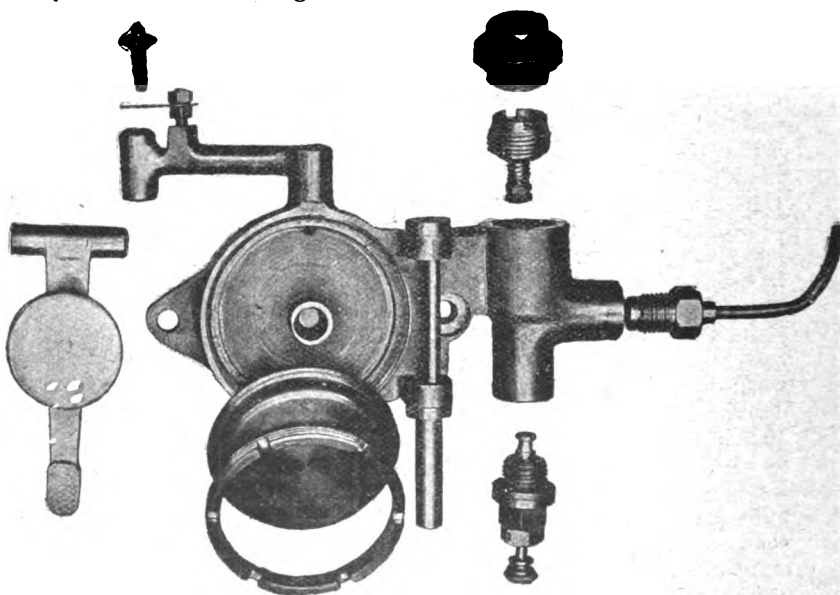


FIG. 134.—THE PARTS OF THE "MOTORMOBILE" CARBURETTOR.

engine tends to race, preventing the pusher from acting, and so stopping further supplies of spirit or explosive mixture until the speed of the engine has again reached the normal. An "accelerator" is provided, by means of which the governor can temporarily be put out of action. A handle on the steering column regulates the petrol feed. The

next novel feature found in the car under notice is connected with the water circulation of the motor; no pump is employed, a thermo-syphon system taking its place, in conjunction with which the Vilain radiator is employed. The radiator itself is made of thin flat tubes having a rectangular section about 1 in. by $\frac{1}{4}$ in., arranged alongside one another in a frame, with their narrow edges forward, a corrugated strip of metal serving to increase the radiating surface being inserted between them. The radiator is not intended to be full of water when in use, the normal level being but a short distance above the bottom. In fact, the amount of water put in is only about 25 per cent. in excess of that required to fill the cylinder-jacket. The radiator is used as a steam condenser, the object being to maintain the combustion chamber constantly at the temperature at which the motor works most economically. A safety valve is fitted to the radiator. The latter is hermetically sealed, with the result that the firm claim that there is no loss of water, and that it is not necessary to replenish the supply for a long period. We next pass to the transmission mechanism, which is adapted to give two speeds ahead, controlled by a lever under the steering wheel and one reverse actuated by a pedal. Here, again, the arrangement is on novel lines. Each flywheel is mounted on a shaft, one extending to the right and one to the left. Very long bearings are placed on each side of the two flywheels, and these continue nearly to the side chain wheels conveying the power to the rear road wheels. Alongside and parallel with these bearings are short second shafts, each of which forms a half-speed shaft, serving, as also mentioned, to operate the exhaust valve and ignition gear, as well as forming parts of the transmission, being driven by spur gearing from the engine shaft. Another pair of spur gears is fitted outside each of the gear wheels above mentioned, the two pinions on each half-speed shaft being rigid with one another. The chain wheels are formed in one piece with sleeves which normally run free on the engine shaft; these wheels can either be made rigid with the motor shaft or with the reducing gear, formed by the gear to and from the half-speed shaft, which gives a total reduction of 4 to 1. This double two-speed gear (there being one set for each chain sprocket) is brought into action by means of novel two-way metallic cone clutches, which run in entirely closed chambers on the extremities of the engine shafts (see Fig. 135). Without a drawing it is almost impossible to describe these clutches; but it may be stated that they are metal to

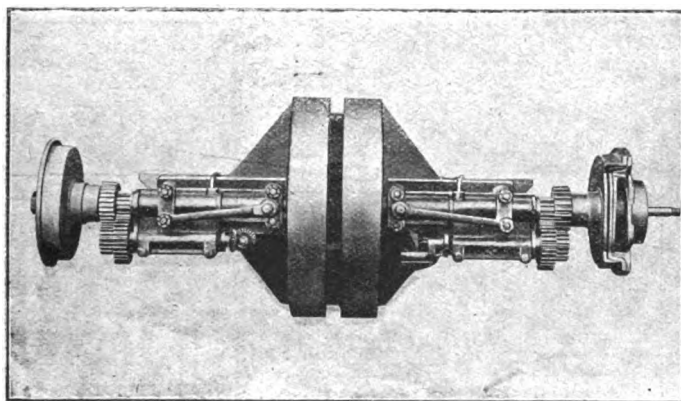


FIG. 135.—THE "MOTORMOBILE" CRANK SHAFTS AND VARIABLE SPEED GEAR.

metal and run in oil, the latter permitting them to be brought into action without jerk, as, until all the oil is squeezed out from between the two surfaces, a certain amount of slip takes place. It will be seen from the foregoing that there is a separate transmission to each driving wheel, placed on each side of the motor. The reversing gear, which is somewhat similar to a differential gear, is fitted outside the clutch box on the right-hand side of the car, and allows the right-hand wheel to be driven backwards when required. Another special feature of the Motormobile cars is that there is no differential gear of the usual kind, the grip of the road wheels in turning a corner being con-

sidered sufficient to permit one or other of the friction clutches to slip the necessary amount. A special form of lubricator is mounted on the engine. It comprises a small oil receptacle, in the bottom of which is a rod, rotated, when the engine is in motion, by skew gear off the ignition shaft. In this rod five small recesses are formed; these, of course, fill with oil, and as the rod rotates the oil is emptied from the receptacles each into its respective pipe, leading to the engine cylinder, piston rod head, and other bearings. In this way each of the working parts is continually given, in small regular doses, a sufficient quantity of lubricant so long as the engine is working, while when the motor stops all lubricating oil is automatically shut off. Provision is made, however, that before starting the engine a small quantity of oil can be allowed to flow to the

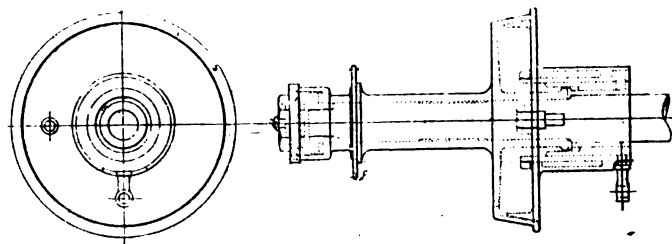


FIG. 136.—DETAILS OF "MOTORMOBILE" SPECIAL HUB BRAKE.

necessary parts. Double-acting band brakes, operated by pedals—all first disengaging the clutches—are fitted to the engine shaft and to the hubs of the rear road wheels. The latter are of a special kind, being arranged to brake the back wheels in proportion to the speed of the car—that is, the greater the speed the greater the friction that can be put upon the wheels. The arrangement is illustrated in Fig. 136; the interior of the hubs is contrived so as to form the male portion of a friction clutch. On the axles are mounted loose sleeves, having on their outer ends the remaining halves of the clutch. The sleeve has a spiral groove, in which a pin, connected with the brake pedal, can move, so as to bring the two parts of the clutch into action. That part of the clutch formed with the sleeve cannot rotate, as it is connected to a band brake on the drums bolted to the wheels; the result is that the greater the speed of the wheels, the tighter the band is drawn on to the drum without any strain on the driver. The brake lever is, of course, so arranged as to bring the two halves of the clutch slowly into engagement. It should be mentioned that below the engine and transmission is mounted a wire-gauze guard to prevent mud and dirt being thrown up on to the working parts. Steering is controlled by an irreversible hand-wheel; instead, however, of the irreversible gear being placed below, it consists of a screw thread on the top of the column, immediately below the wheel. The action of moving the wheel is to screw it upwards or downwards, and this motion is transmitted to the steering wheels. The portion of the column which forms the nut is made in two pieces, with a thin joint between, and thus any back-lash can be taken up. The frame is supported by springs on artillery type wheels 28 in. and 32 in. in diameter, shod with pneumatic tyres. As will be seen from the foregoing description, the Motormobile cars were certainly among the most novel in the Exhibition, and we shall watch with interest their behaviour in actual work in this country.

At the stand of the Kingston Motor and Cycle Company was shown a F.N. motor-bicycle, a 7-h.p. motor delivery van, a Peugeot quadricycle, and a 12-h.p. Boyer car. The delivery van has a two-cylindered air-cooled Sirène engine with piston rods working on to a single crankshaft. Three speeds and a reverse are provided, a Cardan shaft transmitting power to a balance-gear axle. Although not introduced by the Kingston Cycle and Motor Company, a novelty in acetylene lighting was shown on their stand. In this the carbide is employed in a powdered form, and the pressure of the gas regulates a valve through which the carbide is fed. The powder drops on to a deliquescent material, which yields up its moisture to the powder on contact. When this material is all used up, a mere powder is left, which may be thrown away and replaced by a fresh charge. In the "Autolite" motor-car lamps no water is needed, and it is claimed that there is no waste of carbide or carbonisation of burners.

Two different types of car, both known as the "Beaufort," were shown at the stand of the Regent Automobile Company. The 6-h.p. two-seated car (Fig. 137) is driven by a 6-h.p. vertical water-cooled motor, set under a bonnet in the fore part of the frame. The cylinder is 90 mm. diameter and the stroke 110 mm., the normal speed being 800 revolutions per minute. The water-circulation is on the thermo-siphon system, no pump being used. The ignition is effected by means of a Bergmann magneto-electric machine, of which a description was given in the *Journal* a few weeks ago. Two speeds forward and a reverse motion are provided, controlled by a lever on the inclined

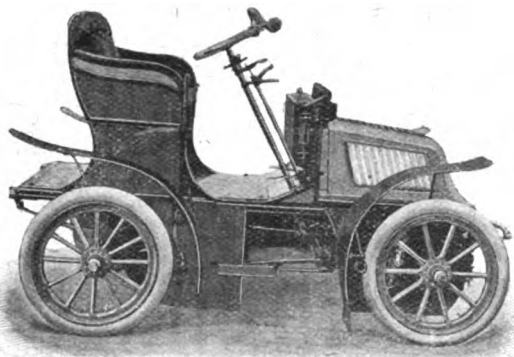


FIG. 137.—THE "BEAUFORT" TWO-SEATED CAR.

steering column. From a pulley on the engine-shaft a single belt drives on to one of three pulleys (high and low speed and loose pulleys) at the rear, the sleeve upon which the low speed pulley is set, and the shaft upon which the high speed pulley is fitted, carrying pinions meshing with spur-wheels surrounding the differential gear on the live axle. The second car was a three-seated spider with 8-h.p. engine; the single cylinder has a diameter of 100 mm., the stroke being 100 mm. Three speeds forward and a reverse motion are provided by means of a Panhard-type gear, the arrangement of the transmission in this car being on the lines of the Renault and Darracq, a universally-jointed shaft and bevel-gearing connecting the gear-box with the rear live axle. The Regent Company also exhibited the "Williams" tyre, which has already been dealt with in our columns. It is a solid rubber tyre having a flat hole lengthwise near the base. Into this hole fits a beaded-edged band, the ends of which are drawn together by an anchoring screw in a tubular-screwed sleeve, passing tangentially through the felloe in order to hold the tyre firmly to the rim. By means of this device the tyre is readily detached and securely attached to the rim. Samples of the Compin spring seats for motor-cars were also displayed. These are broad thin springs, fixed across the seat frame or back rest; they are fitted to a bolt at one end and a slot in the woodwork at the other, and as the end on the bolt is loose they "give" readily to pressure and maintain their shape.

An interesting display was that of the Auto Machinery Company, Limited, which included accurately-finished Whitworth nuts, studs, and bolts, ball bearings made of crucible steel, steel valves, and a special valveless circulating pump, of which we give an illustration. A roller-bearing arrangement driven by a Verity electric motor was also on view, being kept running at 1,350 revolutions a minute, carrying a load of 1 ton. It was 1 inch in diameter and 2 inches long, the rollers being made of cast steel. The outer bush, which carried the weight was of hardened steel. The rollers were held in a catch made with gunmetal ends, the latter being held together by steel pins. A 2-h.p. petrol motor was also on the stand. This was fitted with magneto ignition. A ball-bearing axle head and a hub of new design were also shown, together with specimens of their castellated nuts. The "Auto" valveless circulating pump for motor-cars is made of gunmetal. The complete weight of the small size is 2½ lbs., and the capacity three gallons per minute at 600 revolutions. A larger size is also made which weighs 6 lbs., the

capacity of which is six gallons per minute at 600 revolutions. As will be seen from Fig. 138 the pump is a valveless one, the makers claiming it to be not only simple but efficient, there being only two moving parts and no valves to stick.

In the Minor Hall the British Power, Traction, and Lighting Company, Limited, had a large display of eight steam carriages made under the Serpollet patents. Of the vehicles on view, five were of 12-h.p. and two of 6-h.p., the measurements of the cylinders being respectively 75 mm. bore, by 90 mm. stroke, and 65 mm. bore, by 72 mm. stroke. The engines have each four single-acting cylinders, the valves being of the mushroom type, which work efficiently at a speed of as high as 600 revolutions per minute. As the crank shaft is set at quarter sections, it follows that one or other cylinder is always in action. The reverse is obtained by bringing into play a separate set of cams to operate the valves at exactly opposite times to the cams used in the forward drive, and these cams are mounted upon a sliding shaft, actuated by a short reversing lever near the steering wheel. The cylinders are arranged in twin-tandem form, the crank shaft being placed between each pair, and carrying outside the case a chain wheel, whence the power is transmitted by a chain to a chain wheel surrounding the balance gear on the live driving axle. The ratio of gearing is about three or four to one, as desired. No variable gearing is employed, as the efficiency of the engine is constant at either high or low speeds. The steam is produced in a generator, not a boiler, a fact on which the company lay particular stress. It consists of a series of thick tubes bent in gridiron fashion and arranged in layers. The efficiency of this arrangement is one of the surprising features of the system, as it is claimed to be capable of raising 600 lbs. of steam from cold water in six minutes, and maintains this pressure continuously as long as it may be necessary. The water is pumped into the generator as required for any speed or power, the amount being under the complete control of the driver and regulated by a series of cams giving a different length of stroke to the pump at different speeds. The same applies to the supply of liquid fuel. No water is ever contained within the generator unless actually vapourised. Thus, on returning from a run, the driver has only to turn off the water and fuel taps. The various tubes of the generator will, it is claimed, stand for upwards of 10,000 miles, and are easily and cheaply replaced at any time. The 6-h.p. cars are provided with water tanks of a capacity of 8 gallons, and the 12-h.p. with 10-gallon reservoirs, these quantities being sufficient to run the

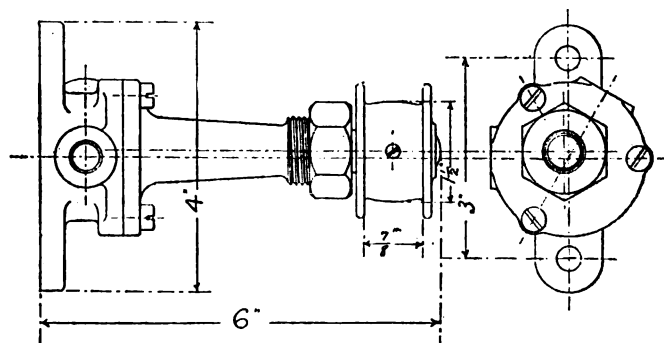


FIG. 138.—THE "AUTO" WATER-CIRCULATING PUMP.

respective cars 75 miles. Ordinary paraffin is used as fuel, and one gallon will run the car for 10 miles on a give-and-take road. Powerful brakes are fitted, two of the band variety acting on the hubs of the driving wheels, a pair of spoon brakes being also provided to lock the wheels when the car is stationary. The chief improvements and modifications in the 1902 models comprise a ratchet-driven lubricating pump inside a small oil case, and a much larger stepped cam, running at a slower speed, for operating the fuel and water pumps. A new safety valve, similar to an ordinary force pump, is also fitted; it has a pair of strong springs,

one on each side, which hold the plunger normally in position. The cylinder of the pump is connected with the boiler so that the plunger is forced out as the steam pressure increases. When forced out a certain distance it comes into contact with a trigger, which it lifts, and this immediately allows all the water to run out of the generator tubes. A small nozzle on the left side of the dash-board is also connected by a Bowden wire to this same trigger, so that any steam may be let out of the boiler when the car is being left unattended. The stepped cam, which operates the two-feed pumps, and which gives these a variable stroke, as required, is driven by spur gearing from the engine shaft, and is in this way geared down. Its diameter is much larger than formerly, and this, combined with slower speed, should allow the pumps to work with greater regularity, and also prolong their life. In the larger models an improved arrangement is introduced, whereby the stepped cam is entirely abolished, and a gradually variable stroke is given to the pumps by the sliding action of a block in a rocking quadrant. To enable the engine and boiler, as well as the general arrangement, to be inspected, the company also showed a complete *chassis* (Fig. 139), which was conveniently arranged, so that the engine could be run by compressed air. Bodies

least a *chassis*, by means of which visitors to the Show were able to inspect the details and general arrangement. As the latter is the same in all the vehicles shown, the following description may be taken as applying to all. The frame is of tubular construction, cross tubes being introduced to give the necessary rigidity. The whole of the frame is in one horizontal plane, and is built solid with all the necessary brackets for carrying the various parts. The engine, of which a sectional elevation and plan are given in Figs. 143 and 144, is of the single cylinder horizontal type, the explosion chamber being at the front end of the car. The cylinder has a diameter of about 5 in., and a stroke of $5\frac{1}{2}$ in. The cylinder is cast in one piece with its water-jacket and head. Both the inlet and the exhaust valve can be taken out by removing a single nut and a bridge piece. The stem of the exhaust valve projects downward beneath the cylinder, and is operated by a rocking arm from the cam shaft. The crank chamber, which is made of aluminium, not only encloses the crank shaft, but also a longitudinal shaft which is driven from it by bevel gear, and which projects forwardly to form the cam shaft and rearwardly to the main clutch C. This shaft is driven at one half the speed of the engine shaft, and it carries inside the crank chamber a centrifugal

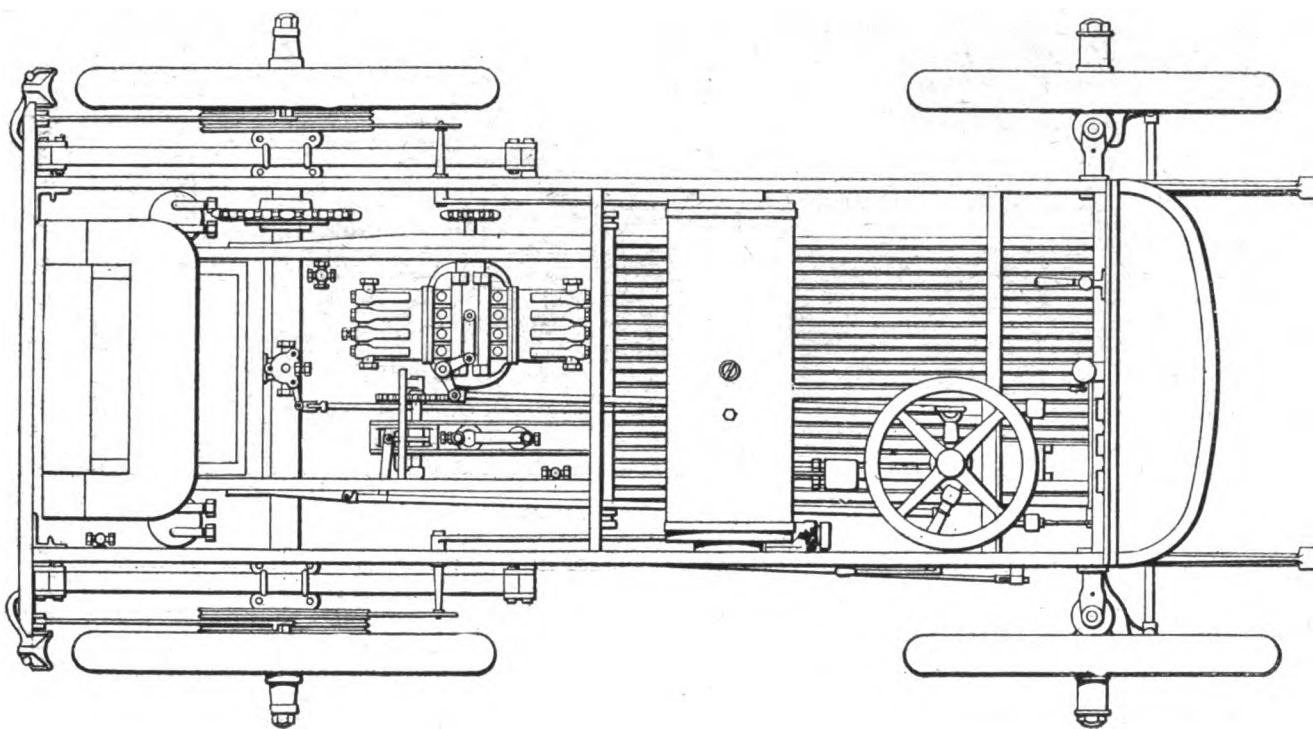


FIG. 139.—PLAN OF GARDNER-SERPOLLET STEAM CAR.

to any design can be fitted, but on the stand were a 6-h.p. double phaeton, a 6-h.p. torpedo-fronted two-passenger car on racing lines, a 12-h.p. double brougham to seat six persons, a 12-h.p. landaulette, a 12-h.p. char-a-banc sporting car, a 12-h.p. *tonneau*, and a 12-h.p. special car with body somewhat between a *tonneau* and a phaeton. The 12-h.p. *tonneau* has been designed as a shooting carriage to carry nine passengers. It is fitted with a canopy extending the whole length of the car, from which hang waterproof curtains, whilst the back and front of the vehicle are protected with bevelled glass panels. Altogether, this company had an interesting display of cars, the only fault that we can find being that the stand was somewhat overcrowded to enable the vehicles to be attractively arranged.

A relatively new type of car to the English market, but one which has, we may say, won its spurs in France, is the Gillet-Forest, which is being introduced into this country by Messrs. Vaughan and Brown, Limited. Their exhibit comprised a well-appointed Victoria of 8-h.p., a 10-h.p. *duc tonneau* in natural wood, a 8-h.p. traveller's brougham, adapted for carrying a large quantity of samples, a light delivery van fitted with an 8-h.p. motor, and intended to carry loads up to 15 cwt., and last but not

governor and a long, sliding and tapered exhaust cam J, on which works a roller K. This piece performs the office of a regulator or governor; it acts on the exhaust valve by means of the rocking shaft L, which raises the valve by means of an arm M for a variable length of time. When the motor runs at the normal speed the governor spring keeps the highest part of the cam J in line with the finger K. If the speed rises the balls I recede from each other and draw the cam J toward them. The finger K comes then in line with the reduced part of the cam and opens the valve for a shorter time: the entire quantity of burned gases is then not exhausted and during the following admission only a partial charge enters. In addition to this governor, which maintains a constant speed of the motor and prevents it from racing, there is provided a hand regulator, the operating lever of which is placed in a position convenient to the driver. This lever acts on the finger K and permits it to be shifted to any part of the variable cam. The normal speed of the engine is 800 revolutions per minute, but this may be increased or reduced at will by means of the mechanism above described. An ingenious arrangement is fitted in connection with the starting gear, the commutating device on the half-speed shaft which comes immedi-

ately below the starting spindle being so arranged that it is impossible for the spindle to engage with its spur wheel unless the ignition has been retarded to its slowest point. The carburettor is of the Longuemare float-feed type. The cylinder casting is so arranged that the induction pipe need not be removed when

top and bottom, by horizontal pipes, is so constructed that the steam from the jacket passes up the three central tubes, and is then free to return down the other tubes, the condensed water finding its way back by a connection on each side and leading down to the underside of the cylinder jacket. The water is

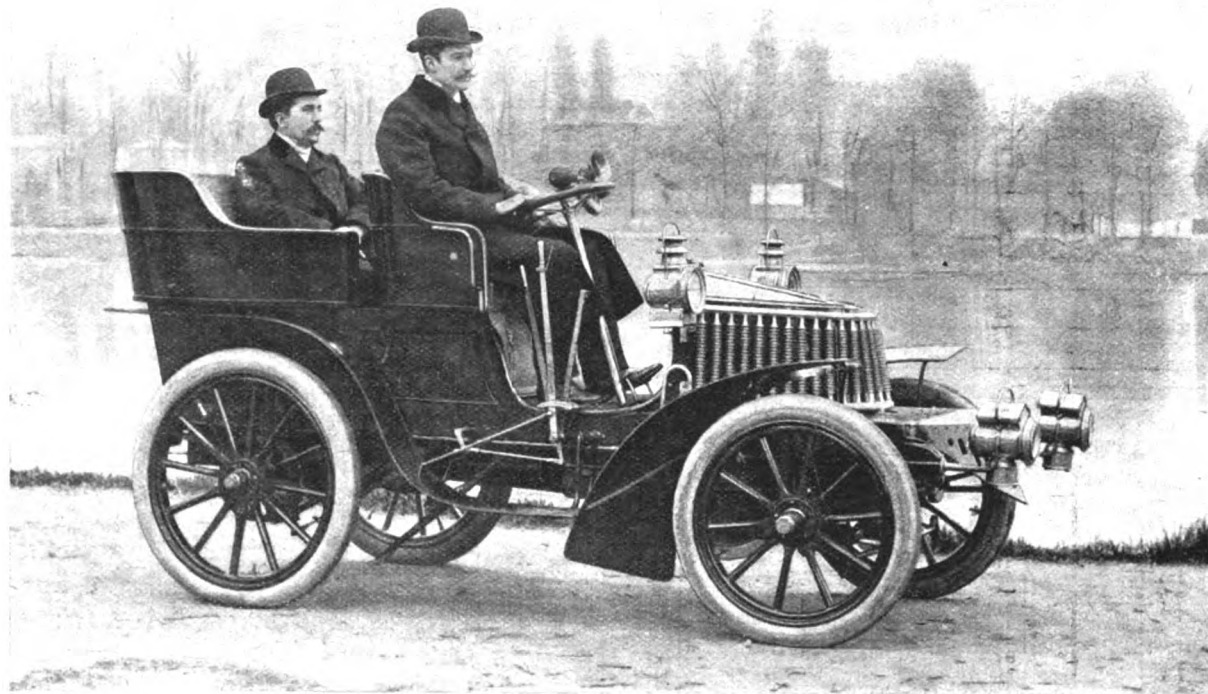


FIG. 140.—THE GILLET-FOREST TONNEAU.

[L'Avenir de l'Automobile.

it is necessary to remove the valves. The cooling of the cylinder is effected by very simple means, avoiding the use of a pump. The water in the jacket is kept at a constant level by a special float in a chamber in communication with the water tank. The apparatus known as a water float, which is placed alongside

replaced, as evaporation takes place, by the automatic ball valve device already referred to. In order to prevent any pressure being generated in the radiator, and also to prevent water from flowing away from it, syphon pipes are fitted to each end of the lower horizontal pipe, and these lead to the back of the car. Provision is also made for preventing air from interfering with the system, a small pipe being led from the top of the water float

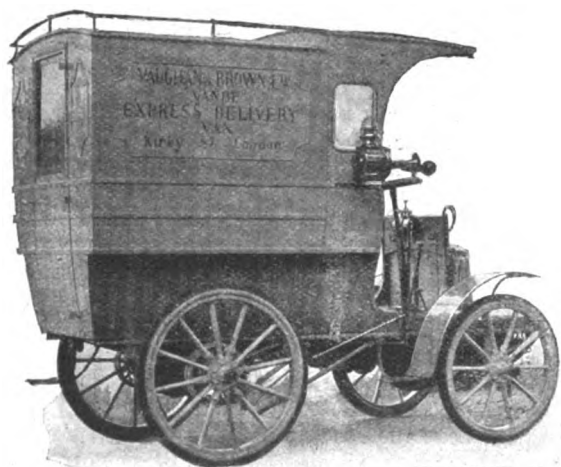


FIG. 141.—THE GILLET-FOREST DELIVERY VAN.

the carburettor, shuts off the supply as soon as the required level is reached. The radiator is fixed immediately above the engine, so that a central connection to it fits direct on to a flange on the top of the cylinder water jacket. The radiator, which is composed of fluted tubes which are held vertical and are joined together

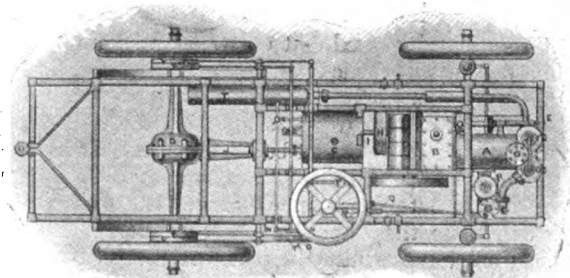
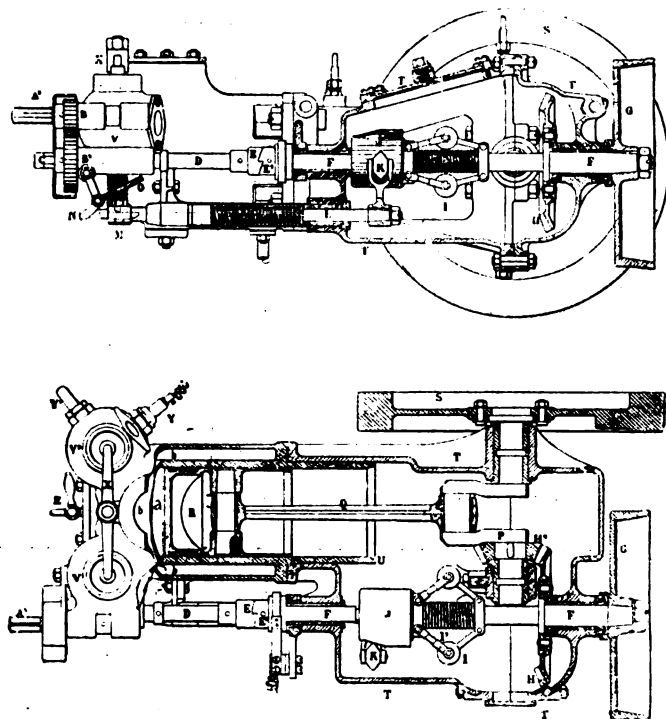


FIG. 142.—PLAN OF GILLET-FOREST CAR.

to a higher level than that of the water. Natural circulation may be said to take place in the cylinder jacket, but the temperature of the water approximately remains but little below 212 degrees when the motor is in regular work.

Coming now to the transmission, it may be mentioned that in addition to a reverse, three forward speeds, all controlled by a single lever, are provided, the three speeds being approximately six, twelve, and twenty miles an hour with the motor running at the normal speed. It has already been mentioned that the

power in the motor is transmitted to a half-speed shaft by bevel gearing. This shaft is mounted in line with the first motion shaft of the change-speed gear box, from which the power is conveyed to a rear live axle by a universally jointed shaft and bevel gearing. The change gear (Figs. 145 and 146) is on the sliding pinion principle. To economize space the second and third speeds have been placed on almost the same plane. To attain this end, the pinion of the third speed is fitted with teeth, both externally and internally; it runs free on the shaft B, and when it is to be engaged the pinion of the second speed is introduced into its interior, and the latter, being keyed to its shaft, drives the former.



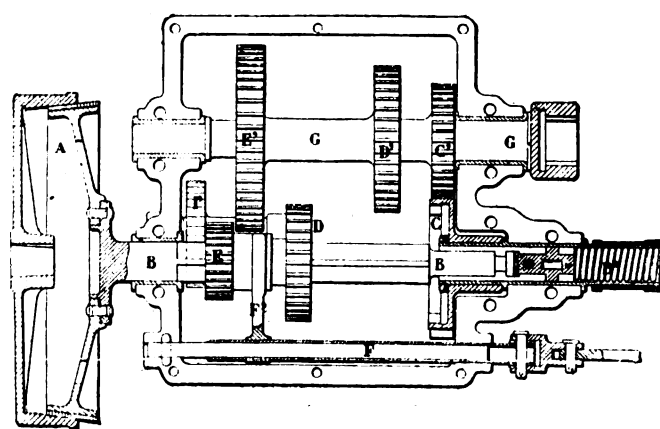
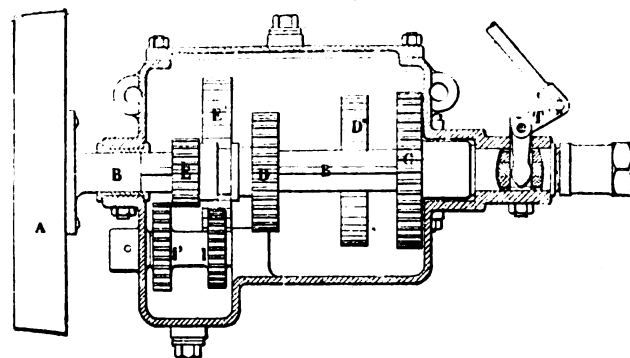
FIGS. 143 AND 144.—SECTIONAL ELEVATION AND PLAN OF GILLET FOREST MOTOR.

The two lower forward speeds result from sliding one or other, of a pair of pinions into mesh in the ordinary manner. The reverse motion is obtained by means of the same lever; the sliding gears then transmit their motion to the shaft G through the intermediary of the pinions I I'. The change-speed gear is enclosed in an aluminium grease-containing case having a large removable cover. The gear box is attached to the frame by means of lugs cast on it, which correspond with lugs formed in the tubular frame. Two long bolts which pass through the lugs are alone required for fixing it. The cone of the friction clutch is normally held in engagement by a spring; the compression can be regulated by an adjusting screw placed on the rearward side of the gear box. The longitudinal shaft is not only fitted with universal joints at either end, but its connection to the second motion shaft is by a square sliding joint. The differential gear, together with the bevel wheels driving it, are enclosed in a cast-iron case, which surrounds the whole of the rear axle. A band brake is fitted on the longitudinal shaft; it is operated by a pedal, which also disengages the clutch. A second pedal serves to disengage the clutch only. Hand-operated band brakes are fitted on the hubs of the rear wheels, a pair being fitted to each wheel in the larger vehicles. A single hand-lever on the right-hand side of the driver controls the three forward speeds and the reverse. The steering is controlled by a hand wheel, bevel pinions being used in place of the usual worm gearing. The road wheels are of the artillery type, 34 in. diameter at the front, and 36 in. at the rear, and shod with pneumatic or solid rubber tyres as desired. The chief claim made for these cars is their economy in fuel, one of them having shown a consumption of 3.6 gallons per 100 miles, at an average speed of 20.25 miles per hour, in one of the recent trials in France. We may add that the 8-h.p. delivery van exhibited has been in

use for about six months; during that time it has covered a distance of nearly 7,000 miles, the cost of repairs being practically nil.

The Motor Carriage and Chassis Company's exhibit comprised two voituresses, one known as the "Esculapius," designed for the use of medical practitioners and other professional men who require a light and speedy car at a low price, affording accommodation for driver and one passenger, with provision for carrying the necessary impedimenta; the other, which has been named the "Knight of the Road," is intended for use by commercial travellers. The first-named is driven by an inclined double-cylinder Ader motor of 5-h.p. set in the fore part of the frame. Two forward speeds and a reverse motion are provided, the power being transmitted by a universally-jointed shaft and bevel-gearing to the rear axle. The water-cooling is effected by radiators placed on either side of the front of the carriage. The rear part of the bonnet is utilised as the water-tank. The car has a long wheel base, the body being provided with a hood extending well forward, and projecting over a plate-glass rain and wind guard. The "Knight of the Road" is similar as regards transmission, speeds and general arrangement, but is driven by a 5-h.p. single-cylinder Aster motor.

Petrol marine motors formed the main feature of the display made by Mr. E. A. McLachlan, who also exhibited a solid tyred voiturette. In this a vertical engine is fitted in front, the power being transmitted by belt to the countershaft, from whence it is conveyed to the back axle by a single chain.



FIGS. 145 AND 146.—SECTIONAL ELEVATION AND PLAN OF GILLET FOREST CHANGE-SPEED GEAR.

The London Autocar Company had a varied collection of motor parts and accessories for cars. In fact, an enumeration of the goods shown on their stand would embrace nearly everything coming under the general head of accessories. A special feature was, however, being made of the new Accles-De Veulle radiator, recently described in our columns. This works out at 1½ lbs. per h.p. and gives an extremely large cooling surface in a very compact form. The ignition wire clips we illustrated in a recent issue were apparently finding favour with motor cyclists present. Another exhibit on the stand consisted of parts for a motor-bicycle which could be started by hand, the motor being fitted with a clutch.

Tyres fitted with Williams' patent detachable and adjustable band fastening were shown by Messrs. J. E. Hopkinson and Company, Limited, whose stand also contained a selection of pneumatic tyres and solid rubber tyres for motor-cars, as well as inner tubes for motor tyres and india rubber matting, etc. To fit the fastenings the only tool necessary is a small key spanner to fit the square head for tightening up the screw. One end or band is screwed down to the felloe through a hole drilled for that purpose through the channel and the other.

Dr. Alfred Sternberg, of Berlin, was one of the new exhibitors at the English show. He had an interesting display of the Protos petrol motors which are made in four sizes, viz., 5, 6, 8, and 12-h.p., the latter having two cylinders. A sectional view of the 5-h.p. engine is given in Fig. 148, while Fig. 149 is a side view showing the exhaust valve and ignition control. The cylinder

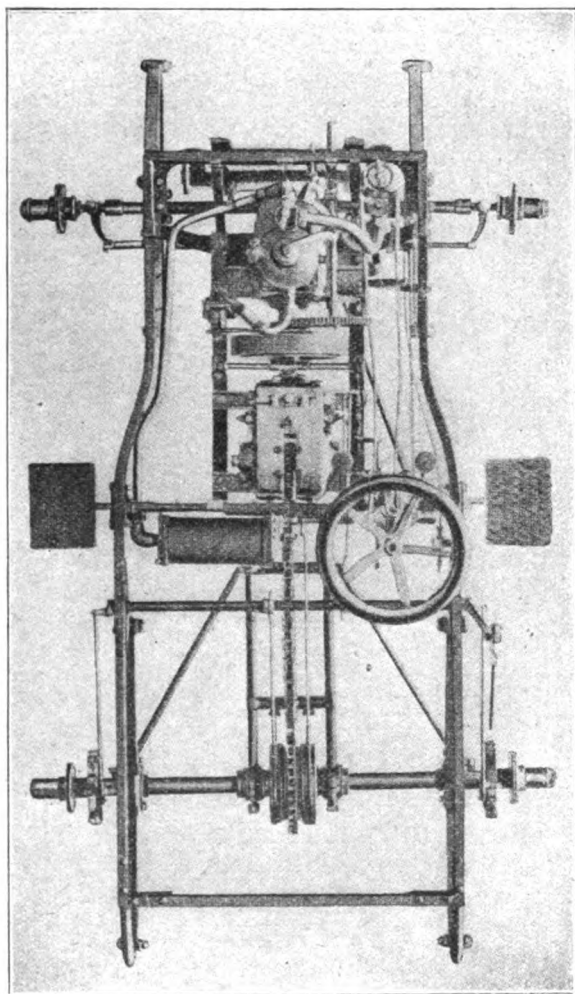
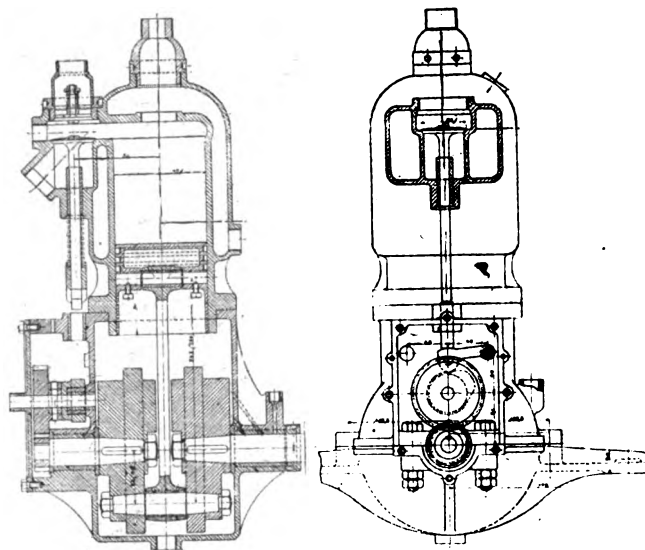


FIG. 147.—PLAN OF "PROTOS" CAR.

diameter is 3.8 in., and the stroke $4\frac{1}{4}$ in.; the engine weighs with fly-wheel 83 lbs. On the stand was also shown a Protos car fitted with tonneau body, and a single cylinder motor developing 8-h.p. The water circulation is maintained by pump and radiators, while the carburettor is of the float-feed type. Outwardly this car differs but little from any other, having the regulation motor-bonnet, inclined steering, and artillery type wheels. From the illustration (Fig. 147), showing a view in plan of the chassis, it will be seen that the method of transmission adopted is on novel lines. Two speeds forward, and a reverse motion, are provided, the power of the engine being conveyed to the gear box (shown in section in Fig. 150), through a special clutch, which is built up of copper and steel plates. The gear box is compactly arranged, and consists of two shafts 17 and 24, the first of which carries a pair of bevel wheels 15 and 16,

gearing with a bevel pinion 14 on the end of the clutch shaft α , and the two spur wheels 12 and 13 gearing with corresponding wheels on the second shaft. This second shaft also carries a sprocket pinion, from which motion is transmitted to the balance geared back axle by a single central chain. The various speeds and reverse are thrown in and out by a jaw clutch 18, which can



FIGS. 148 AND 149.—THE "PROTOS" 5-H.P. MOTOR.

be moved either to the right or left, and made to engage with the jaws formed on the bosses of the bevel wheels 15 and 16. The rear axle is well supported, and a special arrangement is provided to take up any slackness of the chain due to wear. One pedal controls the clutch, a second one disengaging the clutch and applying two band brakes on the differential drum on the rear axle. A hand lever also actuates band brakes on each of the hubs of the rear road wheels.

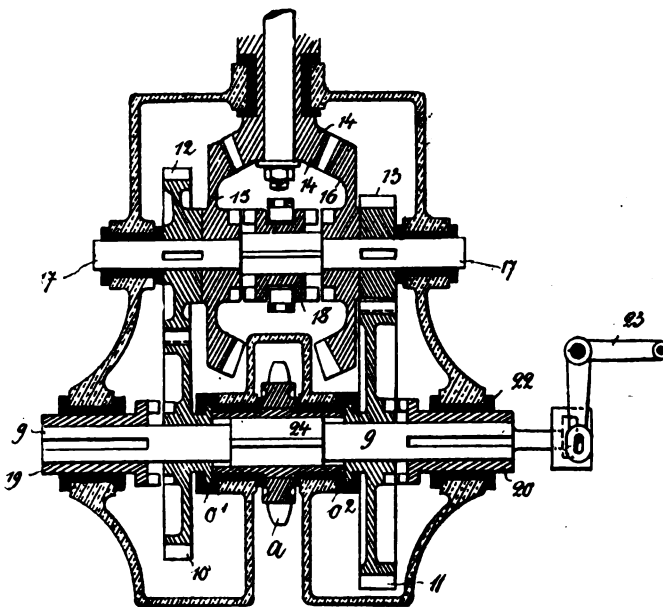


FIG. 150.—SECTION OF "PROTOS" VARIABLE SPEED GEAR.

The performance of the new Miesse steam car at Cromer last Easter naturally tended to increase public interest in this type of vehicle, which was shown by the recently formed Miesse Steam Motor Syndicate, Limited. The vehicles are the design of a Belgian engineer, but arrangements are now being completed for their construction in this country. In outward

appearance they closely resemble the popular type of petrol car; they comprise a number of special features, which for the moment can only be briefly alluded to. The "Miesse" steam generator is of the "flash" type, and is constructed of one piece of solid cold drawn steel tube coiled up in a special manner, the length of the coil in the 10-h.p. generator

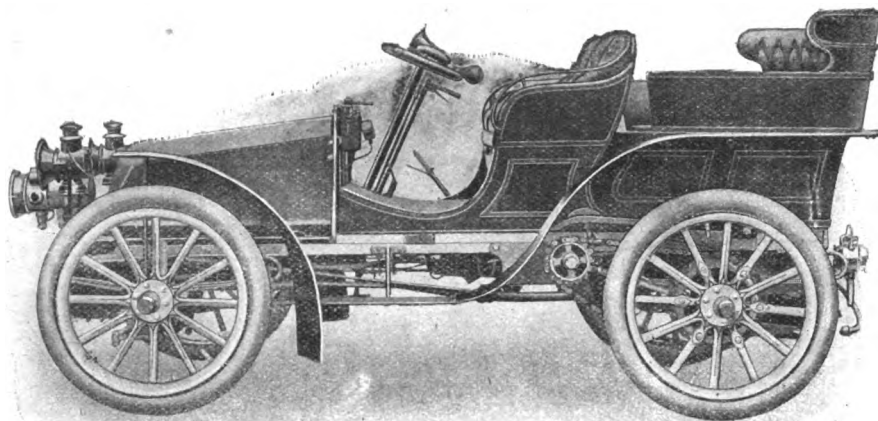


FIG. 151.—THE 10 H.P. MIESSE STEAM CAR.

being 300 ft. It has no joints throughout its entire length, and consequently cannot leak. It is guaranteed to withstand a pressure of over 10,000 lbs. per square inch (nearly 5 tons). It is heated by the Miesse burner before water is admitted, and as it at no time contains more than half a pint of water, no water-gauge is required. The burner having been started, no further attention to the generator is required, all that is necessary being to set the water-valve according to the speed desired. The admission of too much water to the generator only results in an excessive speed of the car, and if no water is injected, the engines stop; in either case no damage to the generator can, it is claimed, result. The generator is very compact, enabling it to be placed in the front of the car. Ordinary paraffin is used as fuel. The burners consist of grid-iron tubes, with small perforations for the exit of the vapour, and vaporisation of the fuel is effected by passing the liquid through a coiled tube round the fire-box, the starting heat being obtained by a blow lamp. The paraffin is passed along the coiled tube and is allowed to take up as much atmospheric air as can possibly be consumed with it. The vapour issues from some 1,200 holes with a pale blue flame, forming a mat covering the entire area of the under part of the generator, and free from any trace of smoke or smell. So perfect is the combustion, that after months of constant use the makers state that no sign of soot or unconsumed carbon can be found upon any part of the generator. The burner is entirely automatic in action; when the car is at rest for any length of time the burner can be turned down, the consumption of paraffin then being merely nominal. For town work or slow travelling, the burner can be used at half strength, with a corresponding economy in the fuel, under which conditions the supply will last for eight hours' continuous running. Sufficient steam to run the car can be raised from cold in six minutes. The engines are of the horizontal type, fitted with three single-acting cylinders, of trunk type, and are capable of running at a high speed. The crank pins are set at an angle of 120 deg.

to each other, consequently the engines are always ready to start either forwards or backwards. They can be linked up for slow running or steam economising, and reverse instantly. In the 6-h.p. engine the cylinders are 2in. in diameter by 3½in. stroke, and in the 10-h.p. 2 7/8in. diameter, by 6½in. stroke. All three cylinders are cast in one piece, and bolted to an enclosed crank chamber. The inlet valves, which are of the mushroom type, are arranged on the upper side, and the exhaust valves on the under side. The valves are all operated by cams, which, together with their cam shafts, slide longitudinally in order to reverse. Not only do the cam shafts slide, but the spur wheels which are fixed to them are drawn along sideways in mesh with the wide spur wheel which drives them. The steam inlet and exhaust valves are actuated by sliding cam rods, and the valves are of the poppet or petrol engine type, thus avoiding the loss of power resulting from the use of eccentrics and slide valves. The crank chamber is entirely enclosed, the cranks and connecting rods running in an oil bath, and automatically lubricating the pistons. The vehicle is fitted with a double set of steam condensers, which return the exhaust steam from the engine to the water tank, and enable long distances to be run without requiring additional water. In fact, it is stated that eighty miles can be run on twenty gallons of water. One end of the engine shaft operates an air pump which maintains the pressure in the fuel tank, and at the other end of the engine shaft, on a small countershaft, is mounted an eccentric which works the water pump. The fuel is under air pressure, and the supply of water to the generator is regulated by hand according to requirements. In the engine casting is also fitted the differential gear shaft, which is geared down by a spur-wheel drive to half the speed of the engine shaft, and receives its lubrication from the crank chamber. The differential shaft is in turn connected with the road wheels by two outside chains. The cars are made in two sizes, 6-h.p. and 10-h.p., and so far as outward appearance is

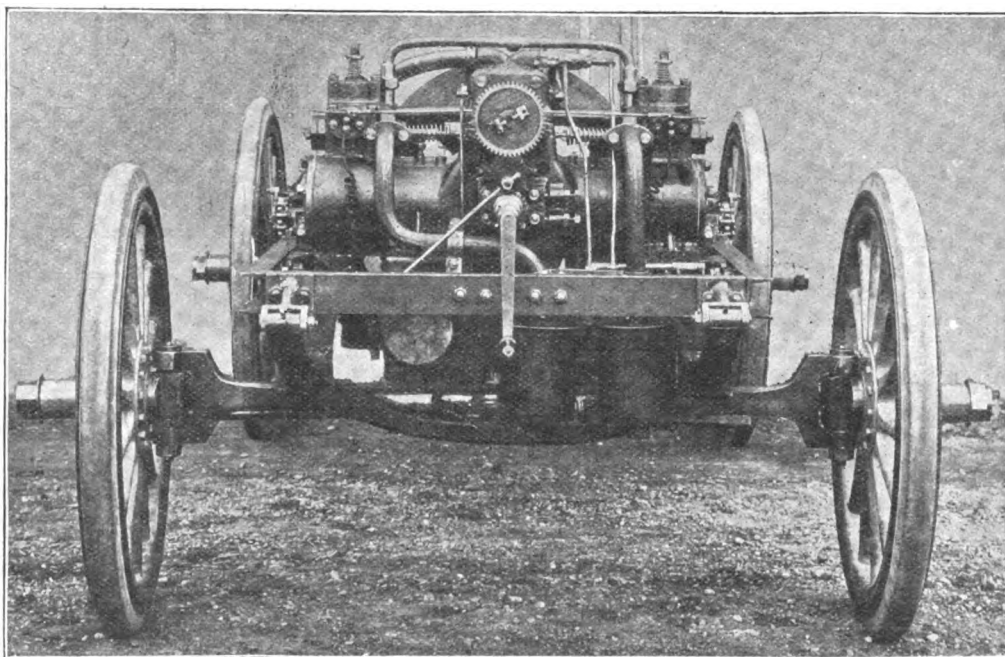


FIG. 152.—FRONT VIEW OF LUX 9 H.P. CAR. (See page 278.)

concerned, they might be mistaken for up-to-date petrol cars. Three cars were shown, a *tonneau* fitted with an engine rated at 6-h.p., but capable of developing up to 10-h.p.; a *coupe* to seat five persons, with 10-h.p. engine, working up to 17-h.p. if necessary; and a 10-h.p. *tonneau* (Fig. 151). Steering is controlled by an inclined hand wheel, while both foot and hand actuated

double-acting band brakes are fitted. The cars are very quiet in action and appear to be well adapted for touring purposes, being able to run long distances without it being necessary to stop for fresh supplies of fuel and water.

Although of a miscellaneous character, the exhibits of Messrs. Binney and Sons contained some features of interest to motorists, these including lubricators and lubricants, machine cut gears, steam-car fittings, and wood pulleys and belting, as well as general sundries. The Klinger water gauge was exhibited on their stand.

A type of car which is becoming well known in Germany, where it is made, but which is new to the English market, is the Lux, of which several were shown by Messrs. Philipp and Company. Of the 9-h.p. cars two were shown—a double phaeton (Fig. 153) and an eight-seated waggonette. The motor, which is set under a bonnet in the fore part of the frame, is of the two-cylinder horizontal type with a central crank-shaft (see Fig. 152). The cylinders are 110 mm. diameter by 110 mm. stroke, the normal speed being about 800 revolutions per minute. A governor is provided, this acting on the admission pipe; by means of an "accelerator," the governor can be put out of action as desired. The cam-shaft, which is hollow, is arranged above the crank-chamber, and is driven through an intermediate spur-wheel from the crank-shaft. The ignition is on the Simms-Bosch magneto system. The water circulation is maintained by pump and radiators. A special form of carburettor is employed, the air passing through a sloping and tangentially-arranged tube, which reaches almost to the surface of the carburettor, thereby giving the spirit a circular motion. Two silencers are fitted, one for each cylinder. They

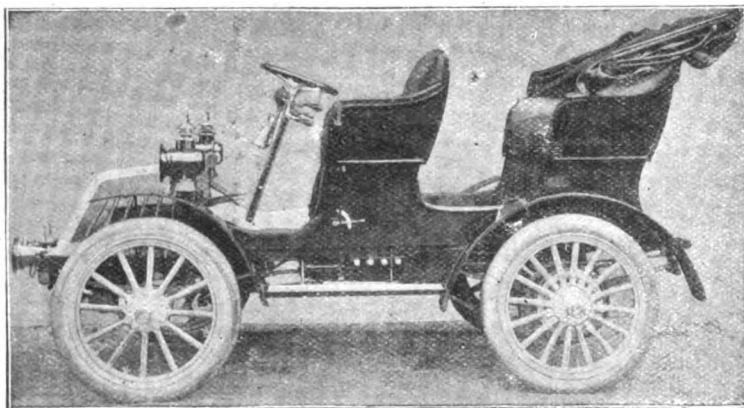


FIG. 153.—THE LUX 9-H.P. (DOUBLE) PHAETON.

take the form of a perforated tube, on which are three or four pairs of conical plates, the edges of which closely approach, but do not quite touch each other, so that the exhaust gases, after passing into the innermost body, strike the first and the following walls, and pass out of the whole circumference of each shell, thus considerably reducing the noise of the exhaust. Three speeds forward and a reverse motion are provided. The power is transmitted through a clutch to a Panhard-type of gear-box, and thence by bevel-gearing to the counter-shaft and by two chains to the rear road-wheels. A new form of clutch, which appears to possess some useful features, is employed. It is of the band variety, a steel band encircling a drum round which it is gripped by the action of a cam when the pedal is released. A strong spiral spring controls the action of this band, and prevents the possibility of the grip being sudden, for, should the motor be racing when the clutch is put into action, the sharp contact immediately causes the spring to expand, after which it gradually recovers and tightens the grip upon the drum. The usual foot and hand-brakes are fitted, and also inclined wheel-steering. Fig. 154 gives a view in plan of the combination belt and gear-driven Lux car also shown. This is fitted with a 6-h.p. two-cylinder motor, comprising all the features referred to above. It will be noticed, however, that the engine is located at right angles to the position adopted in the 9-h.p. car. Three speeds and a reverse motion are

provided. The motor is connected by enclosed spur-gearing to a short shaft carried in links. On this is a pulley, a long wide belt conveying the power to the variable-speed gear-shaft in front of the rear axle. On this is a train of sliding spur-wheels, any one of which can be made to mesh with corresponding pinions on a short counter-shaft. On the centre of the latter is a spur-wheel continually in mesh with a toothed pinion fixed around the balance gear on the rear live axle. The belt does not work on fast and loose pulleys, but is slackened, when it is desired to disconnect the engine by means of the swinging links above referred to. The change speed-gear forms, with the differential gear, a completely enclosed whole with the back axle, all the frictional parts running in oil, containing dust-proof cases. The gear-case is fitted to the frame by means of springs. The car appears to run very quietly, and to be a well-built vehicle.

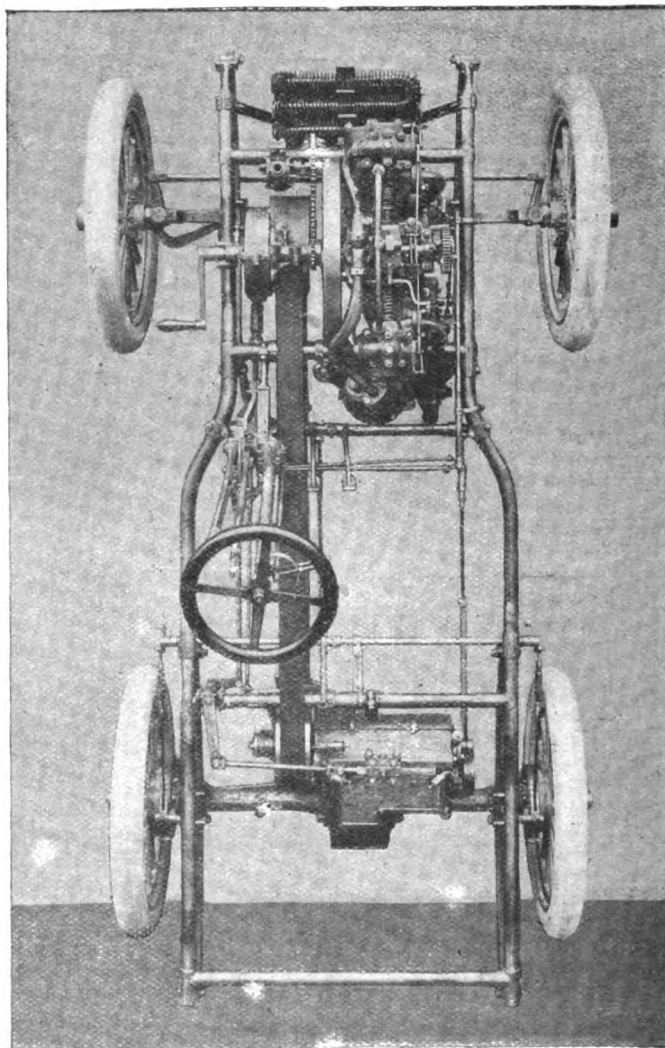


FIG. 154.—PLAN OF LUX 6-H.P. BELT AND GEAR-DRIVEN CAR.

A very large display of French built cars was made by the British Automobile Commercial Syndicate, Limited. Mr. Weigel first explained to us the features of the 40-h.p. Panhard with Berline body to seat six, built to the order of Col. Harry McCalmont, M.P. Two 16-h.p. Panhard cars with *tonneau* bodies, similar to that supplied to the King of Belgium, next engaged our attention, after which came a 24-h.p. Panhard for Lord Iveagh. This is fitted with a special form of body seating eight persons, there being two seats in double phaeton fashion, to the rear of which is a *tonneau*, the rear part being covered by an American buggy top. A couple of 12-h.p. Panhard cars and a chassis of the same makers' 7-h.p. vehicles were also staged. Fig. 155 gives a plan view showing the general arrangement of the motor and transmission gear. Its main features have already been described in the *Journal*. Of the De Dion cars with 8-h.p. single-cylinder

motor a couple were shown, both fitted with *tonneau* bodies. The main features of this vehicle were described and illustrated in our issue of March 22nd last, so that no further reference is necessary on the present occasion. Quite new to this country is the Clement car, with a 9½-h.p. double-cylinder engine, of which a *tonneau* in white and red was shown. The engine, which is located in the fore part of the frame, closely follows the lines of the Centaure. The sparking plugs fit into the top of the explosion chambers. A noticeable feature is

Sewell's pneumatic suspensory tyre was shown by Mr. J. McKim, C.E., who claims for this special form of tyre many advantages that are likely to appeal to motorists. At the outset we may mention that it can be fitted to new or old wheels, and being built in sections can be repaired or renewed piecemeal. As will be seen from Figs. 156 and 157, the tyre consists of a series of balls or spherical sections. When once the equilibrium or spherical point in the perpendicular is overcome the balance of the wheel is in the line of motion. As the balls are not placed

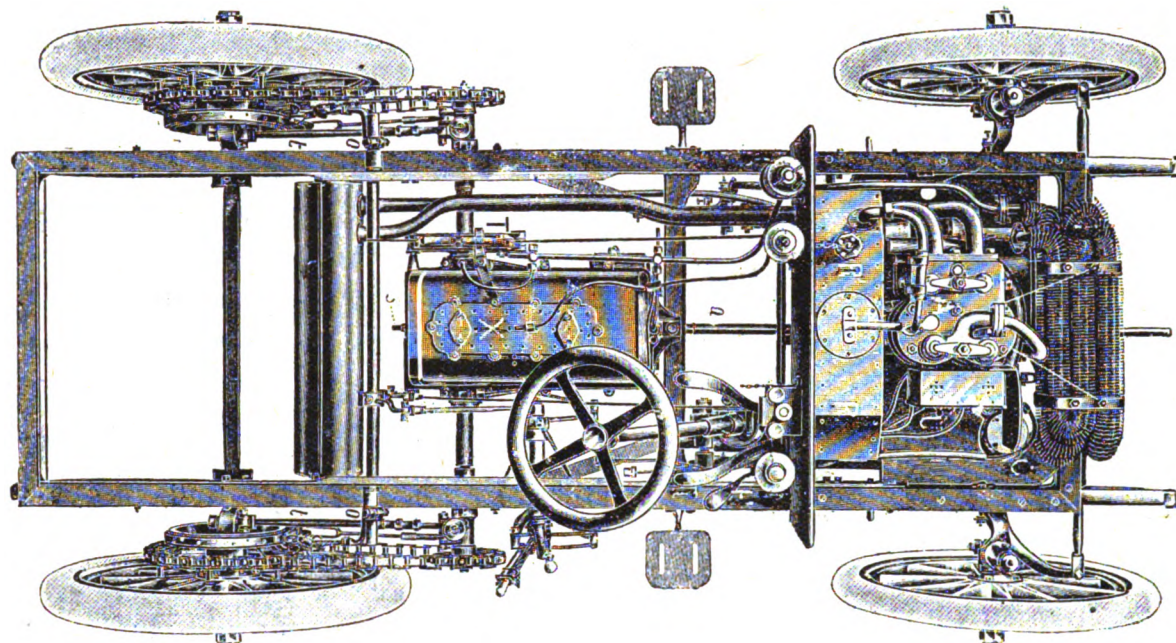
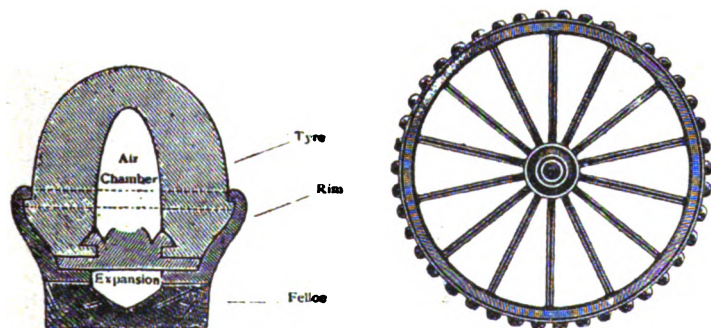


FIG. 155.—PLAN OF 7-H.P. PANHARD CAR.

the ease with which the valves can be removed. To do this it is only necessary to remove a single nut, the inlet pipe and dome swinging round out of position. The water circulation is maintained by a chain-driven pump and a radiator. The governor acts on the admission, and in connection with it is an accelerator controlled by a lever on the steering column. The transmission follows the lines adopted in the Renault, Darracq, and other chainless cars, the power being transmitted to a gear box, adapted to give three forward speeds and a reverse motion, and thence by universally-jointed shaft and bevel gearing to the rear live axle. The steering control and brakes follow the usual lines, the whole forming a very attractive and well-built vehicle. The carriage work

close together there is room for their expansion without being forced against each other, with the result that all the resilience must be in the line of motion. The belt of the ball is thickened to prevent it spreading at the side, the idea of the inventor being to throw the expansion to the back of the ball. Each ball is equally and permanently inflated and should puncture occur at any one point of the tyre the journey can be safely and comfortably continued, for the balls can be easily detached and renewed—a consideration of economy that cannot be overlooked. How this is done will be understood from a brief reference to the



FIGS. 156 & 157.—SECTIONAL AND GENERAL VIEW OF SEWELL'S TYRE.

of all these vehicles is by the firm of Messrs. J. Rothschild et Fils, Ltd., which is equivalent to saying that it is of the highest order. On a separate stand in the Minor Hall the company exhibited a "Foden" steam wagon belonging to the Earl of Shrewsbury and Talbot, and used on his Ingestre estate. A description of this vehicle was given in our issue of December 7th last, but we may mention that, generally speaking, the front part of the vehicle is of the traction engine type, the wagon portion being over the rear road wheels. The fuel used is coal, and the compound engine is placed on top of the horizontal boiler. It is intended to carry a load of four tons, and to haul a further three tons on a trailer.

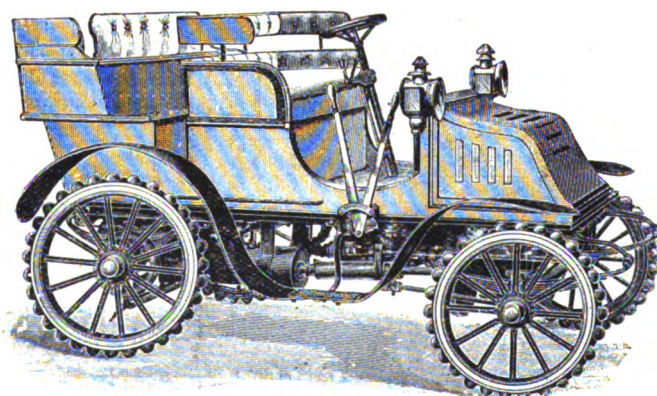


FIG. 158.—SEWELL'S TYRES AS FITTED TO A MOTOR CAR.

method of construction. Beneath each rubber sphere the felloe of the wheel is cut away so that the air can cushion the pressure of the rubber blocks. Metal plates secure the rubber sections in places circumferentially, the plates being placed radially on edge between the rubber blocks which are also keyed into the flanged rim. Between the plates and blocks are small rubber wedges. The plates have slots cut in them into which other metal plates are fitted. When forced down into place these second plates meet one another at the sides of each rubber ball, and are not liable to become displaced when the wheel is in use.

(To be concluded.)

HERE AND THERE.

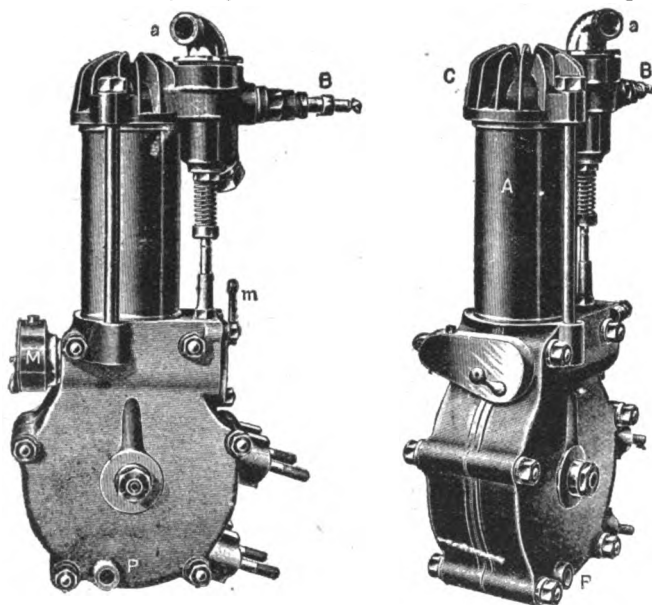
BREEZY but fine weather was characteristic of the holiday at Bournemouth, and there were great demands for motor-car rides, the public service vehicles being crowded all day.

THE Lexden and Winstree Rural District Council has declined to furnish its road surveyor with a motor-car, it being urged that before he was given such a luxury the roads should receive the benefit of any increased expenditure.

THE Piccadilly Motor Company, Limited, has been registered with a capital of £2,000, to acquire motor vehicles, motors, and to carry on the business of motor engineers and agents generally.

A NEW Club has just been formed in Paris to be known as the Mechanic Club. It will occupy itself exclusively with questions relating to the automobile industry, and its membership will be confined to motor-car builders, mechanics, and motor works' managers.

IN a recent issue we announced that Messrs. De Dion, Bouton and Co. were preparing to place a new bicycle motor of 1½-h.p.



on the market. We are now able to give two general views of the new motor, which we hope to fully describe in a subsequent issue.

WESTON MOTORS have just appointed a number of agents for the Weston steam cars, as follows:—City, Garages Limited, 34, Queen Street, E.C.; Liverpool and District, Messrs. Bennett and Carlisle, 68, Renshaw Street, Liverpool; Oxford, Oxford Automobile Agency, Oxford; and Reading, The Speedwell Motor and Engineering Company, Limited, Broad Street, Reading.

ONE of ours spent a few days at Blackpool last week end, but saw only four motor-cars in as many days in the popular seaside resort. A motor-bicyclist who went along the promenade on Saturday last created much attention, he being enveloped in blue smoke—the result of an overdose of lubricating oil.

AFTER a series of experiments in leathers of various kinds, and belts of different shapes, with severe working tests, Messrs. James Dawson and Son, Limited, have, under the name of "Lincona," lately introduced a new belt for motor bicycles. The leather of the belt is specially prepared and is of exceptional tensile strength and flexibility, while being almost entirely free from stretch. The shape is slightly V, the grip being obtained by a wedging process of the belt bearing upon the sides of the pulley, ample clearance being allowed below. The belt is of sufficient thickness to withstand the most severe strain without buckling or breaking, a sudden strain only increasing the grip upon the pulley and thereby avoiding the dangers consequent upon an engine racing.

THE Silesian Automobile Club is organising a tour from Breslau to Vienna. The start is fixed for June 25th.

MR. A. M'KIDD, cycle agent, Thurso, N.B., has secured a license for the stocking of motor-car spirit.

JUST prior to the Coronation festivities in Spain a service of electrical motor-cabs was started in Madrid.

THE Cologne Automobile Club is organising an automobile flower fete for the 1st prox.

MR. D. CITROEN has just issued a new edition of the handbook to the "Minerva" motor for bicycles. It should prove interesting and useful to all users of this engine.

IT is reported that Messrs. De Dion, Bouton and Co. are taking up the construction of heavy industrial vehicles propelled by petrol motors.

THE Bavarian Automobile Club is reported to be taking steps to organise an endurance test, to extend over several days, in the spring of 1903.

THE King's motor-car was at the works of Mr. Frank Morris, King's Lynn, last week, for overhauling and repairs, prior to its despatch to Windsor.

MR. F. H. CLINGOE, formerly one of their salesmen, is not now connected with the Farman Automobile Agency.

THE Rouen Veloce Club is organising a hill-climbing competition at Moulineaux, near Rouen, for Sunday next, the 25th inst. There will be categories for motor-cars, voiturettes, and motor-cycles.

THE marriage of Mr. Mark Mayhew and Miss Fisher is to be solemnised at Lytham on the 28th inst. The event will be of an extremely quiet nature, on account of the critical state of the health of the bridegroom's mother.

THE Motor Power Company, Limited, have acquired more spacious premises, and are now located at 14, New Burlington Street, where all business in connection with Napier and Gladiator cars will in the future be carried on.

THE first air-ship to tempt the English air will ascend from Highbury in about a fortnight. It is the work of the well-known firm of Spencer. Its balloon is 75 feet long, and the triangular girder (which contains a Simms petrol motor, the propeller, the car, and the rudder) is 45 feet in length. The car consists of a framework of bamboo, surrounded by network.

WITH reference to the recent consumption and hill-climbing trials at Dashwood Hill, Weston Motors write us to the effect that as one of the tyres on their car punctured just after leaving London, the major part of the outward journey, together with seven ascents up Dashwood Hill and the return journey, were accomplished with a deflated rear tyre. This naturally materially reduced the speed of the car.

THE Yorkshire Steam Motor Company, Ingham Street, Hunslet Road, Leeds, inform us that their business has been taken over by Messrs. Deighton's Patent Flue and Tube Company, Limited, Hunslet, Leeds, and in future will be carried on under the style of the Yorkshire Patent Steam Wagon Company. Large new works are being erected for this branch of their business; they will be equipped with all the latest labour-saving machinery, and will be under the same management as heretofore.

AFTER a successful week at the Automobile Exhibition the Vulcan Motor Company, of Southport, sent one of their cars on the journey home by road, a distance of 225 miles, to test its reliability and efficiency. The start was made on Tuesday, April 29th, from London. A non-stop run was made to Coventry, a distance of 104 miles, on a petrol consumption of one gallon for 42 miles, the average speed being well up to the legal limit. A start was again made the following morning, when the journey was completed in the afternoon without any stoppage.

MESSRS. WILLIAM SMITH AND SON, FORRES, N.B., inform us that they are keeping a stock of motor spirit.

THE British Automobile Commercial Syndicate have just acquired the sole agency for Great Britain and Ireland of the new "Clement" car.

IN a three miles motor-cycle race at Edmonton, a few days ago, T. H. Tessier was first; S. G. Graham, second; and G. Matthews, Tottenham, third. Time, 6min. 45 2-5sec.

A NEW stand for motor-bicycles has just been put on the market by Messrs. Hutton and Company, of Warminster. It has a large base, and, as it holds the rear wheel clear of the ground, it will be found useful in testing the motor before setting out for a ride.

THE British Automobile Commercial Syndicate inform us that they have engaged one of the principal foremen of Messrs. Panhard and Levassor to take charge of the new repair department they are just establishing. The repair shop will be ready within the next week or so.

JUST now there seems to be a competition between rich men in America to see who can give the most money for a motor-car. At present the top price is said to be 17,000 dols. (£3,400), the amount alleged to have been paid for a high-powered French vehicle by a New York broker.

THE Chicago Automobile Club has offered a reward of £20 for the policeman who makes the most daring rescue of persons in a runaway vehicle during the ensuing year, in this respect following the example of the A.C.A., which recently offered a reward of the same kind in New York.

A BAZAAR in aid of the Great Ormond Street (London) Hospital for Sick Children will be held in the Hospital Gardens during the first week of July. The Bazaar Committee announce that, owing to the generosity of the Daimler Motor Company, Limited, a 12 horse-power carriage of the newest type will be raffled for, two hundred tickets of £5 each being issued.

AN extraordinary general meeting of the Motor Manufacturing Company, Limited, was held on Saturday last at 47, Holborn Viaduct, London, E.C., to-day (Saturday), when the resolution, "That the company be wound up voluntarily," passed at the extraordinary general meeting of the company held on the 1st inst., was submitted for confirmation as a special resolution.

AMONG the latest legislative novelties of the United States is a bill introduced in the New Jersey Legislature, the object of which is to compel motorists to slow down to six miles an hour when passing a farmer's wagon, and giving any citizen power to make arrests in case of the violation of the law—truly an interesting development of the prejudice against motorists.

THE Motor Fittings and Engineering Company are introducing a new motor-bicycle, which they have named the "Sirius." It is fitted with a 2-h.p. air-cooled motor placed vertically in the frame, the crank-case resting in the angle between the bottom of the seat tube and the lower cross tube of the frame. The motor has a cylinder 66 mm. diameter by 72 mm. stroke. The mixture is furnished by a Roubeau spray carburettor, and the power is transmitted to a pulley on the rear wheel by a belt. The machine complete weighs about 70 lbs.

AN important addition to the number of steam vehicles which depart radically from the conventional type is the new Victor steam touring car, made by the Overman Automobile Company. The vehicle is designed on the lines of petrol cars, the body comprising a detachable *tonneau* body. The car weighs, empty, about 20 cwt. A steel angle frame is used, and all bearings, engine journals, etc., are plain. A horizontal high-pressure two-cylinder engine, with a bore of 3½ inches and a stroke of 6 inches, is employed. The maximum engine speed is 500 revolutions per minute, and the indicated horse-power 14. The boiler is of the vertical fire-tube type, having 756 ½-inch tubes; the diameter is 23 inches. The transmission is by sprockets on countershafts in combination with a chain drive.

CORRESPONDENCE.

THE FRENCH ALCOHOL TRIALS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I noticed in the account of the alcohol trials two curious things: In one case a 40-h.p. Panhard only beat a 20-h.p. Darracq by 45 minutes; in the other case, the 40-h.p. only beat a 16-h.p. by the same maker by 18 minutes. Thus, in the first instance, twice the horse-power only gained 45 minutes, and in the other instance more than twice the horse-power only gave a gain of 18 minutes. Surely these results involve a most extraordinary mechanical absurdity when compared with the ordinary applications of motive power. Where did all the lost horse-power go to?—Yours truly,

C. E.

LICENCE FOR MOTOR-BICYCLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I shall be pleased to have the opinion of any of your readers as to whether a licence is required for a motor-bicycle if only used for trial rides by probable buyers. I have purchased one for sale, and the Excise officer informs me that I cannot buy it for sale purposes unless I take out a 15s. licence, which I do not consider necessary.—Yours truly,

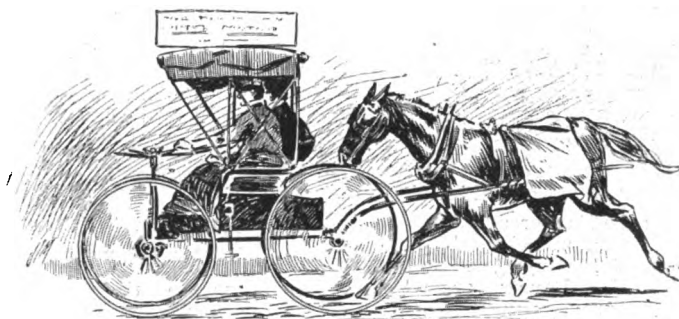
B. S.

WARNINGS TO MOTORISTS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I think Mr. Herbert A. Jones might have taken the trouble to hear both sides of the question before sending you the letter which appeared in your last issue. He states that the constable had only taken proceedings when warnings were of no avail. Now in making this statement both the inspector and constable differ from my view, and I think this variant is a fair sample of the facts gathered during the interview.—Yours truly,

J. SCRIVEN.



AN AMERICAN ADVERTISING NOVELTY.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Mr. Jones' reply (published in your last issue) to Mr. Scriven's letter of May 3 is rather stronger than the merits of the case seem to warrant. In the first place, the road in question within the two miles has no curvature of an angle of above 12½ degs. Consequently the outlook from a car is quite sufficient to command a distance in any place thereon of at least 200 yards. Secondly, I claim that the dip into Stanningly is steep, and no one but a narrow-minded person would ride down it at any great speed, and that Mr. Scriven, with whom I was riding on the evening in question, always thinks of other users of the road.

As to the verbal courtesy of the W.R. Police of this district I have no complaint to make. I could not, however, conscientiously support their statement in the same unqualified manner. I do not assert that they are wilfully inaccurate, but their statements are often hardly reliable. At the same time, when Mr. Scriven's case was tried, a youth of sixteen years was fined a nominal sum for riding without a light.

J. E. KERSHAW.

NEGLECTING TO STOP.

At the Dorset County Petty Sessions, last week, Launcelet Perry-Keene of London, was summoned for a breach of the Locomotives and Highways Order at Bemerton, the allegation being that he neglected to stop his motor-car when Miss Annie Kendell, of Shrewton, held up her hand as a signal. Mr. Staplee Firth appeared for the defendant. The facts of the case, as detailed by Mr. W. Kendell, retired farmer, of Shrewton, and Miss Annie Kendell, his daughter, were briefly as follows:—On February 11th Mr. Kendell and his daughter were driving into Salisbury from Shrewton.

After they had passed Tinkerpit Hill, Bemerton, a motor-car came along, and knowing that the horse they were driving was very nervous and would not pass motor-cars when in motion, Miss Kendell held up her hand as a signal for the driver of the on-coming car to stop. Although this signal was given, the motorist did not stop, with the result that the horse turned across the road, and ran the cart up on to the raised pathway, both Mr. Kendell and his daughter being thrown out, the former being injured to such an extent that it was considered advisable to take him to Salisbury Infirmary. For the defence evidence was given by the defendant himself, also by George B. Williams and Walter Mark Chalk, of Shrewton, and Charles Blake, of Wilton. Defendant said he had motored over 40,000 miles during the last five years, and had never had a single complaint laid against him. He did not see any signal given by Miss Kendell. After the accident witness and a man Blake, who was working on the road, paced the distance from the motor-car to the place where the accident occurred, and found it to be twenty-one paces. Without calling upon Mr. Firth to address them, the magistrates decided to dismiss the case, but the Chairman said the case was fairly brought into court, and each party would have to pay their own expenses.

DE DION BATTERIES.

On Thursday last week, in the Chancery Division, Mr. Justice Joyce had before him the case of *De Dion, Bouton and Co. v. Brown Bros., Ltd.*, which was a motion on behalf of the plaintiffs for an injunction to restrain the defendants from passing off as *De Dion* batteries goods which were not the plaintiffs'. Mr. Hughes, K.C., was for the plaintiffs, and Mr. Younger, K.C., and Mr. George Hart for the defendants. Mr. Hart said it was a small matter, and the thing complained of had occurred through an oversight of an employee, and was entirely contrary to the instructions given him. It would not occur again. His lordship directed the motion to stand over till the first motion day in next sittings.

MOTOR-CYCLE RACING.

The eleventh annual athletic meeting promoted by the Corporation of the borough of Portsmouth, in aid of the local charities, was held on the North End Recreation Ground, Portsmouth, on Monday. The programme included a three-mile motor bicycle race. F. Shaw, of Eastney, won easily, covering the distance in 5 min. 53½ secs., a record for the track.

There was a good attendance of spectators at the Dover Athletic Ground on Monday, when the annual cycle races, under the auspices of the Dover Cycling Club, were held. A novelty was introduced this year by the addition of two motor-cycle races, Steele proving the winner in both events.

In a five-mile motor-cycle race, at the Whit-Monday Sports at Coventry, S. H. Sharp beat S. Wright by 40 yards in 16 min. 57 secs.

STEALING A MOTOR-CAR.

At the Marlborough Street Police Court, W., last week, Adolph Otto, 31, engineer, was charged with having stolen in February a motor-car worth £130, belonging to Messrs. Mann and Overton. Mr. Staplee Firth prosecuted. Having secured an introduction to the firm in question, the prisoner hired the motor-car at £3 per week, but eventually, being in difficulties, sold it for half its value at Chelmsford. The facts were not ascertained until after the prisoner had been convicted of stealing another motor-car and a bicycle, for which he was now undergoing three months' hard labour. Mr. Kennedy sentenced the prisoner to six months' imprisonment, the sentence to begin from the date when the prisoner was ordered to undergo the three months' hard labour.

A DISORDERLY MOTORIST.

At Bow Street, on Tuesday, Stanley Vernon Leigh was charged before Sir A. de Rutzen with being drunk while in charge of a motor-car, and Norah Leigh, his wife, was charged with being drunk and disorderly. P.C. 175 E deposed that at ten o'clock on Monday night he saw the male prisoner driving a motor-car along the Strand. When passing the Tivoli Music Hall he shot in front of an omnibus, and witness called upon him to stop. He pulled up, but refused to get down for some minutes, and the officer then discovered he was drunk, and proceeded to take him into custody. The woman, who was riding with him, was also drunk, and as she began to shout and insisted upon being locked up with her husband, she was accommodated. Sir Albert pointed out the danger of persons getting drunk while in charge of motor-cars, and fined the male prisoner 40s. The woman was bound over to keep the peace.

CAMERAS IN HYDE PARK.

At the Marlborough Street Police-court on Tuesday Mr. Argent Archer, of 195A, High Street, Kensington, was summoned for having unlawfully taken photographs of persons in Hyde Park on April 29th. Constable Mungo Park stated that the defendant was taking a group in a motor-car, his permit being limited to taking photographs of scenery. The defendant produced the photograph in question, which he explained was of the motor-car which was then about to start for a tour round the world, and was to be used by the *Motor-Car Journal*. He had taken photographs for

illustrated papers for years, and there had never been any objection taken before. Mr. Denman explained that the regulations limited the defendant's permit to taking scenery and not groups, as it was desirable that cameras should not be dotted all over the park as they were at Margate sands, taking photographs of people against their will. In this case it would be sufficient if the defendant paid 2s., the cost of the summons.

FURIOUS DRIVING CASES.

At the Lincoln City Police Court, last week, Albert Geo. Dyke, trading as R. M. Wright and Co., was summoned for driving a motor-cycle, in Newland and Gas Street, Lincoln, furiously and to the danger of foot passengers, on May 4th. Police-Constable Croft stated that about 11.20 on Sunday morning he was on duty at the Newland end of Newland Street West, when he saw the defendant riding a motor bicycle at the rate of 16 or 17 miles an hour. The witness was cross-examined as to the way he judged the pace. The defendant gave evidence, and the Chairman said the magistrates were not satisfied under the words of the Act that the defendant was riding to the danger of life and limb of any passenger or person. They thought, however, that there was a great deal too much rapid riding in the town, and that more discretion should be exercised both by riders of motor-cycles and drivers of motor-cars. The case was dismissed.

At Leicester County Police Court, on Saturday, George Belville, gentleman, Stoughton, was charged with furiously driving a motor-car at Oadby on the 11th inst. Mr. Rowlatt appeared for the police, and Sir Thomas Wright for defendant. The evidence for the prosecution was that the car was being driven at a pace variously estimated at between 18 and 25 miles an hour, though the defendant slowed up to eight or ten miles an hour when turning a corner into Stoughton Lane. Sir Thomas Wright argued that it was not practicable for a constable to state definitely that a vehicle was going at a certain number of miles per hour, and said defendant denied exceeding the regulation limit. A fine of £5 and 30s. 6d. costs was inflicted.

At Oxford, last week, W. L. Creyke was summoned for furiously driving a motor-car on the Abingdon road, on May 9th. Defendant pleaded not guilty, and was defended by Mr. A. Walsh, who said the car the defendant was driving was not the record-breaker. He was quite willing to admit that the defendant was going at a greater speed than the Local Government Board's orders allowed, but defendant was summoned under the Highway Act, and he asked the Bench to say that there was no furious driving under the Highway Act. The Bench imposed a fine of 40s. and 11s. 6d. costs.

In the Belfast Summons Court, last week, Leslie Porter was summoned for furiously driving a motor-car on April 24th, to the danger of the public, in York Street. Mr. Donnelly, who represented defendant, said he was instructed to enter a plea of guilty, as his client admitted driving at the rate of about fifteen miles an hour. A fine of 20s. and costs was imposed.

Before the Surrey County Bench, last week, G. C. Ashton Johnson was summoned for driving a motor-car on the main road near Ripley at a greater speed than twelve miles an hour, on May 4th. Defendant pleaded not guilty, and said he purchased the car because it was of a particularly slow make. Fined £5.

At the Dingwall Burgh Police Court, last week, Talbot Clifton and William Wilmshurst were charged with having driven a motor-car through the burgh of Dingwall on the 10th and 15th April, at a speed above the regulation speed allowed by the Locomotives on Highways Regulation Act, 1901. Both the accused failed to appear. Mr. Duncan, solicitor, appeared for Mr. Clifton, and stated that the accused had been commanded by the King to appear at the Levee at Buckingham Palace. The King's order must always be attended to, and so he could not possibly appear that day. The Procurator-Fiscal agreed that the Court should be continued for a fortnight.

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THE Motor-Car Journal.

VOL. IV.]

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COMMENTS.



ALTHOUGH the majority of the cars returned from Bexhill to town on Tuesday, last week, several stayed till Wednesday. Of these, the passengers on five cars arranged to lunch together at Uckfield. After lunch, about three o'clock, a start was made for East Grinstead, and as the distance was but short the cars were fairly close together. Nearing the latter place, Mr. Gregson, who was on his winning 12-h.p. Gladiator, had just passed a horse drawing a heavy load of timber, when the animal swung round, and as the timber projected, as timber usually does, the tail end only missed the motorist's face by inches. A truly marvellous escape. We were also in a bad plight, as the cart had got square across the road, but having more time we were enabled to drive on to the grass and so pass by.

The Return Journey.

WEDNESDAY was a lovely day, and so the return journey through the Sussex and Surrey lanes was most enjoyable, and, as the fear of the law was on us all, we had ample time to feast our eyes on the beautiful scenery, occasionally stopping, after hearing a whistle from behind a hedge, to pick flowers and botanise generally. At East Hoathly, where there is a straight road for miles and "devil the sight of a house," a gentleman came out and warned us there was a measured furlong just ahead with "yokels" in charge of the timing arrangements. At East Grinstead dreadful tales of "captures" the previous day were told, and also the information volunteered that the police in large numbers were still on the prowl. The owners of the four cars, all that were left, decided to make a detour, and Reigate was fixed on for tea, but in crossing a Common, with many roads and numerous signboards directing to places we knew not of, we got separated, reaching Reigate after travelling through some beautiful lanes. While waiting we amused ourselves photographing a Reigate policeman under the shadow of the Town Hall. Our friends not arriving, we rode up the hill at a fine "bat," and reached Bloomsbury just before seven.

Bexhill.

It is estimated that about six hundred motor-cars were housed at Bexhill-on-Sea on the night preceding the recent eventful trials at that town. The financial value of such a gathering to Bexhill can hardly be gauged, but there is no doubt it will have a great effect upon the season at the popular resort. Not only was the town mentioned by practically every newspaper throughout the United Kingdom, but it has suddenly leapt into prominence so far as the Continental press is concerned. In addition, the hotel-keepers and similar classes in Bexhill have reaped a substantial harvest. The gathering was certainly a remarkable demonstration of the wealth that is connected with automobilism as a pastime, and should do much to convince the public that the popularisation of the industry will be to the advantage of more than one British trade. So far as the number

of cars in the town were concerned, it was satisfactory to notice what a large proportion were of British manufacture, and it is notable that the first cars in the competition for the House of Commons Cup for cars having the best appearance were of English make.

Charter Day at Bexhill.

BEXHILL-ON-SEA has been raised to the dignity of a municipal borough, and Charter Day will be long remembered in the district. This took place amid scenes of great rejoicing, and Lord De la Warr entertained a large company at the Kur-saal in honour of the event. In the morning a small deputation came to London for the Charter, and it was met at Bexhill by Lord De la Warr and some of the leading townspeople. Mounting an Argyll voiturette, driven by Mr. Bradney Williams, his lordship thus conveyed the precious document to the Town Hall, where its contents were read by the town clerk. In the procession round the town which followed the proceedings motor-cars figured prominently, one conveying the new Mayor and Mr. Daniel Mayer, J.P., and another having as passengers Dr. Oswald Osborne, the medical officer of health, and Mr. W. T. Le Feuvre, A.M.I.E., the resident electrical engineer.

Assisting the Police.

VARIOUS are the uses of the motor-car. By its aid the King of the Belgians was recently able to escape the ill-mannered attentions of some of his subjects, and sportsmen have found it useful in conveying injured persons to the nearest haven of refuge. Now the police of Birmingham have recognised its value in another direction. A man who was being taken to the police-station for his drunken and disorderly conduct was so boisterous that the efforts of the police were unavailing. Fortunately, a motor-car came on the scene. This was stopped, and the officer and two others succeeded in lifting the prisoner into the bottom of the automobile, which was at once driven to the police-station. On the way, however, prisoner behaved like a madman, and it was with considerable difficulty that he was removed from the motor-car to the cells by Sergeant Smye and the other men. He was considerably bruised, and the policemen's trousers were torn in the struggle. Seeing the way in which the police of some localities harass motorists, this must be regarded as a case of returning good for evil.

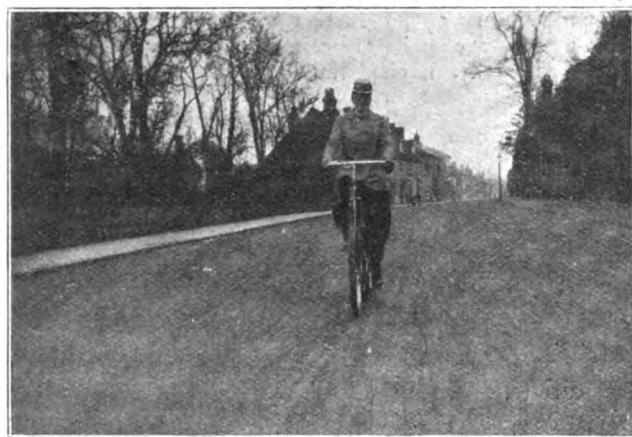
Farmers and Motor-Waggons.

ONE of the great difficulties which fruit-growers and market gardeners have had to contend with has been a want of early delivery to market centres in London. Those nearest to London have to some extent overcome this difficulty by sending their goods by road, which naturally entails a very heavy expense in horseflesh. This difficulty would appear to have been successfully overcome by the enterprise of a firm of leading Kentish fruit-growers, Messrs. Thomas Wood and Sons, of Swanley, who a few days ago sent up for the first time to Spitalfields Market

in a steam waggon five tons of vegetables. It started from Swanley at night and returned early in the morning, a distance of nearly forty miles there and back, without a mishap. The advantages of this new departure to those who do not rely on railway companies for the mode of transit cannot be over-estimated, and it is to be hoped that many others will follow their example.

Mrs Kennard.

AMONG lady motorists few have achieved the distinction that has been won by Mrs. Mary Kennard, the novelist. She has toured through Great Britain on a motor-car, and went through the 1,000-mile Trial with a courage that did credit to her energy and determination. Shortly after that event she wrote in our columns an interesting article setting forth the



excellent way in which the smaller vehicles had gone through the Trial. More recently she wrote—also in the *Journal*—an article on motor-bicycles, which testified to the practical way in which she has been studying the question of automobilism, and now we have pleasure in giving a photograph of this lady motor-bicyclist mounted on her Ivel motor-bicycle. Few ladies have so thoroughly grappled with the problems associated with motoring.

Mr. Mark Mayhew, L.C.C.

MR. MARK MAYHEW—to whom we tender our congratulations on his marriage—has been interviewed by one of the municipal journals. He described the London roads as being the worst in the kingdom, while English roads are inferior to those north of the Tweed. But the best of British roads are poor when compared with those of France. There the central government, and not the department or county authorities, is responsible for the making or mending of the roads, and as a result the main roads are simply perfect—as hard and smooth as could be wished. During the last four years Mr. Mayhew has owned and driven more than twenty-five motor-cars, and estimates his total mileage at 55,000.

The 1902 Exhibition.

THIS week we conclude our review of the Motor-Car Exhibition, and the present, with the five preceding issues will thus have an added value as furnishing the most comprehensive account of the great event of the year that has appeared anywhere. Avoiding the invidious practice of selecting certain firms only for reference, we have dealt with every stand at the Exhibition, and in an impartial way have described the leading features of every display. Although this has given our pages somewhat of a technical appearance of late, we venture to assert that readers have appreciated the permanent record which they have thus obtained of the Motor-Car Exhibition of 1902.

The 1903 Show.

Now that we have done with the Exhibition for the present year, we may be forgiven another reference to that for 1903. The Agricultural Hall will again be the venue, and the success of the recent display will be repeated. Already most of the best positions on the ground floor have been booked—which is a stage further than inquiry only—and we would remind those who have not yet made up their minds that early application is absolutely essential for the remaining spaces. From the bookings that have already been made it is evident that all the ground space will again be occupied, while the show of accessory firms in the gallery will be even more complete than upon the recent occasion. This is very satisfactory, and the efforts made to cause the trade to break their allegiance to the promoter of the series of motor-car exhibitions at the Agricultural Hall must be regarded as proof of the fact that the last Exhibition was of undoubted financial value to the industry.

Annoying Motorists.

THE cabman who sought to annoy Major Bailey when the latter was leaving the Motor-Car Exhibition on a motor-car is not likely to do so again, and the case—reported on another page—should prove a salutary warning to drivers of horse-drawn vehicles not to get unnecessarily in the way of motor-cars. Motorists have so long had to endure the insults of cabbies and busmen that little sympathy will be felt with the defendant in this instance.



A MISHAP AT BEXHILL. M. SERPOLLET'S CAR CATCHES FIRE.

New Sixpenny Weeklies.

AMONG the plethora of sixpenny motor journals promised to brighten the Coronation festivities are the *Car Illustrated*, which is being edited by our good friend the Hon. J. Scott Montagu, M.P., the *Automobile*, and the *Court Motorist*, both of which will be edited by members of the Peerage. It is understood that the staffs of all these journals have been completed. Evidently Society motorists will have no lack of reading matter, and for about half-a-crown a week will be able to know as much as the readers of *The Motor-Car Journal*, which will continue to be published at one penny.

Coronation Meets.

THE Liverpool, Manchester, and Yorkshire Clubs so well enjoyed their recent joint outing to Buxton that a suggestion has been made for another gathering during the period of the Coronation festivities. This will probably take place at Harrogate, and it should result in a great assembly of motor-cars from all the leading centres of Lancashire and Yorkshire. We hear of other similar meetings in course of arrangement for the closing days of June, and shall be pleased to receive full particulars from those who are organising the same.

Some Holiday Parties.

DURING the Whitsun Recess, Sir Francis and Lady Jeune spent several days at their country seat, Arlington Manor, near Newbury, where they entertained a number of guests, including Mr. Brodrick, Secretary of State for War. One of the most interesting features of the holiday party were the runs through some of the pleasant scenery of Berkshire, which the guests enjoyed in Sir Francis Jeune's motor-car, and probably his experience during Whitsuntide should help the Secretary for War in coming to a favourable opinion with regard to the value of automobiles for carrying despatches and other ways in which the movements of the War Office might be accelerated with advantage. Away in Worcestershire a distinguished holiday party has been taking advantage of the automobile for pleasure trips, and Lord Elcho, while visiting Broadway in a motor-car, took advantage of the annual dinner of the local Mutual Aid Friendly Society to refer to motor-cars as something which had come to stay—he might have added, to go—and declared that they would be very useful to agriculture. He rightly condemned the thoughtlessness of drivers of automobiles who paid no heed to the comfort and safety of other people on the road, a condemnation in which he will be supported by all who have the welfare of the movement at heart.

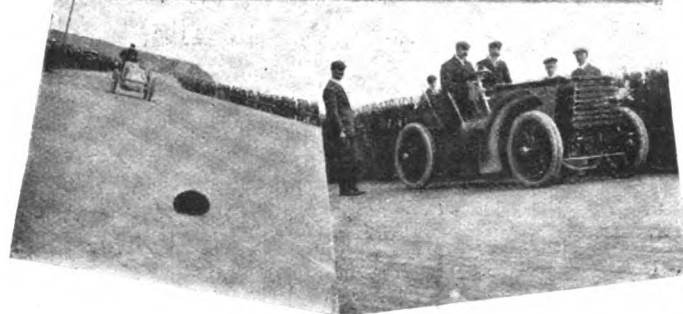
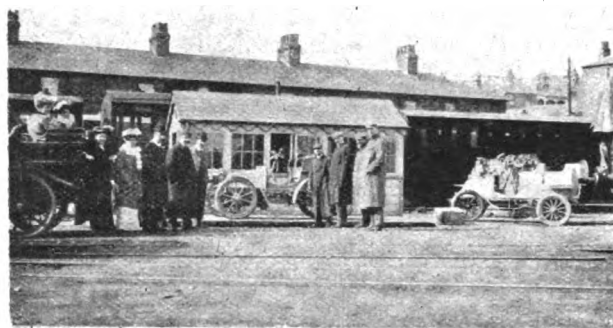
Horse v. Motor.

THE other afternoon a well-known Tunbridge Wells medical gentleman, Mr. Abbot, M.R.C.S., of Church Road, had an exciting roadside experience between Tunbridge Wells and Eridge. Mr. Abbot was in the district named, and had to pass with his new motor-car one of the coal vans of a local firm. As soon as the automobile had passed, the horse bolted beyond the control of the driver, and followed the vehicle for a long distance at great speed. Mr. Abbott, fearing a collision between the runaway and his car, put on the latter at its fullest speed, but still the horse and van, now driverless, gained upon the car, and threatened disastrous results. The exciting chase had lasted nearly two miles, when Mr. Abbott managed suddenly to turn his now "exhausted" motor-car into a wayside recess on the Eridge road just as the runaway horse with the coal van dashed ahead at full speed. The next hill, however, was too much for the runaway, for half-way up sheer exhaustion compelled it to check its mad career. Mr. Abbott, safe in the rear, was able to resume his journey to Tunbridge Wells, thankful, no doubt, at having escaped what might have been a very serious accident. Some time ago a similar incident occurred at Reigate.

The Reading Automobile Club.

THE Whitsuntide tour to the West of England organised by the Reading Automobile Club proved a success, in spite of the terrible weather which was encountered, and which made the running very heavy. Nothing daunted, however, the enthusiastic motorists ploughed their way through seas of mud, deluges of rain, and malignant onslaughts of hail, and their perseverance was rewarded when they found themselves little more than half an hour late at Wells, after a struggle against fearful odds for more than ninety miles. Refreshed by an excellent lunch at the Star Hotel, they started in a terrific

hailstorm for the next stage — to Taunton. One of the members was bothered soon after the start with a short circuit (and no wonder) on his Ariel, but after a little delay this was remedied and the journey resumed. A nasty skid with a motor trike kept another member at Taunton for a while, where also the president and ex-president wrangled with a suiky carburettor for a time, but finally the triumph of mind over matter prevailed, and the journey to Dulverton was successfully completed. The Red Lion Hotel here extended its hospitality to the somewhat bedraggled wayfarers, who gladly availed themselves of its shelter until the following day. The morning proving fine, Frenas and Kodaks were in great evidence, and after strolling about for a few hours in this lovely village the members continued the journey to Porlock, the automobiles making the long ascent to Wheddon Cross in splendid style. The remainder of the day was taken up in "snapshotting" some of the many charming features of Dunster and Porlock, and in paying the several little attentions in the shape of grease and oil, due to the two, three, and four-wheeled friends. Whit-Monday saw the friends again in full flight, well up to the legal limit, across the Quantocks and Mendips, the return journey being accomplished in two hours under the scheduled time. In view of the differences of opinion recently expressed concerning large single-cylinder cars, it may be of interest to note that Mr. Paxton Petty drove one of the latest 8-h.p. Renaults, and that the car with four up and luggage behaved throughout admirably, and that the theoretical discomfort of the heavy thrust proved to be a myth. Automobilists have also expressed a doubt as to the advisability of putting large engines on to tricycles for touring purposes, and it may not be amiss here to note that Dr. Claude Truman rode a Rochet tricycle, fitted with a 4-h.p. water-cooled Aster motor and Bozier two-speed gear, and was entirely satisfied with its splendid behaviour and ease of control.



WEIGHING THE CARS AT ST. LEONARDS.

AN OBSTACLE ON THE TRACK.

Photo by

THE 50-h.p. NAPIER.

(Mr. T. B. Percy.)

The Late Mr. Duncombe.

WE regret to hear of the death of Captain the Hon. Cecil Duncombe, who succumbed to pneumonia, supervening upon an attack of influenza, at a friend's house at Toddington, in Gloucestershire. The deceased gentleman was in his seventieth year, and was the only surviving brother of the Earl of

Feversham. He was formerly Captain of the 1st Life Guards, and at the time of his death was a director of the North-Eastern Railway Company. For some years he lived the life of a country gentleman at his Yorkshire estate, also evincing a keen interest in automobilism. Mr. Duncombe served upon the Committee of the Automobile Club, and was a member of the Foreign Relations Committee of that organisation.

Hill Climbing.

THE Gas House Hill at Norwich is attaining the distinction that was accorded the Porlock Hill in the West Country a few seasons ago. A 50-h.p. Napier car was the first to make the ascent; then a Locomobile went up, and now a third car has successfully negotiated the steep incline, up which, it is said, no horse and cart has ever gone. On Saturday Mr. Mawdsley Brooke, of Lowestoft, drove one of his new cars up Gas House Hill with his bottom speed geared to nine miles an hour. The car had four passengers aboard, and seems to have done the performance in good style.

The Halifax Automobile Club.

THE Whitsuntide run of the Halifax Automobile Club was to Askern. The start was made from St. George's Square, Halifax, and after a most successful run the cars arrived at their destination as follows:—Mr. J. T. Simpson, 5-h.p. Wolseley; Mr. James Rhodes, 8-h.p. De Dion, with Mr. Raymond Wood, hon. sec. of the Club, as a passenger; Mr. Donald Sagar, 8-h.p. De Dion; Mr. and Mrs. G. E. Garside, 5-h.p. Wolseley; Mr. and Mrs. J. Lord, 6-h.p. Jackson; Mr. Gaines, 6½-h.p. Darracq; Mr. and Mrs. J. Redman, 4½-h.p. De Dion; Mr. Dixon, 6-h.p. Jackson car; Dr. Hackett, Werner motor-bicycle; Mr. Cartmell, Phoenix motor-bicycle; and Mr. Mortimer, De Dion tricycle. The outward journey was *via* Cooper Bridge, Dewsbury, Wakefield, and Campsall to Askern, where the members partook of lunch at the Swan Hotel. The return journey was made *via* Wakefield, East Ardsley, Drighlington, and Lightcliffe to Halifax. All agreed that the run was a most successful event, the weather being on its good behaviour.

Automobiles in Surrey.

SOME of the tradespeople of Richmond have been trying to induce the local Town Council to associate itself with an attitude of hostility to motor-cars, and their petition has been referred to the General Purposes Committee for consideration. In the discussion which preceded this decision, the Mayor said there seemed to be less danger from motor-cars than from horses, for they could be pulled up very quickly, while they could not pull a horse up in equally quick time. In fact, he was of opinion that motor-cars should be allowed to go faster than a horse, and certainly faster than they were permitted to do at present. Some of the hotel-keepers of Surrey have already publicly condemned the action of the police in frightening large numbers of motorists from the roads of Surrey, and we hope the words of the Mayor of Richmond will have a wide publicity throughout the southern counties.

Motor-Cars in Burmah.

THE French Consul at Rangoon has forwarded to his Government some interesting information on the subject of the importation of motor-cars into Burmah. He states that the great obstacle in the way of importing the cars into that country is to be found in the impossibility of securing petrol. The Consul specially recommends the import of heavy oil voitures, and reminds manufacturers that the duty is 5 per cent. *ad valorem*, and that no special licence is required to drive a motor-car in Burmah.

Motor Cycle Races.

THE ARGYLE ATHLETIC CLUB, Plymouth, are organising a Coronation two days' Motor Cycling Meeting, for Friday and Saturday, June 27th and 28th, on the Home Park Cycling Track, Plymouth. The following is the programme of events.

First day: A five miles scratch race for motor-bicycles over 112 lbs. in weight and under 200 lbs.; a five miles handicap for motor-bicycles under 112 lbs. in weight; and a five miles handicap for all classes of motor bicycles. Second day: A five miles scratch race for motor-bicycles under 112 lbs. weight; a five miles handicap for motor-bicycles over 112 lbs. weight and under 200 lbs.; and a five miles scratch race, open to all classes of motor-bicycles. A five guinea cup will be presented to the fastest machine breaking the present one mile motor cycle record, 1min. 36 2-5sec. Three trials will be given each machine, no pedalling will be allowed after the first half-lap.

TO-DAY (Saturday) the members of the Manchester Automobile Club will hold a run to Nantwich.

THE Bridgwater Motor Company, Bridgwater, have laid down a dynamo and plant for charging accumulators.

POOR Punch! His joke on the name of the Mors car in this week's issue reveals the fact that he jokes with difficulty—more's the pity.

MR. J. W. F. DANIELS, 6, Norwich Road, Ipswich, writes us that a large brass grease cup from a motor-car has been found near his house.

MAIDENHEAD and the surrounding villages are taking much interest in the doings of the Sultan of Johore, who recently arrived with his motor-car.

AT Marlborough Street Police-court, on Wednesday, Oswald Lord was committed for trial for causing bodily harm by negligence in driving a motor-car. Bail was allowed.

THE ascents which M. Santos Dumont proposed to make from the Crystal Palace have been indefinitely postponed, owing to the silk casing of his airship having been badly torn.

IN the House of Commons, on Tuesday, Mr. Chaplin urged that fresh regulations were necessary with regard to motor-cars, and Mr. Long in reply admitted that such was the case. This statement has been emphasised in a letter which the Automobile Club is issuing to the Press.

AT Hailsham, on Wednesday, Messrs. J. A. Holder, W. Bowker, E. O. Trafford, and M. Napier were each fined £1 and costs for furiously driving motor-cars after the trials at Bexhill.

MR. T. A. BROOKS, of the Angel Hotel, Guildford, has written a letter of protest against the way in which the Surrey police harass motorists. Other hotel-keepers in the county should follow his example.

LAST week's *Sketch* had a portrait of Mrs. Brown-Potter "in her own motor-car," a wording probably used to indicate her ownership as apart from the usual legend, "Miss So and So on a motor-car."

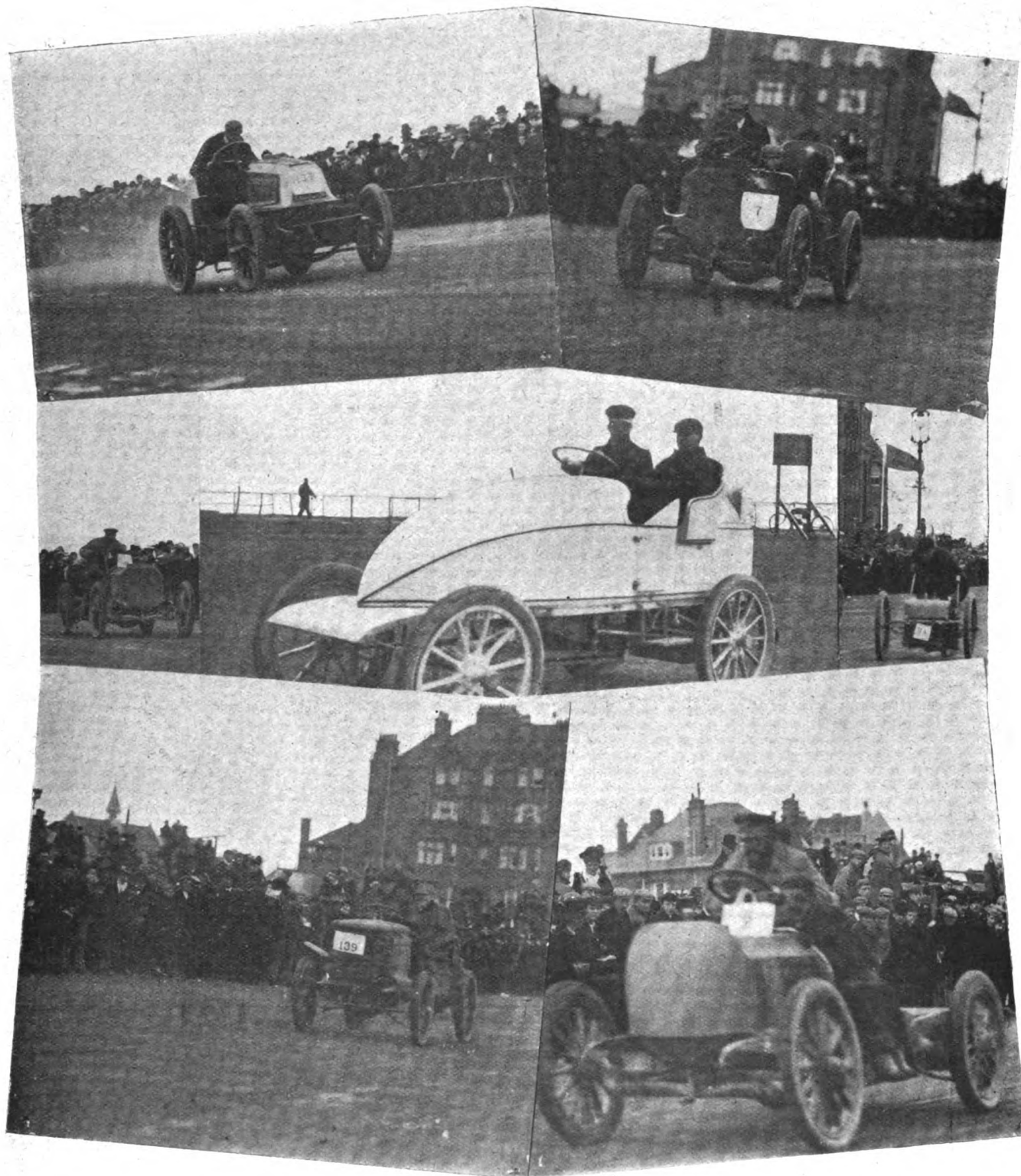
MR. PERCY FROST-SMITH, who has been associated for some time with the Motor Traction Company, Limited, has resigned his position, and joined the Houk Automobile Company, Limited.

MESSRS. T. S. MCINNES AND COMPANY, LIMITED, of Glasgow and London, have acquired the agency for this country for the Mathot explosion recorder, of which an illustrated description was given in our issue of March 15th last.

AT the monthly meeting of the Mold Urban Council last week attention was called to the dangerous manner in which motor-cars were driven about the streets of Mold. It was decided that a clause be added to the bylaws that the speed of motor-cars in the town be restricted to six miles per hour.

THE Clingoe Automobile Syndicate, Limited, has been registered, with a capital of £300 in £1 shares, to carry on the business of motor and motor-car manufacturers. The first-managing directors are Messrs. C. E. Curtis (chairman) and J. Clingoe, and the registered office is at 93-94, Long Acre, W.C.

The Bexhill Speed Trials.



HON. C. S. ROLLS ON THE 60-H.P. MORS.
BARON HENRI DE ROTHSCHILD ON 40-H.P.

MERCEDES.

MR. CAMPBELL MUIR ON MR. A. C. HARMSWORTH'S 40-H.P. MERCEDES.
THE EAGLE 8 H.P. TANDEM.

M. WEHOLE ON 20-H.P. DARRACQ.

M. LEON SERPOLLET ON HIS LATEST RACER.

BARON HENRI DE ROTHSCHILD ON 40-H P. MERCEDES.

F

THE OLDEST AUTOMOBILE ASSOCIATION IN ENGLAND.



THE automobile movement owes much to the foresight and energy of Sir David Salomons, Bart., and no particular work of his has been more lasting than the establishment of the Liverpool Self-propelled Traffic Association. This body, which, as is generally well known, has devoted its chief attention to the development of motor-vehicles suitable for heavy haulage, was formally inaugurated on October 1st, 1896, when the Earl of Derby, in response to a deputation

able for heavy haulage, was formally inaugurated on October 1st, 1896, when the Earl of Derby, in response to a deputation



THE EARL OF DERBY, THE PRESIDENT OF THE LIVERPOOL SELF-PROPELLED TRAFFIC ASSOCIATION.
(Brown, Earner & B. L.)

of the members who waited upon him at the Liverpool Town Hall, consented to become president. Prior to this, indications of activity had been shown in arranging an address on the subject of "Motor-Vehicles for Heavy Traffic" by Mr. Worby Beaumont, who visited Liverpool on September 9th of the same year. The opening meeting of the first session saw Sir David himself down in Liverpool to meet the local members and give them a most interesting paper at the Liverpool Royal Institution, an historic building which is the home of many learned societies. The programmes for the first and

second sessions were confined to papers dealing with the early experiments and other interesting matters arising out of the investigation which the Association had taken in hand.

Then came a departure which marked an epoch in the life of the Association and in the progress of heavy automobilism both for England and the civilised world. This was the holding of competitive trials for goods vehicles. The chief object of these trials, the first of which took place from the 24th to the 27th May, 1898, was "to arrive at a type of heavy motor-wagon suitable for trade requirements in Liverpool and neighbourhood, which shall be capable of economically taking the place of horse haulage, and of competing with the existing railway rates, in the transport of heavy loads of goods over considerable distances." Awards amounting to three prizes of £100, £75, and £50 were offered, to be made at the discretion of the judges, and, although the vehicles proved themselves below the requisite standard, it is greatly to the credit of the Association that the whole of these were given in order to encourage the industry. Ten entries had been made by six firms, but only four vehicles were presented for trial. The competing firms were—The Liquid Fuel Engineering Company, Limited, East Cowes, Isle of Wight; the Steam Carriage and Wagon Company, Limited, Chiswick (two



SIR ALFRED L. JONES, K.C.M.G., CHAIRMAN OF COUNCIL OF THE LIVERPOOL SELF-PROPELLED TRAFFIC ASSOCIATION.



MR. E. SHRAPNELL SMITH, THE MON. SEC. L.S.P.T.A., ON HIS MOTOR QUADRICYCLE.

vehicles); and the Lancashire Steam Motor Company, Leyland; whilst the tests consisted of travelling over some 140 miles of Lancashire roads, coupled with manœuvring evolutions. The Automobile Clubs of France and Belgium, the Secretary of State for War (Lord Lansdowne), the Postmaster-General (the Duke of Norfolk), and many English municipal corporations were represented at the trials, whilst the *Times*, the technical and motor journals, and a few provincial papers, followed the competition throughout. The expenses exceeded £1,000, the principal subscribers being the Earl of Derby, Sir Alfred

L. Jones, K.O.M.G., Sir David Salomons, Bart., and Mr. Alfred Holt, to whom the country should feel under a deep obligation for assistance in this vital direction. The members of the Council of the Association have also contributed liberally, both in money and services, and the large amount of time devoted to the work by the three vice-presidents has been specially noteworthy. These three gentlemen are well known in their several branches of engineering, and are all busy men; they are—Mr. John A. Brodie, M. Inst. C.E., M. Inst. Mech. E., City Engineer of Liverpool; Professor H. S. Hele-Shaw, M. Inst. C.E., M. Inst. Mech. E., Mr. Harrison, Professor of Engineering at Liverpool University College; Mr. Anthony G. Lynster, Member of Council Inst. C.E., Engineer-in-Chief of the Mersey Docks and Harbour Board."

The second series of trials was held from July 31st to August 2nd, 1899, and a third from May 31st to June 7th, 1901. On the second occasion, out of eleven entries by ten firms, six vehicles, or two more than in 1898, were presented for trial, whilst in 1901, out of thirteen entries by eight firms, eleven vehicles were presented for trial. These vehicles indicated a satisfactory growth of this new British industry. The competing firms in 1899 were—Bayley's, Limited, London; T. Coulthard and Company, Limited, Preston; the Clarkson and Capel Steam Car Syndicate, Limited, London; the Lancashire Steam Motor Company, Leyland; and the Steam Carriage and Wagon Company, Limited, Chiswick (two vehicles); in 1901—The Lancashire Steam Motor Company; the Thornycroft Steam Wagon Company, Limited (two vehicles); T. Coulthard and Company, Limited; George F. Milnes and Company, Limited, London; Mann's Patent Steam Cart and Wagon Company, Limited, Leeds; Simpson and Bibby, Manchester; and C. and A. Musker, Limited, Liverpool. On the last of these occasions, which, we understand, will be the final trial of the kind, no less than five Government departments were represented officially, viz., the Secretary of State for War (Mr. Brodrick) by a deputation of six officers, the President of the Local Government Board (Mr. Walter Long), the India Office, the Board of Agriculture, and the Postmaster-General (Lord Londonderry). Manchester, Blackburn, and other manufacturing centres were embraced by the itineraries.

To nobody more than to the judges of these trials is credit due for the labour connected with them. The gentlemen who, in order to assist the movement, gave their valued services were:—Sir David Salomons, Bart., Dr. Boverton Redwood, F.R.S.E., Professor H. S. Hele-Shaw, F.R.S., Mr. Everard R. Calthrop, M. Inst. C.E., M. Inst. Mech. E., Mr. S. B. Cottrell, M. Inst. C.E., M. Inst. Mech. E., Mr. Henry H. West, M. Inst. C.E., M. Inst. Mech. E., whilst the two principal observers, acting under the judges and Mr. Shrapnell Smith, were Mr. Henry Fowler, Assoc. M. Inst. C.E., M. Inst. Mech. E., and Mr. E. A. Rosenheim, B.Sc., A.I.E.E. The reports on the trials, which have been fully noticed in the *Motor-Car Journal*, form a most interesting and valuable collection of facts bearing upon that branch of self-propelled traffic which, in the near future, must have a considerable bearing upon the prosperity of the country. The editor, Mr. E. Shrapnell Smith, who was the hon. secretary to the Association and the organiser of the trials, has now resigned from the Association on his appointment as general manager and secretary of the Road Carrying Company, Limited. To him the cause of automobilism in general, and the Liverpool Association in particular, owes much.

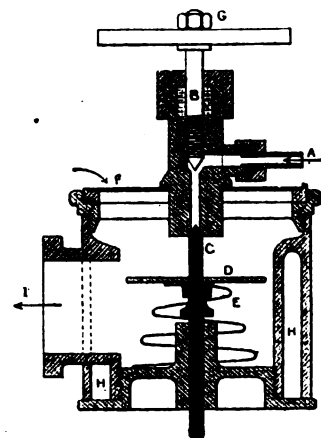
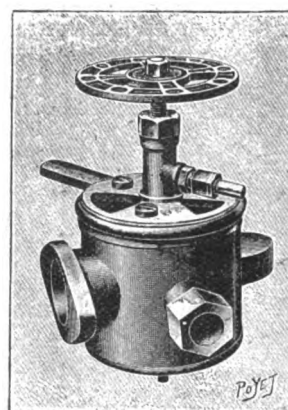
In looking through the records of the work done by this pioneer body, we are struck, among a host of fruitful labours, by the tenacity with which the question of increasing the present 3-ton tare limit has been pursued. Several reports have been drawn up on this subject, and recently a memorial has been framed by the Association at the request of the Local Government Board, conveyed through the Automobile Club. On October 25th last, the President of the Local Government Board, the Right Hon. Walter H. Long, M.P., honoured the Association by attending their meeting in Liverpool, when the judges' report

on the third trials was presented, and by receiving a deputation of their members in reference to this restriction. Briefly put, the legal motor-wagon of to-day cannot carry more than $4\frac{1}{2}$ tons upon its own back, and that only on good roads, if the structure is to have a reasonable life, and those who have studied the matter closely ask for more freedom, coupled with a limit of total moving weight and per unit of tread. This regulation would be a much more sensible one than the arbitrary limit upon the weight of the empty vehicle, which never can be tested without serious inconvenience to all concerned, and which is no guarantee of the total weight which is the factor affecting external objects.

With six years' "history" behind them the members of the Liverpool Self-propelled Traffic Association have now reached the end of a stage in the career of that body, namely, the position of having to pronounce a benediction upon Heavy Motor Traffic. From this time forward, it is expected that the Association will be conducted more upon Club lines, although its watchfulness over the interests of heavy automobilism will be in no way relaxed.

THE QUEREY CARBURETTOR.

THE two illustrations given herewith show respectively a general view and a section of a new carburettor which has lately been brought out in France by M. A. Querey, of 119, Rue de Montreuil, Paris. The petrol passes into the apparatus by the pipe A, the quantity of spirit allowed to pass being regulated by the screw valve B G. In the lower part of the apparatus is another needle valve C, which by means of the spring E normally keeps the petrol inlet closed. A deflecting plate is fitted at D, while the necessary air is taken through



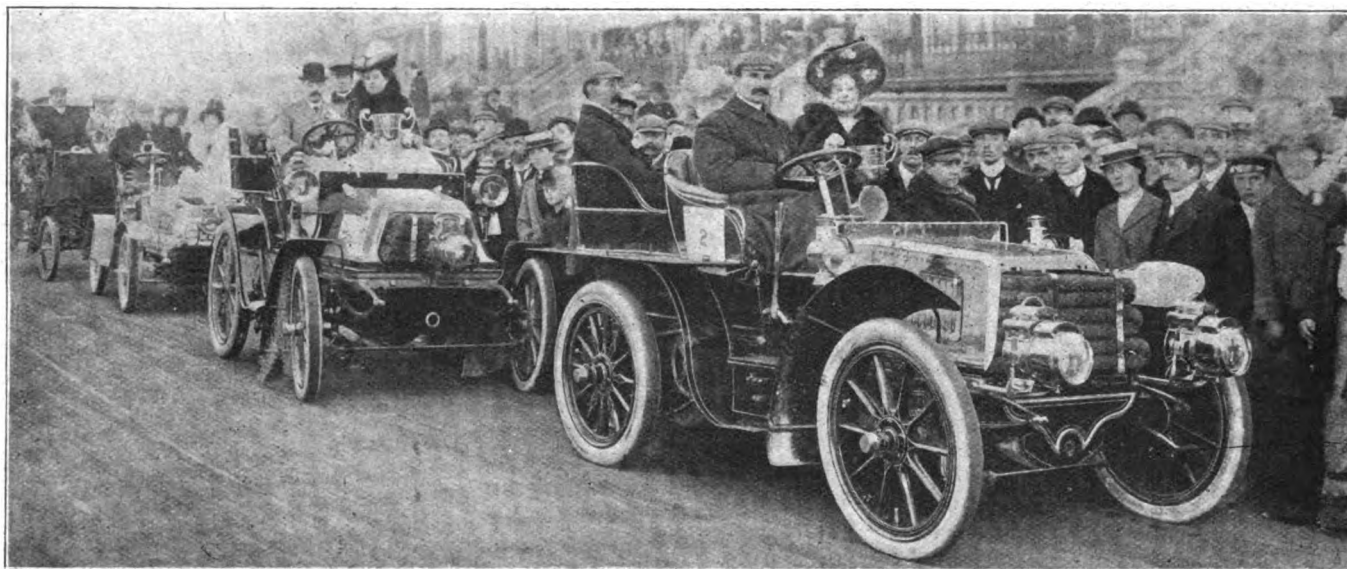
adjustable openings at F, fitted with wire gauze. In operation the suction stroke of the piston overcomes the power of the spring E, and, opening the valve C, allows a certain quantity of petrol to pass; at the same time air is sucked in through the openings F, and the spirit and air are intimately mixed by means of the deflecting plate D, ere the explosive charge is drawn to the motor through the opening I. A jacket, H, surrounds the apparatus, through which a portion of the exhaust gases is allowed to pass in order to warm the carburettor. It is claimed for the apparatus that it is absolutely odourless, and that it works equally well in wet as in dry weather.

TO-DAY (Saturday) the members of the Irish Automobile Club will hold a run from Dublin to Malahide.

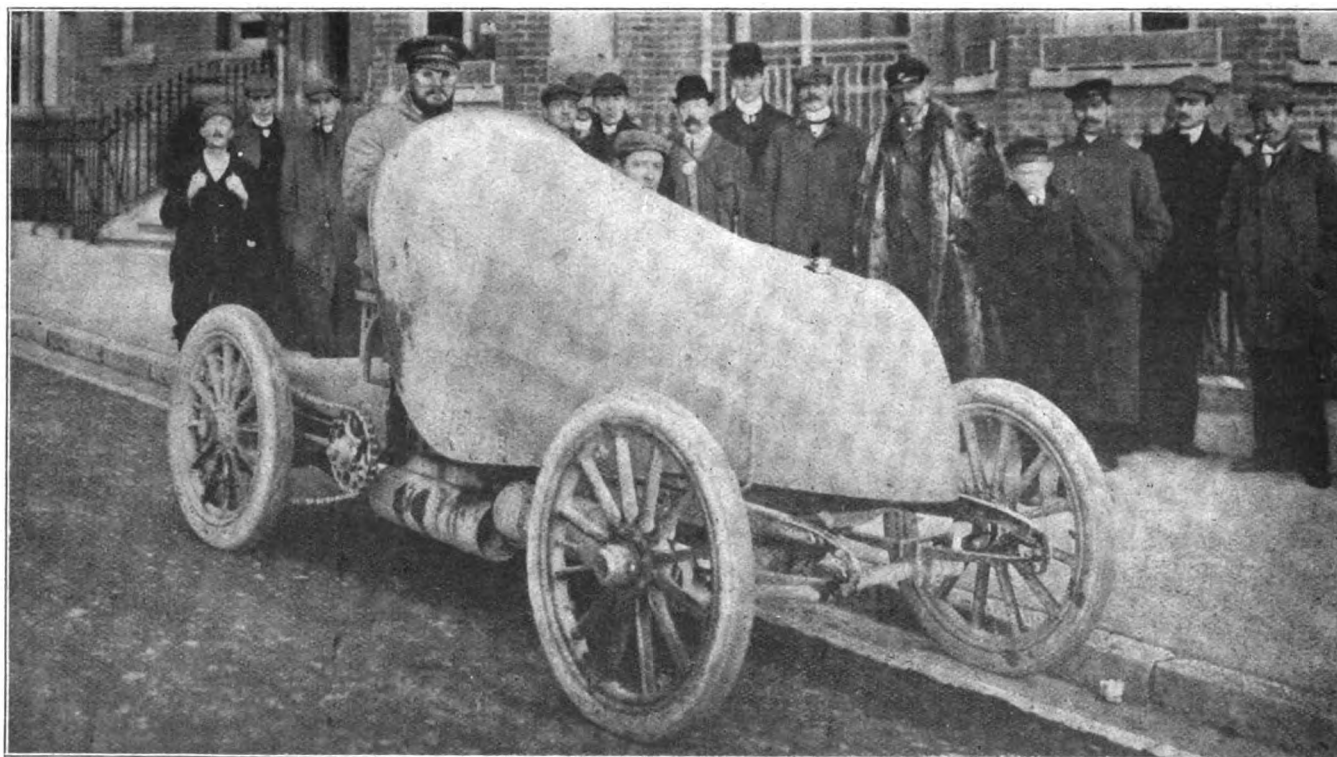
A FIVE-MILES motor-cycle handicap is included in the programme of the Bury St. Edmunds B. and A.C. sports, to be held on Friday, June 27th.

MR. H. RAMOISY, formerly with the Auto-Carriage Company, Limited, the agents for the Bardon cars, has been appointed manager of the garage and repair depot of the London Motor Garage Company, Page Street, Westminster.

The Bexhill Speed Trials.



THE APPEARANCE COMPETITION--THE THREE WINNING CARS.



BARON HENRI DE ROTHSCHILD ON HIS 40-H.P. MERCEDES, WITH WIND SHIELD.

[Argent Archer.

Photos by]

IN an announcement in the *Daily Telegraph* we notice the Cockburn Hotel at Bexhill made known the fact that it was opposite the finish of the motor-car trials. The Hotel Riposo advertised that it had the finest position on the motor course.

THE Daimler Motor Company, Limited, have just issued an interesting booklet entitled "The King's Choice," in which illustrations and descriptions are given of the cars they have supplied to King Edward.

A NOVEL electric searchlight for field service has been fitted up by the Second Signal Corps of the New York State Militia.

A motor-car is employed for transportation and producing the power to run the generator which supplies the current for the light. A trailer, containing a one-kilowatt generator of the Sprague type, is attached to the motor-car, and is provided with a $3\frac{1}{2}$ -inch pulley. When it is desired to operate the light the vehicle is stopped and jacked up in the rear, the pulley of the generator being then driven by a belt from a rear wheel of the vehicle. Power is thus generated to run a 50-volt, 10-ampere lamp. A marine projector is used, having a seven-inch Mangin mirror.

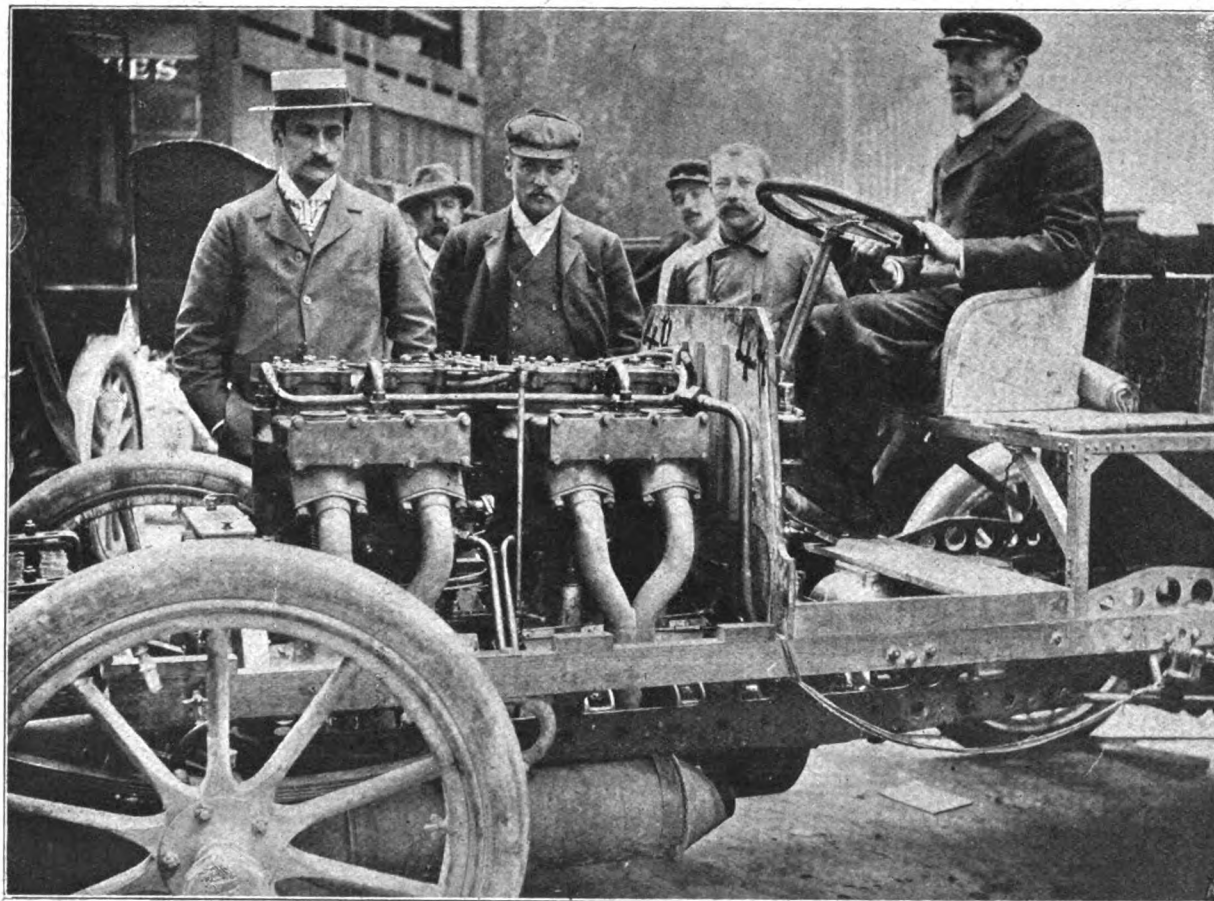
CONTINENTAL NOTES.

BY "AUTOMAN."

M. JENATZY, of Brussels, whose combination petrol-electric car attracted attention some time ago, has recently completed a 75-h.p. petrol car, of which an illustration is published herewith. The vehicle is fitted with a four-cylinder engine, the transmission being chainless—that is to say, the power is conveyed from the gear-box to the rear axle by a longitudinal shaft and bevel-gearing. The car was intended for the competitions held at Nice recently, but it was not allowed to run, as, when it was weighed by the competition officials, it was found to exceed the 1,000 kilos. limit. Everything possible was done to reduce the weight. The

jubilant at having succeeded so well in the competitions for petrol—with the exception of the competition for cars weighing 25 cwt. or more, which is a class of cars long since abandoned on the Continent. There is no doubt that from a French point of view the result is important, but it is to be hoped that from an English point of view the result will have also as great an importance. Nothing could have been a better object lesson to the English manufacturers, and next year we shall probably see English cars more than holding their own in open competition with foreign makes.

THIS is a doctrine I have been preaching in these columns steadily for more than a year, and if once the real situation becomes understood by the English manufacturers, the importation of French cars will be greatly diminished and England in its turn



M. JENATZY ON HIS 75 H.P. RACE.

[Allgemeine Automobil Zeitung.]

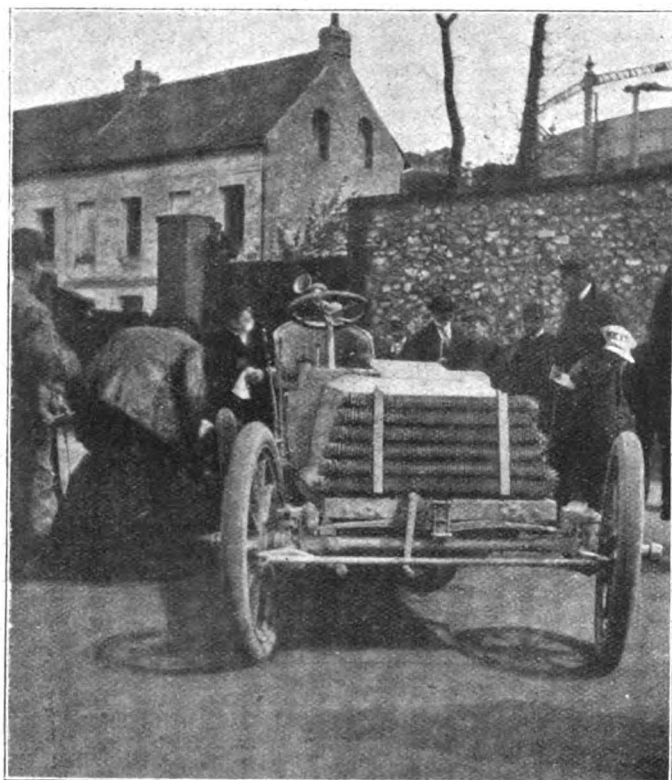
upholstery was pulled out, the extra seat removed, and even the bonnet done away with, so that finally M. Jenatzy took his place upon the scales on what was, as will be seen from the illustration, virtually a *chassis* surmounted by a single seat, arranged on a light angle-iron cross frame. Even then the vehicle was too heavy, and was consequently disqualified from taking part in the competitions. M. Jenatzy, however, made a number of private trials in the neighbourhood, the results of which are reported to have been less satisfactory in the way of speed than had been anticipated.

THE results of the Bexhill kilometre competition have been the subject of a great deal of comment amongst automobilists on the Continent, and the publicity that has been given to the event by French journalists will, no doubt, help to make this an annual event of importance from an international point of view. The French makers are naturally

will begin exporting. The only way for England and English manufacturers to get a serious portion of the world's automobile trade is to recognise the necessity to beat French cars in international competitions. The world's trade will certainly follow the winning makers, and the agents who now buy foreign cars will be quite as ready and better pleased if they can sell English ones.

SOME months ago I wrote that we could still hope for the Paris-Vienna motor-car race, and possibly the Gordon Bennett contest. A few weeks later I said that after the elections the French Government would authorise these contests, and I am now glad to be able to announce that, unofficially, consent has been given, and the great event will take place on the 28th and the following days of June. Great prominence will be given to the use of alcohol, and no doubt the principal prizes given will be for cars that are driven by this product. The Government is to be con-

gratulated on the wise decision that they have come to, which means an enormous increase to this important industry. It is an open secret that the Paris-Berlin motor-car race of last year was the cause of the doubling of the Mors works, and this enterprising firm has got options on the land surrounding its works with a view to enlargements on a vast scale.



THE 40-H.P. PANHARD DRIVEN BY MAURICE FARMAN IN THE "CIRCUIT DU NORD."

ON Saturday last the Alcohol Exhibition was opened in the Galerie des Machines of the Exhibition of 1900. The vast hall is filled with alcohol-driven motor-cars and stationary engines, puffing and panting, and doing various pumping and useful work. There is one point which is patent to everyone entering the exhibition, and that is the absence of a smell of petrol. Alas! the substitute is several shades worse, as far as smell is concerned. Burnt alcohol is very disagreeable. The exhibits consist principally of the motor-cars which took part in the Circuit de Nord, but there are also on view other cars. There are also a great many alcohol engines and apparatus for the application of alcohol to heating and lighting. In the centre of the hall there is a track round which the motor-cars are giving experimental runs. On Sunday, M. Leon Serpollet's sympathetic lieutenant, M. Hubert Oliver, gave me a run round in the latest racing car, but it is needless to say the speed was not a record one.

TALKING of Serpollets, the great difficulty was the water question, and I remember, in the Paris-Berlin race last year, the arrangements which had to be made for the supply of water at comparatively short stages. This difficulty, M. Oliver tells me, has been overcome in a great measure, and I was astonished to hear that in returning from the Bexhill trials he went from Boulogne to Paris without taking water. This is surely enough for anyone.

LAST week an Automobile Exhibition was inaugurated in Berlin under the presidency of the Prince of Hohenlohe-Oehrengen. There was a brilliant assembly, including Generals Becker, Von Hahnke, and Von Schubert, and the Prince of Hohenzollern. As no German event is complete without a banquet, the evening was passed at the Hotel Kaiserhof, where a hundred guests

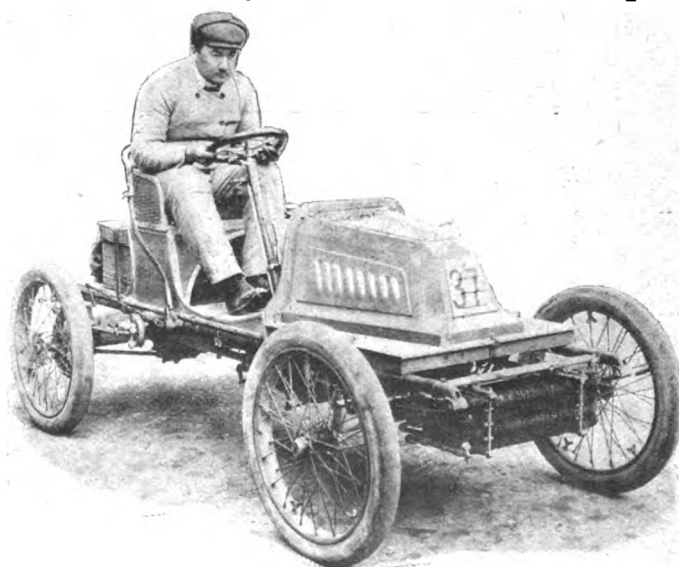
listened to the speeches, in which the great success of last year's Paris-Berlin race was not forgotten.

THERE is a rumour that the Brazilian Government do not mean to allow the efforts of Mr. Severo towards the solving of the problem of aerial navigation to remain unproductive through the tragic death which put an end to them as far as the aeronaut himself was concerned. It is said to be their intention to cause to be built another balloon of the navigable type on the same plan, but with other motive power with which there would be no risk of a conflagration. An electrical motor is suggested, but this would be a retrograde step, as the Brothers Renard proved long since that until electricity can be stored in a more economical manner as far as weight is concerned there is no chance for it to secure the conquest of the air. There is, however, no reason whatever that a motor driven by petrol should not be fitted to a navigable balloon on Severo's principles, and in such a manner that there should be no danger, or rather no possibility of fire. His notion of having his propeller on the axis of the gas vessel is interesting, and experiments on this subject would be instructive.

THE alcohol competition and exhibition is the subject of much discussion in the daily papers owing to its importance from a national point of view. The *Matin* has devoted a leading article to the subject, in which it points out that the utilisation of alcohol for the creation of motive power is the solution of the great problem which has from time immemorial pre-occupied mortals, namely, the storing of the sun's rays and their transformation into power, light, heat, and electricity. All this is directly due to the introduction of the automobile, and if, in the short space of time, this industry has made such wonderful progress—for it must be remembered that the trade is barely seven years old—what will the situation be at the end of this decade, when the Gautier de Clagnys of France, together with the Dogberrys of England, are buried in oblivion, and the trade is allowed a fair and open field?

THE WOLSELEY TOOL AND MOTOR-CAR Co. inform us that the 10-h.p. Wolseley, which took part in the Dashwood Hill Competition, was stated to have used eight gallons of petrol in the C (Hill) trial. This should be three gallons, as it would be quite impossible to use the former amount with one of the 10-h.p. motors.

It is announced from New York that a receiver has been appointed to take charge of the affairs of the Milwaukee Auto-



THE 10-H.P. GEORGES RICHARD RACING VOITURETTE WHICH WON THE DE LA WARR CUP AT BEXHILL.

mobile Co., Milwaukee, Wis. The appointment was brought about by the action of four of the largest creditors. The receiver has been authorised to conduct the business for the present, operating the factory and disposing of the stock in hand.]

THE Motor-Car Exhibition at the Agricultural Hall.



CONCLUDING NOTICE.



FIG. 159.—THE BROOKE 10-H.P. DOUBLE PHAETON.

IN a recent issue we referred briefly to the new cars of Messrs. J. W. Brooke and Company. As they comprise a number of special features, their exhibit at the Show, although in the gallery, was continuously surrounded by interested motorists. A well-finished double phaeton (Fig. 159) was staged, as also a 10-h.p. chassis, and specimens of several of the parts used in these cars. The rectangular frame is constructed of channel steel. In the fore part of this, under a bonnet, is set the engine, its position being at right angles to the method adopted in the Panhard type of cars. The flywheel is set to the left and outside the crank chamber. The motor, of which two sectional views are given in Figs. 161 and 162, has three cylinders which are cast in one piece with their heads, and mounted on an aluminium crank chamber. The latter is arranged in such a way that the lower part can be readily removed, allowing the pistons to be withdrawn, or the crank-shaft bearings examined, without separating the cylinders from the other portion, and without disturbing the crank-shaft itself. The three crank pins are set at angles of 120 degrees to each other. The flywheel at the one end and the spur wheel (which drives the half-speed shaft) at the other end are fixed to the crank-shaft on cones, and are also held in position by small keys and lock nuts. The cam shaft lies inside the crank chamber and the exhaust valve operating cams are forged solid with it. At the flywheel end of the cam shaft is the commutator for the electric ignition. The cylinders are 90 mm. diameter, and the stroke 120 mm., the engine developing about 10-h.p. at 750 revolutions per minute. The inlet valves are fixed in

such a way as to be readily removable, the exhaust valves being immediately below. The exhaust passage communicating with the valves passes from end to end of the cylinder casting. The inlet valves themselves are of the Estcourt type already illustrated in the *Journal*, they being fitted with two springs, the inside one of which does not come into action until the valve is lifted to a certain extent. The engine is fixed to the frame by drop brackets, cast solid with one of the crank chamber castings. The governing device is entirely a new departure. The exhaust passes into a cylindrical chamber (Fig. 163) and presses against a diaphragm held up by a spring. This diaphragm is connected by a light rod to a drilled sleeve communicating with the induction pipe, and can be made to diminish the gas supply to the same in any desired degree. The principle upon which it works is as follows:—Whenever the speed of the motor increases, the volume of exhaust gases passing from the engine also increases, and consequently the pressure in the system of pipes leading them to the silencer must rise accordingly. A branch from the exhaust pipe leads into an open chamber, which is fitted with a needle-controlled exit and with a small piston, sliding in a cylinder formed at one end of the chamber. This sliding piston is normally held in its inner position by means of a spring, the compression of which can be adjusted by a screw and locknut. The passage through which the exhaust gases enter into the chamber is controlled by a check valve, normally held on its seat by another adjustable spring. There are, therefore, two ways of adjusting the relative pressure in the governor chamber in relationship to the speed of the engine.

Either the amount of gases which would normally pass the check valve can be adjusted, or the rate at which the gases escape from this chamber through the holes can be varied. It will also be seen that the displacement of the piston depends on the pressure in the chamber itself, and upon the tension of the spring. The piston is directly connected with a piston throttle valve, which regulates the opening in the admission pipe. A guide carries the piston rod and prevents any leakage of the exhaust gases into

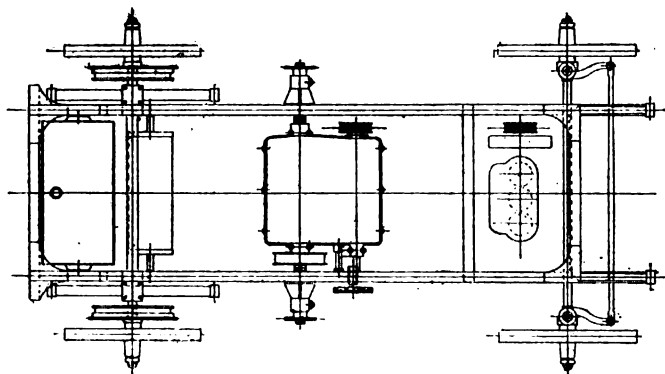
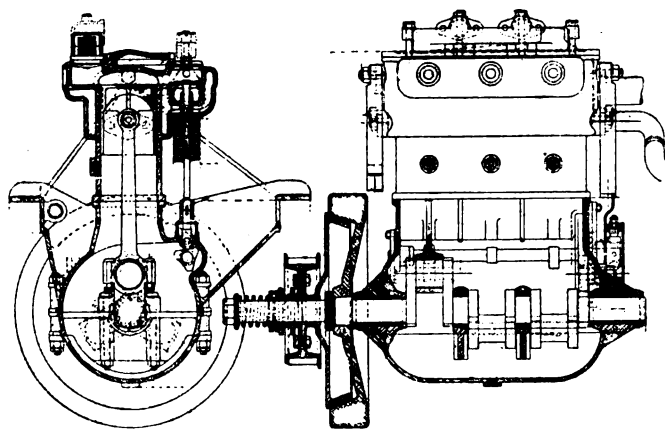


FIG. 160.—PLAN OF BROOKE CAR.

the explosive mixture. The rise of pressure in the exhaust pipe as the engine speed increases, is alone utilised to throttle the passage of the explosive mixture to the explosion chambers. An accelerating pedal in front of the driver is provided, this operating against the action of the governor in much the usual way. This pedal is also connected to an air pump by which the pressure in the petrol tank is maintained. Before starting the motor, a few strokes of this pump are sufficient to give the necessary pressure in the tank while, after starting the car, the ordinary action of the driver's foot upon the accelerator pedal is sufficient to maintain the pressure in the tank. In order to avoid excessive pressure a small relief valve is placed beside the pressure gauge on the right-hand side of the dashboard. The water circulation is effected without the use of a pump, it being on the Estcourt natural circulation system. The cooler consists of aluminium headers, into which Clarkson radiator tubes are fitted. The top of the cylinder jacket is closed by an aluminium plate, having a double outlet pipe leading from the jacket to the cooler. A large tube connects across the top of the two upper headers, this tube carrying a special fitting at its centre, which provides means for filling the water system from above, and also provides a vent to a drain-



FIGS. 161 AND 162.—SECTIONAL ELEVATIONS OF BROOKE THREE-CYLINDER MOTOR.

pipe beneath. Two gallons of water are carried, and this is stated to be sufficient to run the car almost continuously. The carburettor is of the float-feed constant level spray type and requires no adjustment. The ignition is by high tension electricity comprising accumulators, induction coil, and ordinary sparking plugs.

The sparking can be advanced or retarded by means of a rack on the steering pillar. The silencer is placed under the frame at the rear of the car; it is made of sheet-iron with aluminium ends. Between the motor and the silencer a valve is fitted into the exhaust pipe, which can be opened at will by the driver. When opened it allows the exhaust gases to pass directly from the motor to the atmosphere, and enables the driver to listen to the exhaust and to thus ascertain whether all the cylinders are working regularly. Coming now to the transmission, there are three forward speeds and one reverse, all worked from one lever. The power is conveyed from the engine to the first-motion shaft in the gear box through a friction clutch and a Renold silent chain. The clutch is leather-lined; it is made with a ball thrust, and is, as is usual, operated by a pedal. On the first motion-shaft, in an oil-tight gear-box, are carried three chain-wheels, having various numbers of teeth. The three chain-wheels are connected with three corresponding chain-wheels, running loose on the countershaft, by Brampton chains. On the bosses of these chain-wheels are the female halves of positive clutches which engage with clutches sliding on feathers on the countershaft, so that any one of the loose chain-wheels may be connected with its fellow on the countershaft as desired. The first, second, and third speeds are, therefore, obtained by locking the corresponding chain-wheel train to the countershaft by the sliding clutches above alluded to. The countershaft is further furnished with a toothed pinion on the end corresponding to the similarly-equipped end of the first-motion shaft, and a third pinion, being

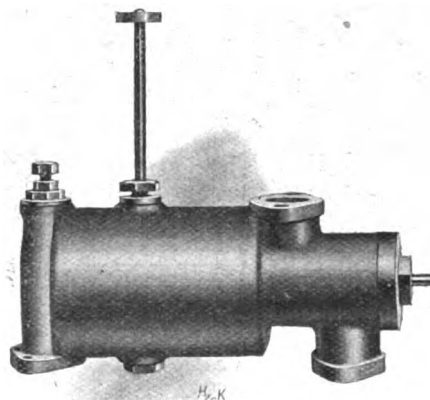


FIG. 163.—THE BROOKE GOVERNING DEVICE.

caused to mesh with these two while the chain-wheel clutches are disengaged, provides the reverse. The differential gear is on the countershaft and is enclosed in the gear-box. The speeds given by the change gear fitted on this car are ten, twenty, and thirty miles per hour. From the ends of the countershaft the power is conveyed to the rear road wheels by means of duplicate chains in the usual way. Three pedals are fitted. One acts on the governor and forms the accelerator; one controls both the clutch on the engine-shaft and an ingenious brake on the outside sprocket-wheel on the first-motion shaft. The third pedal works a water-cooled band-brake on the differential gear-sleeve, and also disengages the main clutch. A hand lever also actuates band-brakes on the hubs of the rear wheels. An interesting feature of the latter is the device employed for equalising the pull. The brake lever on the driver's right-hand side is connected to a rocking shaft passing across the frame, and the ends of this are attached in the usual manner to the double-acting band-brakes. The ends of these two brakes, instead of being fixed, are connected to horizontal bell-cranks which are pivoted to the rear corners of the frame. The free ends of the bell-cranks are connected together by an adjustable rod passing across behind the frame; a running joint with right and left hand threads permits of an easy tension adjustment of both brakes at any time, and the connecting-rod always equalises the pull of both. Lubrication is effected from a multiple-feed aluminium lubricator in the centre of the dash

board. The lubricator consists of a box divided into eight compartments, each of which has a gauge-glass to show the level of the oil inside it, and from each of which an adjustable feed leads by a separate pipe. The box is filled through a single opening. To ascertain that a proper amount is being fed to the various parts, the driver has only to watch the rate at which the oil descends in each glass. The dashboard is of unusual construction; not only

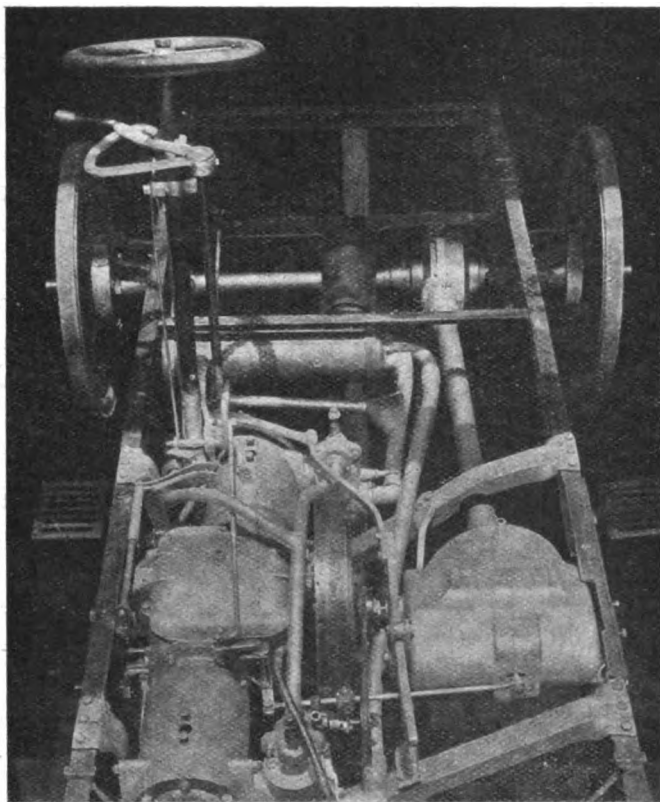


FIG. 164.—CHASSIS OF MEREDITH 10-H.P. CAR.
(See issue of May 10th, p. 218.)

does it carry the cooler, but it also forms a wind shield, a very important adjunct at high speed. The wings of the dashboard are neatly adapted as tool cupboards. The steering is irreversible and by worm and quadrant, a Brooke inclined steering-wheel being fitted, which serves as a convenient receptacle for light articles. The petrol tank is carried under the frame of the car at a level lower than the carburettor, and is consequently under pressure. The road-wheels are of the artillery type, 36 inches in diameter, and fitted with pneumatic tyres. The weight of the vehicle complete is 18 cwt. We may add that the double phaeton was driven to the Show from London, the journey of 120 miles being made without a stop.

A large display of accessories, etc., was made by the United Motor Industries, Limited, who exhibited many small and useful articles. One excellent little novelty was the "Castle" knife and tool chest, a convenient combination of twenty-five different serviceable tools for motorists, all of which will be found requisite by motor owners at some time or other. It is a thoroughly practical article, and its usefulness is already borne testimony to by well-known automobilists who have bought it. It is carried in a neat pigskin case, which can be folded into a space about six inches by four inches. The exhibits included acetylene lamps, paraffin and oil lamps, electrical fittings, voltmeters and ammeters, horns, coils, radiators, water-pressure gauges, etc. An aluminium jack, with set of tools, by which the jack can be actuated without getting under the body of the car, was also shown, as well as the Dupont two-speed gear, a detailed description of which, with illustration, has already appeared in the *Journal*. The "Castle" electric motor-bicycle lamp and accumulators were on view, and attracted much interest. The lamp can be run off separate accumulators or off the sparking accumulators, if so desired,

and also serves as a testing lamp for the charging of the sparking accumulators. The "Basse-Michel" coils were shown in convenient boxes, with protected terminals and falling front flap. The "Brissard" water-cooled head, with flanged cylinder barrel, was on view, fitted with special piston, by which a 2½ or 2¾ De Dion motor can be transformed into a 3-h.p. water-cooled motor, the cylinder fitting on the ordinary De Dion base chamber. Space prevents a full enumeration of the many other features of interest shown by the United Motor Industries, Limited, but mention must be made of the selection of motor clothing on view. In fact, there is nothing that a motorist requires that he cannot obtain from this firm.

Accessories of various kinds formed the staple portion of the display made by Messrs. Steiner and Co., who showed a new motor-horn which can be so adjusted as to only be sounded by the proper person. By a slight turn it can be rendered inoperative—an ingenious feature which will be appreciated by many motorists who have to leave cars in the roadway in populous centres. Lamps, motor-horns of the ordinary type, flexible tubes, etc., completed a useful display.

Mr. O. C. Selbach, who is the agent in this country for La Carrosserie Industrielle, found many inquirers at the stand whereon he exhibited some excellent specimens of the work of that Paris concern which was responsible for the carriage work of "La Passe Partout." The exhibits included a delivery van, convertible to an ordinary brake, a car to seat two persons in front and four at the rear, a charette to seat four, with a detachable rear part, etc. All these were characterised by a degree of finish and effective design which was notable.

Our readers have been kept so well informed with regard to the development of motor-bicycles that the features of the display made by the Singer Cycle Company, Limited, are too well known to need detailed description on the present occasion. Their exhibits comprised specimens of their motor-bicycles for ladies and gentlemen, the Singer motor-tricycle, the Singer motor tandem tricycle, the Singer tri-voiturette, and also two examples of the Singer motor-carriers, one fitted up as an ordinary carrier for tradesmen's delivery purposes, and the other adapted to the requirements of dairymen, with a churn and basket attached—two exhibits which were the objects of much public interest. The Singer motor-wheel which is fitted to the company's cycle has already been described in these columns, thus rendering further notice unnecessary in this connection. The bicycle fitted with a 2½-h.p. engine has a pump for lubricating purposes, enabling it to be fed without dismounting. The Singer tandem tricycle was also shown. This has a 2½-h.p. engine, the additional framing and pedals for the rear rider adding little to the weight and expense. The Singer tri-voiturette is another adapta-

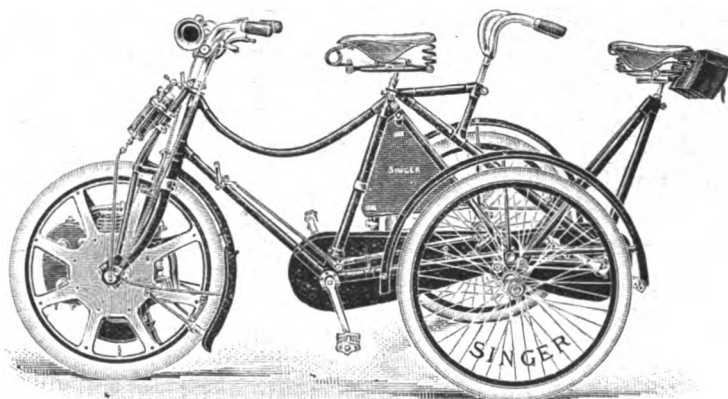


FIG. 165.—THE SINGER MOTOR TANDEM TRICYCLE.

tion whereby the tricycle is made to carry a passenger who pedals not, and who is seated behind in a well-upholstered armchair. In one form the passenger is carried backwards, low down, with the footboard just clearing the ground, and in the other type the idle passenger faces forward, the chair being raised higher up. Certainly the Singer Company provided a very attractive stand,

Popular with visitors was the display of the City and Suburban Electric Carriage Company, whose vehicles have found much favour among the aristocracy. In addition to exhibiting several vehicles of excellent design, workmanship, and finish, attention was drawn to the facilities afforded by the company for housing, maintaining, and insuring electric carriages. The tariff adopted by the company shows one inclusive charge for rent, supervision, oiling and washing, renewing batteries, tyres, and working parts, supply of electrical current from the company's mains, insurance against damage to the carriage, and also against injuries to third parties, while the benefit of a *garage* that is open all day and all night is a not inconsiderable advantage. Among the exhibits shown was a Cee-Spring Grand Victoria of a particularly handsome design, well adapted for fashionable service. A private omnibus to seat fifteen people, and having a capacity for running thirty-five miles on one charge was also on view. This vehicle has a splendid appearance, being fitted with bevelled plate-glass windows and a bevelled plate mirror within the omnibus; 3 in. solid rubber tyres are fitted; while the upholstery is of an effective character. A limousine, forming a protection for the passengers during bad weather, and capable of conversion to a wagonette, was shown, while public interest was manifestly centred in the replicas of vehicles supplied to the Queen, the Dowager Empress of Russia, and other distinguished people. Victorias, Surrey phaetons, *tonneau* phaetons, and mail phaetons were also exhibited, as well as the three-seated landaulette shown in Fig. 166. The mail phaeton is a standard type of vehicle capable of running about sixty miles on one charge. A seat of full width is provided at the back. This can be made interchangeable with the other, thus enabling four persons to be accommodated on the vehicle. The maximum speed of this vehicle is sixteen miles per hour. In all these carriages the running gear is similar, two $2\frac{1}{2}$ -h.p. nominal motors being generally found sufficient. The quadrangular tubular frame is jointed at the corners, so that the wheels can rise without being strained when going over obstacles. The motors are pivoted on the rear of the frame, and they drive by spur-gearing on to gear rings attached to the hubs of the rear wheel, the outside of the rings forming drums for the band brakes. Regarded as a whole, the exhibit of the City and Suburban Company was one of the most attractive in the Exhibition.

At the stand of the Automobile Supply Company a "Peerless" voiturette fitted with an 8-h.p. engine was shown, as well as a *chassis*. The frame is of weldless steel tube with steel lugs. The lugs carrying the engine and gear-box are planed longitudinally and transversely at one setting, in order to ensure accuracy. The engine is of the single-cylinder vertical type, the bore being $3\frac{3}{4}$ in. and the stroke $4\frac{1}{2}$ in. The cylinder is cast in one piece with the head, and is water-jacketed. The inlet valve is so arranged that it can be entirely removed, and it is so made that its spring is at all times

accessible. A float-feed carburettor, with butterfly valve for throttling the mixture, is provided. A centrifugal pump is fitted in front of the lower half of the crank-chamber, being driven from the crank-shaft by the same spur-wheel which operates the half-speed cam-shaft. A universally-jointed shaft transmits the power from the gear-box to the rear live axle by means of a bevel pinion and wheel. Wheel-steering is provided, and two powerful brakes are fitted. That on the gear-shaft is actuated by a foot pedal, the other being controlled by a lever located in a convenient position for the driver's hand. Three forward speeds are provided, and a reversing gear is provided by means of an intermediate wheel brought into mesh as required in much the usual manner. This is operated by a separate lever, which is attached to the right-hand side of the frame, in the centre of the car, lengthwise. It is claimed that the "Peerless" car will attain a speed of about thirty miles an hour on the level, and is an excellent hill-climber.

AMONG the well-known tyres exhibited was the Talbot, as shown by the Maison Talbot. Pneumatic as well as solid tyres were displayed by the company, the latter being of the wired-on kind, some being also gripped by the rims. The pneumatic tyres shown

were on the thickened edge system.

The Holborn Tyre Company was represented by a selection of tyres for motor-vehicles, which are distinguished by having a broad base pointed in an arched fashion towards the tread. When in position the inner tube is of elliptical section, the longer radius being radially to the wheel. A very thick covering of canvas surrounds the inner tube, and a pointed soft rubber tread is provided outside the covering. An outer case of hard rubber encloses the whole. In order to ensure the tyre being kept in position, an inner

rim is embedded in the canvas covering of the inner tube by a bolt and fly nut passing through the rim of the wheel. These tyres thus have many elements of strength and durability, which have led to their adoption by a number of motorists.

The presence of the first motor used by M. Santos Dumont led many to the stand of Mr. O. C. Selbach, who showed various sizes of Buchet single, two, and four-cylinder motors, including the last motor ordered by the aeronaut. In the Buchet motor a leading feature is the placing of the exhaust valve in the head of the cylinder, so that the escape of the exhaust gases may be as free as possible. Among minor improvements which have been made, we noticed the cam shaft is now entirely enclosed, and the governor works on to a throttle valve. In addition to being utilised for air-ships, these motors were also shown coupled direct for driving dynamos, pumps, and launches. Some splendid forgings by Messrs. Bail, Pozzy, and Co., and Messrs. Malicet and Blin's change-speed gears were included in a collection of axles, springs, brackets, etc., as well as of lubricators. Among the latter we noticed some specimens of the Dubrulle type.

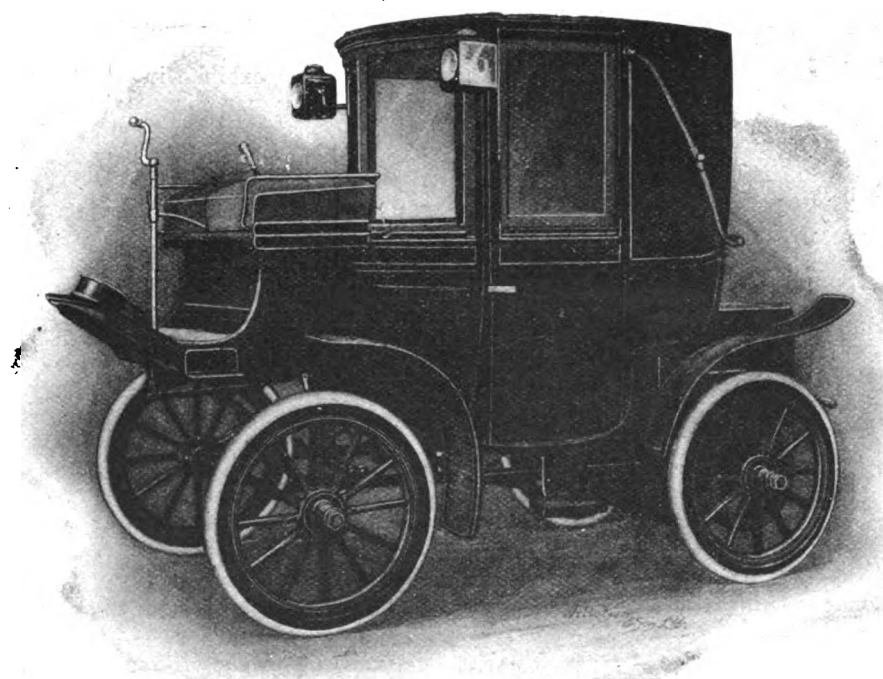


FIG. 166.—THE CITY-SUBURBAN CO.'S THREE-SEATED ELECTRIC LANDAULETTE.

The leading exhibit on the stand of Messrs. Brown Bros., Limited, was the Brown petrol light car. The motor and mechanism are mounted on independent frames, so that any type of carriage body can be fitted—*tonneau*, spider, phaeton, two-seated, etc. The engine, which is set under a bonnet in the fore part of the frame, has a double water-jacketed cylinder and develops 8 brake h.p. at a speed of 900 revolutions per

operated by lifting the lever of the front-wheel rim brake. In addition to the foregoing Messrs. Brown Bros. made a display of motor-tricycles and quadricycles, trailing cars, motor-car chains and chain wheels, horns, bells, lamps, and accessories of every kind for automobilists and motor-vehicle builders. In fact, they are in a position to supply everything from a small screw to a complete vehicle.

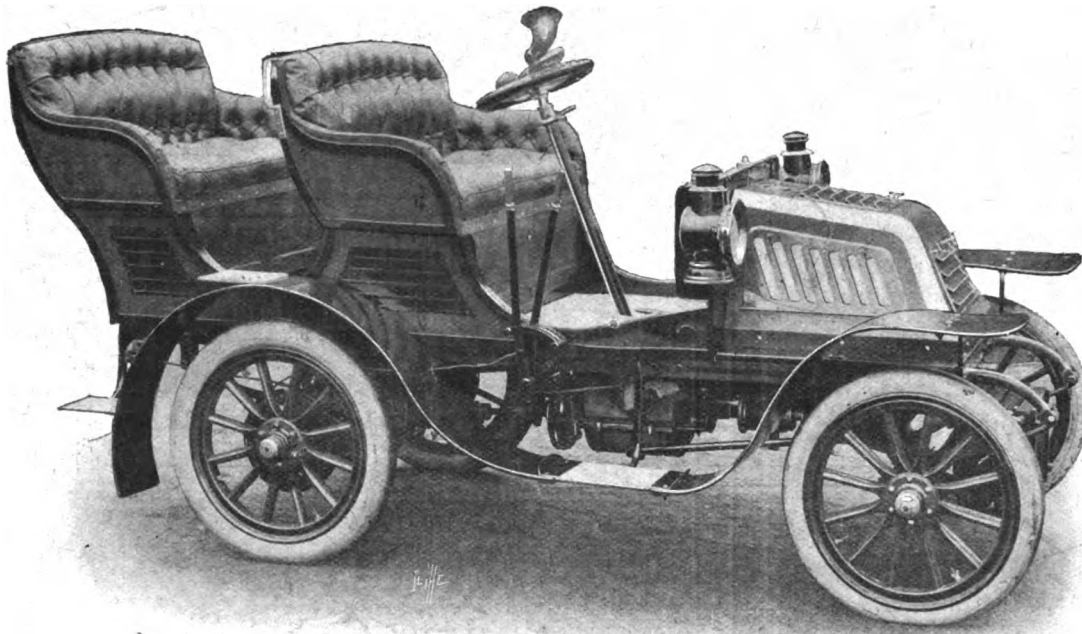


FIG. 167.—THE BROWN 8-H.P. DOUBLE PHAETON.

minute. By use of the accelerator it will, it is claimed, work up to 9-b.h.p. The governor is of the well-known Daimler pattern. The electric ignition, which is of the positive "make and break" pattern, is fitted with means of advancing and retarding the sparking. The water circulation is maintained by pump and radiator. Three speeds forward and a reverse motion controlled by a single lever are provided, the power being transmitted through a pedal-operated clutch to a gear box of the Panhard type, and thence by universally jointed shaft and bevel gearing direct to the rear axle. Hand and pedal controlled brakes are fitted, while the steering is actuated by an inclined hand wheel. The car weighs complete about 12 cwt.; it is made with either *tonneau* or double phaeton body, an illustration of the latter being given in Fig. 167. In addition to complete cars, Messrs. Brown Bros. are also making a speciality of supplying chassis, or parts (which are made on the interchangeable system), to enable carriage builders and others to build up cars on similar lines. The Brown 1½-h.p. motor-bicycle introduced last year has undergone modification in certain details. The machine itself is built up of B.S.A. parts and has a specially strengthened head. The air-cooled motor is supported on the top of the lower cross tube of the frame, the crank chamber being at the bottom bracket. Messrs. Brown claim that by placing the engine in this position the frame is really strengthened than otherwise, the whole being exceedingly rigid. A Roubeau spray carburettor is now used, and as the coil and accumulator are carried under the saddle the tank is small, lubricating oil being carried in a separate tank above the top tube. An exhaust-valve lifter, actuated by a Bowden wire, is fitted, so that there is only the timing lever on the top tube. The twisting switch handle has been given up in favour of a contact breaker, which is

A type of vehicle that excited a great deal of attention on the score of novelty was that shown by the Lanchester Engine Company, Limited. It is different in almost every particular from the ordinary petrol car, the engine, instead of being placed, as is now usual, in the front of the car, being located under the front seat, one cylinder being on each side of the driving shaft, which is parallel with, and runs down the centre of, the car, to the live axle at the back, the throw of the two cranks thus being at right angles to the line of motion. The motor has two opposite cylinders, 5½ in. bore by 5½ in. stroke, developing 10-h.p. at a normal speed of 700 revolutions per minute. There are two crank shafts passing through the crank chamber; the one is arranged above the central axis of the two cylinders, and the other

below. Each piston has three connecting rods, two of which are connected to one crank shaft and the central connecting rod to the other crank shaft. Each crank pin, therefore, has three connecting rods driving it. The two crank shafts revolve in opposite directions, and they are connected by a pair of spur wheels at the rear end, a short spur wheel meshing on the under side of the lower one transmitting the power through the speed gear to the rear live axle. A cam shaft is placed

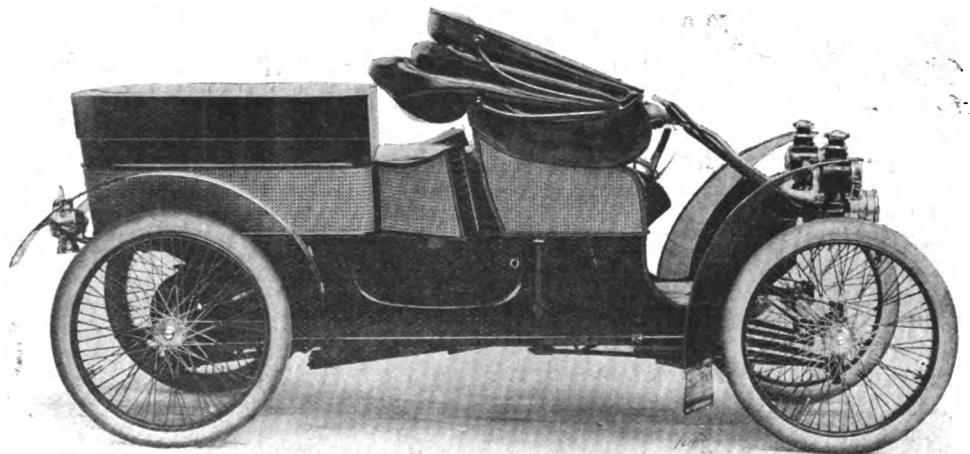


FIG. 168.—THE LANCHESTER 10-H.P. TONNEAU.

parallel with the cylinders, and is driven by spiral gearing from the upper crank shaft. It carries exhaust and ignition cams at each end. It also drives a multiple-feed oiler by worm gearing, the oiler being placed above the cylinders and being connected with pipes to the various parts of the mechanism. The cylinders are air-cooled, two fans, driven by frictional contact with the flywheel, forcing air to the radiating fins on the cylinder walls. A governor which acts on the exhaust valves is fitted,

and the speed at which this comes into operation is regulated by an accelerator controlled by a foot pedal, enabling the engine to run up to 1,200 revolutions per minute when desired. The impacts on the cranks upon which the connecting rods engage are equalised by the fitting of two flywheels, which rotate in opposite directions. The flywheels are carried—one on the upper crankshaft and one on the lower. The two crank shafts are connected by helical gearing. The current for the electrical ignition is produced by a special form of magneto. The forward flywheel carries two permanent magnets on its inside face, which rotate round a fixed armature set on a sleeve carried on the lower engine shaft. The windings of the armature are fixed to insulated collectors, conducting the current by an insulated bar from the armature to the igniter, which is connected up by a switch. The sparking plugs are secured in the explosion chamber by a quick fastening gas-tight locking joint, resembling somewhat the breech-block of a rifle. The plug itself is made up of a steel bush carrying within it a sparking wire insulated by mica. The outer end of the ignition conductor is furnished with a spring which when struck by the striking arm on the engine shaft causes the sparking points to make contact within the explosion chamber, upon the releasing of which the circuit is broken, causing a spark. All the connections between the magneto and the plugs are of solid steel, no ignition wires of the ordinary form being used. A wick-type carburettor is employed to furnish the mixture, this being provided with a branch pipe from the exhaust. Double silencers are employed, while the petrol tank is fitted with a float worm indicator, which shows at a glance how much spirit remains in the tank. Three speeds forward and a reverse are provided; the power on the high speed is transmitted direct from the engine to the rear live axle, through a friction clutch and worm gearing; an ingenious form of epicyclic change-speed gear for the lower speeds is provided, this running in oil. The brake is fitted on the countershaft, this being brought into action by merely pulling the clutch further back against a fixed block, a plan which also facilitates changing the gears. The front axle is tubular and of great strength, while the wheel-base is remarkably long, being 7 ft. 9 in. Tiller steering, located at the right side of the driver, is employed. The frame of the car is constructed of channel steel. The body is supported on the front and rear axles by short plate springs, while between it and the frame are interposed rubber buffer springs, with the view of reducing vibration. The road wheels are of the cycle type, shod with pneumatic tyres. The car, complete, weighs about 18½ cwt. The company's exhibit comprised three handsome examples, one a *tonneau* body in black, lined white, with imitation cane panels (Fig. 168); a *tonneau* finished in black and green, white lined, with glazed 'bus top over the *tonneau*; the remaining car was in white, lined red, with red upholstery.

Being fitted to the King's car, much interest was naturally felt in the Goodyear double-tube tyres, which were shown in sizes for voituresses or large cars. Form, construction, and materials employed are the three factors which have ensured the success of the tyre, which differs considerably from the ordinary pneumatic. The outer tube terminates near the felloe of the wheel in two thick rings of solid rubber, which come together and are held in position by detachable rims. These latter are bolted to the felloe of the wheel, it being sufficient to remove the rim on one side to enable the tyre to be taken away or placed in position. Assuming the rim on the left to be removed, the tyre with the inner tube in position is slipped on, the rim is replaced in position, secured by the nuts to the felloe, and the tyre bolt is then inserted, passing through the inner part of the solid rims, thereby securing the tyre being held strongly in position, after which it is pumped up in the ordinary manner. A flap of rubber is so provided as to avoid any injury to the inner tube at the point where the thick rims are brought together. Throughout the whole circumference of the solid portions of the tyre are a number of thin wires crossing one another. As the tyre is pumped up the expansion acts upon the twisted wires, tending to shorten

their length. The tyre is thus gripped more firmly to the felloe of the wheel. Strands of fabric are also moulded in the inner portion of the outer case. When it is pumped up the whole weight of the tyre is transmitted through the rims to the felloe. There is no pressure between the curved edges of the rims and the outer case.

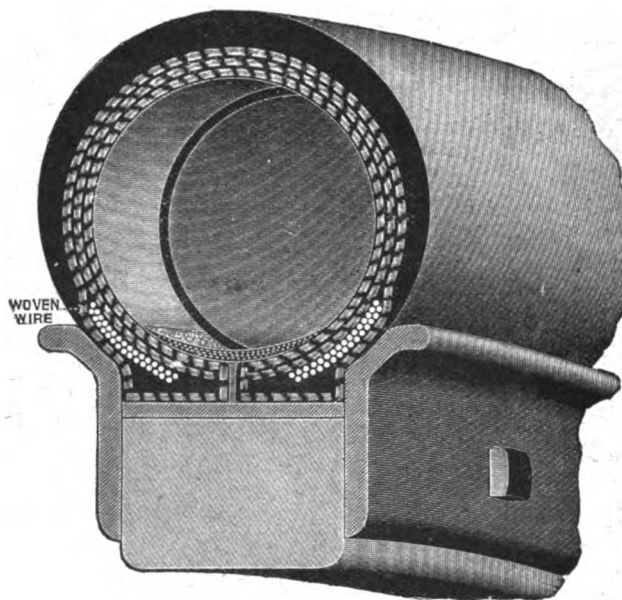


FIG. 169.—SECTION OF GOODYEAR TYRE.

The inner tube is also above the line joining the rims, a fact which is said to account for the improved resilience of the tyre. The outer case of the Goodyear tyres is built up on a ring steel core under heat and enormous hydraulic pressure, the ultimate volume of the finished outer case being less than half that of the rubber employed to form it. The case is then vulcanised. The motorist cannot afford to be unfamiliar with improvements in tyres, and hence the interest naturally felt in that of which a section is shown in Fig. 169.

Having in view the advance that has lately been made in connection with steam cars, the exhibits of the Steam Car Accessory Syndicate were of more than ordinary interest. These included an automatic water-level regulator, by which the operator is relieved of the constant watchfulness with regard to the mirror, which is one of the things to remember in driving a steam car. The regulator is made to operate with a seamless copper float operating a valve which is placed in the by-pass pipe leading from the pump to the tank. When in work the apparatus is fixed directly opposite the glass gauge in the inside of the carriage and on a level with the water in the boiler. By the adoption of this device gauge-cocks become unnecessary, and

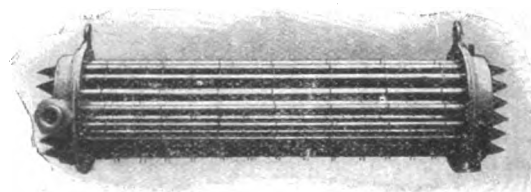


FIG. 170.—THE "SYNDICATE" CONDENSER.

even with a broken glass gauge the driver is still able to ascertain the level of water in the boiler by lifting the arm, which raises the float enclosed in the chamber and allows it to drop back upon the water, thus showing the level of the water in the boiler. Another exhibit on their stand was the apparatus to which the firm have given the name of the "Syndicate" condenser. This is of extremely neat appearance, and does not obtrude upon the

view when fitted to the car, its location being between the front axle and the fuel tank. It is light and efficient, and does not put any back pressure on the engine. The pattern shown in Fig. 170 is 24 in. long, and is elliptical in section, 6 in. by 9 in. At this stand, too, was shown the paraffin burner for steam-cars introduced by the Syndicate. We have had an opportunity of seeing this in actual use, and can thus testify to the simplicity of the device. The apparatus consists of a blue flame wick lamp, placed in a convenient position near the burner, having a coil over it. One end of this coil comes from the container, the other leads to the mixing chamber of the burner. The lamp is lighted in precisely the same way as any other wick lamp, the flame being turned up as high as it will go without smoking. In five minutes' time the main burner can be lit. In the mixing chamber there is a small steam jet that automatically controls the combustion of the oil vapour as soon as the steam is raised, so that no further attention need be given to the fire. No spirit has to be employed, the fire can be turned out at any moment, and will light itself again as long as the pilot light is burning, and the lamp alight. In these generators the paraffin is converted into gas before it reaches the main fire; therefore a constant heat can be applied to the vaporising coils, thus avoiding all choking up of the pipes and nozzle; the fire burns quietly without smoke, odour, and without fouling the boiler tubes. The fire is turned completely out automatically at a given steam pressure; the car can therefore be left for several hours, and the boiler will always maintain its full working steam pressure. The burner can be worked on 20 lbs. of air pressure.

Clincher tyres of the solid and pneumatic type were shown by the North British Rubber Company. The latter, being intended to fit Michelin rims, are provided with an inside flap across the rim to obviate the risk of wear on the inner tube. On this stand inner tubes were exhibited which had been vulcanised after construction so as to show no rubber joint. Solid tyres with diameters varying from one inch to $3\frac{1}{2}$ inches were also exhibited by the North British Rubber Company, which were evidently of interest to practical people. The $2\frac{1}{2}$ -inch section of the solid "Clincher," and the two-inch wired-on, are specially suitable for the heavier class of vehicles, reducing the liability of punctures to a minimum. The sizes of the rims have been carefully considered by the makers, and in the event of covers being required to replace others which have been worn, the "Clincher" sizes will probably be found suitable.

We have already referred to the motor-cars exhibited by Messrs. Philipp and Co. Elsewhere in the Show the firm displayed an assortment of axles for cars, differential pinions and forgings, hubs, ball bearings, springs, steering-gears, radiators, lubricators, artillery wheels, lifting jacks, etc. A large show of lubricators was made, special attention being drawn to Hecht and Koepp's No. 6 lubricator. In this each outlet can be separately regulated, a lever being provided on the right side to control the supply. The tank is made of gun-metal, and the general design is neat and convenient. At this stand were the "Sauerbier" radiators, in which the fins are endless, forming one body only when fitted to the tubes. A strip of copper is corrugated on its one edge to assume a spiral form, and the spring-like lengths into which it is made are threaded over the pipe and soldered in place. The "Sauerbier" circulating pump was also shown by Messrs. Philipp and Co. It is of the rotary type, consisting of a cylindrical chamber, in which is placed a piston of very small diameter. This is caused to rotate in contact with the inner wall of the cylinder by means of an eccentric action. At the upper side of the cylinder, the inlet and the outlet pipes are placed a short distance apart, and between them, within the cylinder, a blade is pivoted in such a way that it slides in and out of a corresponding slot in the piston as this goes round. The blade fits against the flat end walls of the cylindrical chamber, as also does the piston, and in this manner water is drawn from the one pipe and forced out of the other. The pump can be driven in either direction, as the inlet and outlet pipes are interchangeable, according to the direction of rotation. A fine show of fittings was made on a stand on the ground floor, these including back live axles with differential gear and fixed hubs, speed gears with

wheels forged from the solid, the teeth being cut and case-hardened; steering gears which can be fitted in two positions by turning round the worm-screw in the interior of the case by unscrewing the nut; and artillery wheels made of hickory, oak, ash, or acacia wood. Messrs. Philipp and Co.'s display also included the Kamper two-cylinder petrol engine. The cylinders are $4\frac{1}{2}$ in. bore by 5 in. stroke, and the engine runs at a normal speed of 800 to 1,000 revolutions a minute. These motors are made in three sizes having single cylinders, and in three sizes of two-cylinder variety. The cylinders are cast solid in one piece with their heads and water-jackets.

The Union Steam Pump Company, for whom Messrs. A. Pullen and Company are the agents in this country, made a special feature of the "Moore" independent pump for steam-vehicles. In the pump of the single-acting plunger type the steam end is tapped in three places for steam and one for drip. The plug can be changed to any one of three places, or the drip can be taken from any one which is not used for steam. The steam end can be located in any horizontal position; the water end is then located so that the delivery shall be vertical as regards the valves. The exhaust can be taken out at any angle. In the Moore air-pump the greatest efficiency is obtained when handling cold air, as constant running causes the air-cylinder to heat. This type of pump is tested to force from 80 to 100 lbs. of compressed air in a $2\frac{1}{2}$ gallon tank in $2\frac{1}{2}$ minutes under a steam pressure of 250 lbs. Another type of pump introduced by the Union Steam Pump Company is a combined boiler and air pump, the general design of which is similar to that of the single pump, with the exception that the pump end is made double, the plunger with a yoke on the outside end being packed on the water side, and an enlarged piston being on the air side. The plunger end is used for feeding the boiler and the enlarged piston for the air. These pumps certainly have features which should commend them to the careful attention of all owners of steam-vehicles.

The Clipper Pneumatic Tyre Co., Ltd., made a good show of the Clipper Continental motor tyres so well known to motorists. From the stand they issued a useful little pamphlet of instructions applying to Clipper Continental tyres, and also to Clipper Michelin tyres, of which the company holds a full stock of all sizes.

The Shrewsbury and Challiner Tyre Co., Ltd., drew attention to the Cup tyres, with which their energies are closely associated. In this there is no cutting of the indiarubber by the metal rim, and it is claimed that their use obviates the fear of skidding on the tram lines—an occurrence of which the motorist goes in wholesome dread. The Albion Wheel and Tyre Works, Limited, had a good display of artillery wheels on the stand, all classes being exhibited, from the lightest voiturette wheel to heavy iron-tyred wheels for lorries, etc.

THE International Motor Car Company, of New York-report that they have already shipped a dozen Toledo steam carriages to South Africa, three of which were ordered by British army officers.

THE Automobile Club of Namur and Luxemburg has just been formed at Namur, Belgium. It is organising a hill-climbing contest for June 1st, and a kilometre race and consumption trials for June 2nd.

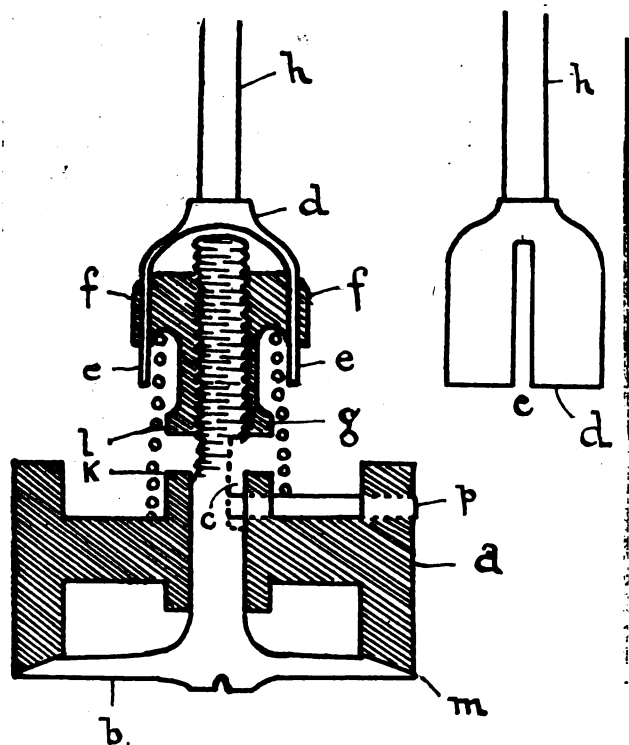
A SERVICE of electrical motor-omnibuses on the Lombard-Gerin system has just been started between Marseilles and the suburb of Allauch. The cars take the current from an overhead conductor the same as trolley tramways.

MESSRS. W. H. JOHNSON AND SON are bringing out a new swing crank for use on motor-bicycles. The idea is that once the engine has started the two cranks may be brought into the same plane and thus serve as comfortable foot-rests.

MESSRS. HAYTER AND COMPANY, motor and cycle engineers, through circumstances over which they have no control, viz., Corporation City improvements, have been compelled to find a new location, and have secured premises at 115, Anlaby Road, Hull.

THE JONES INLET VALVE FOR PETROL MOTORS.

MR. LEONARD JONES, of North Finchley, sends us particulars of a new inlet valve for petrol motors he has recently designed and patented. A represents the valve seating and casing; b the valve; d is a hood with slots e e on opposite sides in which the wings f f on the long nut g engage; the shaft h passes out from the engine, and is either actuated by a governor or other mechanism from the driver's seat; p is a pin which passes through the casing into the slot c, on the valve spindle, to prevent it rotating; it can, however, be removed should the valve require regrinding. It will be seen that the object of the arrangement is to adjust the amount of lift given to the valve b. The action which takes place is as follows: When the hood h is revolved,



it in turn revolves the nut f, but at the same time allows it to travel down the thread, and thus reduce the amount of lift between l and k, the shoulder of the nut and valve respectively. This in turn limits the amount of opening round the valve seat at m. The arrangement can be fitted to any motor, and is claimed to add considerably to its efficiency and economy of petrol; it is probably one of the simplest methods yet devised of throttling the inlet.

THE Mayor of Maidenhead (Mr. W. F. Good), with the town clerk and the surveyor, made a trip by motor-car to Wokingham last week to inspect some steam rollers.

THE Collier Twin Tyre Company, Limited, have recently received from the Wolseley Company the outer covers of the tyres used in the recent Glasgow to London trip. They are intact with the exception of a cut on one tyre, which does not, however, extend beyond the first layer of strengthening canvas.

WE understand that two of the electric cars which took part in the Bexhill races were charged at the Tunbridge Wells electricity works on their way down to Bexhill. The arrangements for charging the batteries of cars are excellent, and as the town is midway between London and Bexhill, no doubt many electric cars will in the near future avail themselves of the accommodation provided.

HERE AND THERE.

A SERVICE of motor-cabs is about to be started in Copenhagen.

AN automobile club has lately been formed in Moscow, Russia.

A PUBLIC service of motor-cars is about to be started between Jaen, Ubeda and Baeza, Spain.

A SLIGHT fire occurred the other day at the Firefly Motor Works, 72, High Street, Croydon.

THE Piccadilly Motor Company, Limited, has been registered with a capital of £2,000 in £1 shares.

THREE motor-cars were to be seen in the Ambassadors' Court in connection with the levee last week.

A SERVICE of motor-cars leaves the Cycle Chalet at Bexhill, for Hastings at frequent intervals during the day.

GENERAL LEW WALLACE, the author of "Ben Hur," is now a motorist, he being the owner of an electric runabout.

MESSRS. CLARK AND CO., of Station Road, Doncaster, undertake repairs to motor-cars, and also stock petrol.

A GREASE-CUP from a Napier car has been found near the Great Central Garage, Limited, and will be given up to the owner on application to 300-306, Marylebone Road, N.W.

THE Berlin Maschinenbau Gesellschaft (Schwartzkopf), of Berlin, are now building heavy steam vehicles on the Thornycroft system, for the German market.

FODENS, LTD., has been registered with a capital of £100,000 to acquire the business carried on by Messrs. Foden, Sons, and Co., Ltd., at Sandbach, Cheshire.

THE Regent Street Garage, Limited, has been registered with a capital of £2,000, to establish, maintain and conduct garages for the storage and repair of motor-vehicles.

FROM Herr F. Walloch, of Berlin, we have received a copy of the 1902 Adressbuch der Automobil-Industrie, which, *anglicised*, means a directory of the motor manufacturers and traders in Germany. The book appears to be very complete, extending as it does to over 240 pages, and including the names of over 1,000 firms. It should prove useful to all having trading relations with motor-car and motor-accessory firms in the Fatherland.

FRANK WOOD, 4, Albert Cottages, Hammersmith, brought an action, under the Workman's Compensation Act, against his employers, Messrs. Davis and Allen, of Tabernacle Street, E.C., for damages for injuries sustained. The plaintiff had been riding one of the defendants' motor-bicycles on a track, and, falling off, his knee was injured. The judge, the Hon. Alfred Russell, said the Act did not apply to this particular case, and gave judgment for the defendants.

MR. FREDERICK WALKER, of Oxford, is to design a new air yacht for M. Panuzzi. It will be 230ft. long, with frame similar to that of an inverted ship, and with a rigid car. The twin propellers, 11ft. in diameter, and forward and above the centre of gravity, will be driven by electric motors through a dynamo attached to the spindle of a turbo-petrol motor of special design and 55 h.p. Compressed air, used with the petrol, will keep the temperature very low, and it is estimated that the vessel will attain a speed of twenty-five miles an hour.

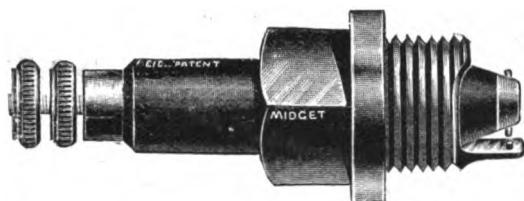
MESSRS. R. J. MCREEDY AND COMPANY, LIMITED, have sent us a copy of the new edition of "The De Dion Voiturette: Its Mechanism and Management." The booklet deals in simple and untechnical language with the mechanism and working of the De Dion voiturette. The general hints and explanations will be of use to every motorist, as they are based directly on practical experience, and are applicable to the driving of almost every motor-vehicle. The book has been entirely re-written, and an additional chapter has been added detailing the special points of the latest De Dion car. Numerous illustrations are given, and every effort has been made to render the book a complete guide.

DURING the week a trial has been made in London of an electrical motor-bus of American design and construction.

THE Motor Traction Company, Limited, fit Michelin, Continental, or any other kind of tyres required to their cars.

PETROL and lubricating oils are now being stocked by Mr. Richard Thirkill, Canal Bridge Ironworks, Leeds Road, Huddersfield.

THE Electric Ignition Company have just brought out a sparking plug specially intended for use on the motors of motor-bicycles. The plug, which is known as the "E.I.C." Midget,



and of which an illustration is given herewith, has been tested for some time on a 1½-h.p. Minerva and other motor-bicycles, and has, we understand, given very satisfactory results.

A NEW puncture-preventing and anti-skidding device has, we hear, been experimentally fitted to Mr. Mark Mayhew's Panhard car.

AUTOMOBILISTS passing through Surrey on Saturday kept one eye on the weather, and one upon the policemen they saw upon the roadway.

THE construction of motor-cars has lately been taken up in Sweden, by the Scania Engineering Works, Malmo, and the Soedetelge Engineering Works, Soedetelge.

A COMPANY has been formed at Versailles with a capital of £40,000, to be known as the Société des Automobiles Gillet-Forest (Gillet, Forest, Bocande, and Company.)

THE Automobile Club of America has been seeking a good piece of road, about two miles in length, in the vicinity of New York, for the purpose of holding a speed contest.

COL. HOLDEN, Col. Crompton and Mr. E. Hutton have been appointed a sub-committee by the Automobile Club to consider the practicability of a series of trials of tyres.

THE Motor Power Company have just completed a 16-h.p. Napier vehicle with lorry body for Messrs. Mayhew's flour mills at Battersea; it is intended to carry a load of five tons.

MR. G. IDEN calls our attention to the fact that he was not the driver of the M.M.C. car that did so well in the recent Glasgow to London run, as reported in our issue of the 27th ult.; nor has he ever appeared in the Huntingdon police-court on a charge of furious driving.

ON the main road from Barnsley, the Times Cycle and Engineering Works, at 34, Stanley Street, Sheffield, are prepared to help all motorists in distress. A Leeds correspondent informs us that on a recent Sunday he required two new inlet valves for his 8-h.p. car. Being near these works he called, and the proprietor willingly made him the valves required.

A FEW copies yet remain of the catalogue of the last Motor-Car Exhibition at the Agricultural Hall. These will be sent post free for one shilling from the offices of the Exhibition, 39-40, Shoe Lane, E.C. The catalogue contains the addresses of 250 firms in the automobile industry, with a full range of their specialities, and is thus a useful work of reference.

"HOLIDAYS in Eastern Counties" is the title of a well-illustrated and chattily written little book, prepared by Mr. Percy Lindley, for the Great Eastern Railway Company, whose enterprise has opened up many delightful resorts in the Eastern Counties of England. Although motorists are not likely to discard the pleasures of their pastime for the joys of railway travel, they will find much of interest in this little publication.

A MOTOR made by the Daimler Company has been fitted to a launch for the British Government, and now being used in connection with the artillery practice at Shoeburyness.

THE garage adjoining the Aquarium, Westminster, which has hitherto been for the exclusive use of members of the Automobile Club, will, from June 1st, be open to all motorists under the name of the Automobile Garage.

THE month of June should furnish an opportunity for amateur photographers, and we shall be glad to receive reminiscences of interesting motor trips in the form of photographs of automobile interest.

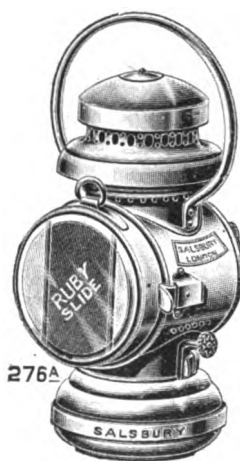
THERE was a good attendance of members of the Motor Cycling Sunday, the 8th prox., there will be a club run to Maidstone. Club at the run to Dunstable on Sunday. On Sunday next the run will be to Guildford, meeting at the Angel at Ditton at noon. On

THE Anglo-French Motor Syndicate, Limited, has been registered with a capital of £10,000 in 9,995 shares of £1 each and 100 "B" shares of 1s. each, to promote a company for the purpose of acquiring and working a motor-car business as now carried on at Suresnes, France, and elsewhere.

A SPANISH correspondent informs us that for some time past a public service of steam omnibuses has been running between Santiago and Coruna, a distance of forty-two miles. The journey is made in five hours, with stops *en route* at Ordenes and Puente Lago. Five 35-h.p. De Dion steam vehicles are used in the service, each having accommodation for twenty-two passengers.

SPRATT'S PATENT, Limited, the well-known dog biscuit makers, are getting some good publicity from a motor-car recently purchased by them. The car is handsomely decorated in gold, and is timed to make its appearance in a district just before an agricultural show takes place. The main function of the car is to whip up the agents and keep them well supplied with show-cards.

WE illustrate herewith Messrs. Salsbury and Son's new Tail Lamp. This is a very substantial lamp made with a bail to facilitate removal, and is fitted with a ruby slide; the latter is easily detachable and enables the lamp to be used at any time for inspection purposes. The lamp is made to burn paraffin; it is provided with a strong screw grip socket on the back, by which the lamp is fixed securely to the bracket and cannot become accidentally detached.



ABOUT twenty cars took part in the meeting of the Lincolnshire Automobile Club on Saturday, the motorists present including Sir Hickman Bacon, Major Herrington Josse, of Grimsby; Dr. Cragg, of Billingham; and

Mr. Padley, Market Rasen.

MR. J. A. BAIN, of Sheffield, made a balloon ascent from Peel Park, Bradford, along with the celebrated aeronaut, Mr. Spencer, a few days ago. When the time fixed for departure came there was a downpour of hail, but the balloon got safely away, and was carried over Bradford towards Halifax, the aeronauts being treated to Arctic weather. For the first part of the journey a snowstorm raged, which, at a height of 3,200 ft., was cold enough for Arctic clothing; but coming earthwards a sudden but pleasant change from cold to temperate weather was experienced, and a change also of currents carried the occupants over Huddersfield to the village of Farnley Tyas, where a safe descent was made. The balloon was a new one of 35,000 cubic feet capacity, and performed its work admirably.

MECHANICAL FLIGHT UP-TO-DATE.*

By SIDNEY H. HOLLANDS.

CHAPTER VIII.—SOME BIRDS, FLYING INSECTS, AND WINGS.

AN idea prevails largely in the popular mind that a bird's flight is a very intricate—if not inscrutable—performance; in fact, almost beyond human mental grasp. Doubtless this is in a sense, and to an extent, true, in as far as it applies to the complex muscular movements attendant on animal locomotion in general; but the main principles of natural flight are far from being so, or from being inimitable artificially. Nor are birds so powerful as is commonly supposed. The wings of the average bird of flight are certainly, proportionately, more powerful than a man's arms, but then the main portion of the bird's power is concentrated there, where it is wanted; while its legs are relatively weak.

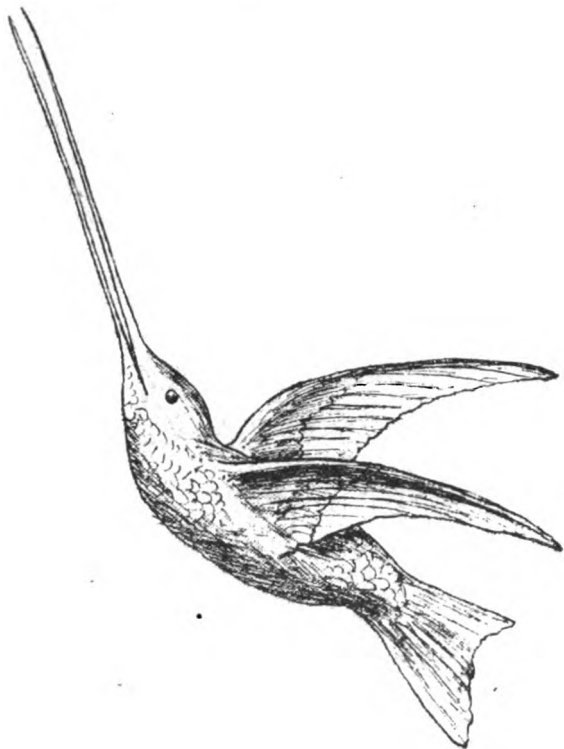


FIG. 1.—HUMMING BIRD (HOVERING).

The natural provision of muscular power in birds varies largely in amount; broadly speaking, it varies in inverse proportion to the size of the bird. Thus, while the pelican is provided at the rate of only one horse-power per 231 lbs. weight, the tiny humming-bird (Fig. 1), at the other end of the scale, is endowed with a ratio of about one horse-power per 20 lbs. weight; more than eleven times the proportionate muscular power of the pelican. The former powerful little gem has such wing velocity that it can sustain itself in one position, in still air, for over a minute at a time, being then poised in air with its body standing nearly vertically; not beating directly downwards with its wings, but using them as flexible inclined surfaces vibrating horizontally; constituting really an intermittent vertical lifting screw action.

This instance, together with that of certain flying insects, are the analogies we have in Nature to the oft-proposed vertical "ascensional screws" for flying machines, and should emphasize the fact of the impracticability of that system. If we were unhappily restricted to the humming-bird, and say the dragon fly, as our models, the case for aviation would be utterly hopeless, as these marvellous little beings would be quite inimitable on an enlarged scale, or on a small one for that matter, particularly in view of the enormous power-ratio and its duration. When we step from the humming-bird to the larger flying insects—and in one sense it is only a step—we find still greater proportionate power; and apparently, *i.e.*, as far as we can determine by observation, for actual power-tests of any accuracy are at present

* All rights reserved.

impracticable with small flying insects, the power-ratio goes on increasing inversely. We have startling evidence that the common beetle is enormously powerful, even in its legs, as it has been seen to move a stone of over a pound in weight, and so crawl from beneath it (which is fairly comparable to a man shifting an average locomotive engine by his unaided muscular efforts); while the common flea, although not a flying insect, jumps 200 times its own length. However, reverting now to the birds, Starkweather, an American aviator, computed that six-sevenths of the duty of a bird's wings is to keep its body suitably sustained and elevated, the remaining seventh being used in propulsion. Now as propulsion is a means of sustentation in birds, as it should also invariably be in aviation, it is scarcely correct to divide the power out in this way. Brearey wrote:—"The sustaining power obtained in flight must depend upon certain laws of action and reaction between relative weights; the weight of a bird balanced, or finding an abutment against the fixed inertia of a far greater weight of air, continuously brought into action in a given time. This condition is secured, not by extensive surface, but by length of wing, which, in forward motion, takes a support upon a wide stratum of air extending transversely to the line of direction. The pelican, for example, has wings extending out ten feet. If the limits of motion imparted to the substratum of air acted upon by the incline of the wing be assumed as one foot in thickness, and the velocity of flight as thirty miles per hour, or 2,640 feet per minute, the stratum of air passed over in this time will weigh nearly one ton, or 100 times the weight of the body of the bird, thus giving such an enormous supporting power that the comparatively small weight of the bird has but little effect in deflecting the heavy length of stratum downwards, and therefore, the higher the velocity of flight, the less the amount of 'slip,' or power wasted in compensation for descent."

With reference to the foregoing lucid and accurate statement of the case, I will add that when large birds have been seen skimming along quite close above smooth water, it has been observed that the surface has not been ruffled in the least by their transit, which fact is good and interesting evidence that during rapid flight the air does not give way beneath them, but becomes more of the nature of a solid support. Two admirable examples of remarkably easy and long-sustained flight are those of the wandering albatross and the "frigate bird" (Fig. 2); indeed the staying power of the former great bird in flight is unequalled throughout ornithology. Abounding and fairly distributed over the Southern Ocean, this bird very rarely rests on the water. During terrific storms even it is seen now cleaving its way through the whirling and scudding clouds, and now serenely floating on its outstretched, wide-spreading pinions, which to all appearance are quite motionless. The lateral wing-stretch of this bird



FIG. 2.—FRIGATE BIRD.

is between fourteen and fifteen feet, while the maximum width of wing is only 8½ inches. It is this extraordinary ribbon-like formation of wing that gives the albatross its transcendent powers of passive flight (its wing area is relatively small). In active flight, it by no means excels, nor does it need to, when so amply endowed in the other direction. With such capacities of sustentation it required so exceedingly small muscular effort that the bird is even said to sleep on the wing. We know the albatross to be quite weak compared with birds of active flight, and that when on the deck of a ship, or on land, a more pathetically helpless creature can scarcely be imagined; and yet, by drawing on extraneous natural forces, in spite of its own muscular weakness, it can perform aerial feats and evolutions impossible to the powerful short-winged birds of active flight.

(To be continued.)

CORRESPONDENCE.

THE FRENCH ALCOHOL TRIALS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to a letter signed "C. E." in your last issue, in reference to the French alcohol trials, your correspondent seems to be unaware that the nominal horse-power of various cars is arrived at through custom, and the 40-h.p. engine referred to is probably an engine giving 45 to 50 h.p. on the brake, whereas the 20-h.p. engine of the voiturette type is one, judging from its size and the speed it runs, which would give nearly 40 h.p. on the brake, so that really the discrepancy in horse-power is not very great. But, again, the two types are entirely dissimilar, the nominal 40-h.p. weighing 1,000 kilos and the nominal 20-h.p. weighing 650 kilos. Then, again, your correspondent does not seem to have taken into consideration any stoppages that either of the cars may have had during the run. Nor, again, does he take into account that the greatest factor for absorbing horse-power at high speeds is wind resistance, and that for a speed over forty miles an hour a very little gain in miles an hour means a very great increase in horse-power. How he can possibly compare mechanical application of motive power with the various disturbing factors that I have mentioned taken into consideration I fail to see. If he wants to get a real comparison, it will be best to do so on a very steep hill where there will be the least possible wind resistance.—Yours truly,

S. F. EDGE.

SIR,—The query of "C. E." in the last issue of the *Journal* opens a question of great moment to anyone contemplating the purchase of a motor-car. The following extracts, from the report of the last hill-climbing competition held by the A.C.G.B.I., may perhaps throw some light on the subject:—10-h.p. Georges Richard: number of cylinders, 2; diameter of cylinder, 100 mm.; stroke, 110 mm.; weight of car with passengers, 15 cwt. 1 qr.; speed on hill, 10.77 miles per hour. 12-h.p. Gobron-Brillie: number of cylinders, 2; diameter of cylinder, 95 mm.; stroke, 110 mm.; weight of cars with passengers, 25 cwt. 21 lbs.; speed on hill, 8.59 miles per hour.

A short mathematical calculation shows that the Georges Richard car has not only greater cylinder capacity, but nearly double the cylinder capacity per cwt. of weight to be propelled than the other car has. Does not this mean that it is the most powerful car of the two, in spite of the fact that it is credited with less horse-power? That it shows superior mileage on the hill seems to support this view. I am unable to get at the cylinder capacity of the cars mentioned by "C. E." in his letter, but suggest the above as a possible answer to his question.—Yours faithfully,

J. ORFORD.

WARNINGS TO MOTORISTS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Replying to my letter, Mr. Scriven, in your issue of the 24th inst., argues from wrong premises. He infers that I stated that the police had warned him. What I did state was that action against motorists had only been taken when warnings to them had proved of no avail. That Mr. Scriven was one of those proceeded against was his misfortune. Regarding Mr. Kershaw's letter, I would say that we are speaking of the road immediately leading into Stanningley, less than half a mile in length. The first curve (from Bradford) is, I grant, open and easy to see round, but if Mr. Kershaw can see 200 yards round the second curve, then he is gifted with remarkable eyesight, as there are several buildings blocking the view. As, from the tone of your correspondents' letters, I gather they have somewhat of a wrong idea of the reasons prompting my first letter, I would like to state that I wrote in the true interests of our sport; that my letter upheld the police (to apparently an unpalatable degree) is due to a feeling of sheer justice. Granted that some of Mr. Kershaw's remarks in his last paragraph are correct, what we have to remember is this—the police are bound to carry out the law, however silly that law may be, and that they will carry it out we may be assured, whatever we may think and feel as to the real injustice of it. In the present state of the law as to speed, and the excellent efforts being made by the Automobile Club and others for its revision, it is patent to all that every motorist ought to err on the slow side in town and suburban driving, and so not give our chances away; for, be assured of this, it only requires a few more cases of excessive speed, and perhaps a smash or two, to spoil our chance in this direction, perhaps for years. Another aspect of the case is that prosecutions beget prosecutions; thus one or two get fined in a district, the local "anti-everything" (whose idea of speed is that anything above a pony's amble is forty miles an hour) writes to the paper as to the awful doings of the wicked motorist. The Chief Constable has to take some action, and warns his men to be on the look out, and thus speeds (safe, mind you) which otherwise would not be noticed are made the subject of proceedings. We in Bradford suffered last year because one or two raced about the streets at twenty miles an hour, and turned corners at unreasonable and startling speeds, and, as a consequence, we were under a ban for months. This has now been removed and a reasonable speed arrived at by our cars in city driving. A decent feeling now exists between the police and the majority of us, and it was a desire to foster this that prompted my entering this discussion.—Yours faithfully,

HERBERT A. JONES.

WANTS TO BE A DRIVER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I was shown a paper by a friend that contained an account of a motor-car exhibition, at which all the latest machines were shown. The show was over when I saw the paper. If I had known about it before, I think I should have come up to London to see it. I haven't had any motor experience, but when I see a motor I feel that I should like to be a driver. I am fond of machinery, and if I could motor-drive I should not drive to the terror of the public. If I got used to driving I should be careful and take delight in motors. I am writing to you to ask you if any of your readers could get me into motoring. I hope I am not asking too much. Is there any difficulty or danger attached to motors?—Yours truly,

A. R.

THE DASHWOOD HILL TRIALS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reference to the recent reports, and the decision in above trials, permit me to call your attention to the following facts. In the first place, a stop of twelve minutes, on account of a broken brake, is placed against me, and the natural inference is that it was my own brake which gave way. As a matter of fact, it was the brake on the car on which my "observer" was riding which broke, and it was at his request that I stopped. Naturally I obeyed, as at starting I was told by the judge to obey the instructions of my "observer." Also, before starting from Lillie Hall an official told me that if the "observer's" car broke down I must stay with him, which I did. On the car breaking down a second time my "observer" instructed me to go on alone. I can only conclude that there must have been some oversight of the Automobile Club's officials in reporting as they did, as nothing went amiss with my Humber motor-bicycle in any way whatever.

Again, the consumption of petrol placed against the machine is quite impossible, except in the case of a leaky tank, and this was not so in my case. I can only say that from start to finish no single detail of the machine gave any trouble whatever.—Yours faithfully,

BERT YATES.

MOTOR CYCLING RECORDS.

At the Crystal Palace track, on the 24th inst., C. A. Barnes, of the Putney Athletic Club, mounted on a Mitchell 2 h.p. motor-bicycle, beat the performance which the American, G. Rogers, recently accomplished for a five-miles spin on the same track by 26.2-5 seconds.

On the following day on an "Excelsior" machine, W. R. Martin reduced this time by 52.1-5 secs., and later in the day A. A. Chase, on a new pacing motor bicycle, fitted with a Motor Manufacturing Company's motor, still further reduced the time. We append a comparison of the times of the three riders:—

	C. A. Barnes.	W. R. Martin.	A. A. Chase.
Miles.	Min. Sec.	Min. Sec.	Min. Sec.
1	1 50½	1 39½	1 3
2	3 31½	3 8½	3 1
3	5 12½	4 40½	4 26½
4	6 53½	6 12½	5 51½
5	8 37½	7 45½	7 16½

FURIOUS DRIVING CASES.

WILLIAM LEE, of 5, Margery Park Road, Forest Gate, was summoned at Stratford, on Saturday, for driving a motor-car at a greater speed than was reasonable and proper. Constable Willard, 378 J, said he saw the defendant in Aldersbrook Road, Wanstead, driving at the rate of at least twenty miles an hour. The defendant emphatically denied that he was going more than eleven miles an hour. He called his nephew, who was with him, and who gave his opinion that the pace was only eleven miles an hour. A fine of 10s. and 9s. costs was imposed.

ALBERT HOLMES, of Easthampstead Park, has been summoned at Wokingham for driving a motor-car at a greater speed than was reasonable and proper, having regard to the traffic, on the Easthampstead Road, Wokingham, on May 6th. Police-constable Finch stated that he was on duty in the Easthampstead Road, near Star Lane, when he saw the defendant drive a motor-car at a terrific speed over the crossing. Witness considered that he was going at about eighteen miles an hour. Witness held up his hand, and the defendant stopped the car. Defendant, on oath, said he was a motor-car driver in the employ of Mr. Holden, of Easthampstead Park. He proceeded through the lane at ten miles an hour, and went over the crossing at between nine and ten miles an hour. There was plenty of room for anyone to pass. The Bench considered that there was not sufficient evidence to convict. The chairman pointed out that defendant was not only forbidden to drive over twelve miles an hour; he had to drive so as not to endanger the public safety. The case under the circumstances would be dismissed.

G. ASHTON-JONSON, 23, Austin Friars, E.C., has been fined £5 for driving a motor-car beyond the legal limit. He was driving a car, with two powerful brakes, down a gentle decline between Guildford and Ripley at about twelve miles an hour. He had a stop-watch, and had timed the last two miles between the milestones, which he had done in eleven minutes—a speed of less than eleven miles an hour. Two constables suddenly stepped out and signalled him to stop, and took his name and address. One said

he had timed the car over a distance of 176 yards, and that the speed was eighteen miles. In the police-sergeant's evidence it was admitted there was no one in sight and absolutely no traffic on the road, that the car was under perfect control, and was pulled up instantly without difficulty.

The driver of a motor-car belonging to Captain Spender Clay, 2nd Life Guards, named Parrish, was fined £2 and costs by the Windsor justices for driving the car faster than twelve miles an hour.

C. H. HALE, of Quorn, Loughborough, has been charged before the North Riding magistrates at Scarborough with having driven a motor-car at a greater speed than twelve miles an hour at Leeberton on May 8th, and also with having refused to stop when requested. It was stated that, as a result of the defendant's refusing to stop, a horse plunged, and the vehicle was damaged to the extent of £1. Defendant then stopped the car, and offered to pay for the damage. In view of his straightforward and honourable conduct, the Bench intimated that they would only fine him a sum of £2 2s., and costs in each case.

WALLACE LEIGH, of Ashurst, Kenley, Surrey, has been before the Uckfield Petty Sessions for furiously driving a motor-car at Fletching, on May 11th. The police alleged that the defendant covered a measured distance of 440 yards in thirty-three seconds. He was fined £1 and 14s. costs.

HARRY COOPER was charged at the Halstead Petty Sessions with driving a motor-tricycle without sounding his hooter, and also with riding the machine to the danger of passengers upon the public highway. The defendant pleaded guilty to the first charge, but denied the second, and in the result was fined 10s. and costs for not sounding his hooter, and dismissed so far as the second summons was concerned.

THOMAS MALLON, Ann Street, Belfast, has been summoned for riding a motor-bicycle through the streets of Belfast at such a rate as to endanger the public. After the defendant had given evidence, William Pemberton declared that it was possible to check a machine of the Excelsior type within a yard when the speed was as high as twenty miles an hour. Mr. Nagle (after consultation with the other magistrates) said it did not matter materially whether the machine was going at 15, 17, or 20 miles an hour; the question was, was the rider going at a furious rate? and on the evidence it appeared that the defendant was. They would impose a penalty of 10s. and costs.

B. FITZGERALD, Duke Street, London, was summoned at Chertsey for furiously driving a motor-car at Egham on May 4th. Inspector West, who proved the case, said the speed was about twenty miles an hour. When he stopped the car the defendant said the noise the car made gave one the impression that it was going faster than it really was. Fined 40s., and 9s. 6d. costs.

BEFORE a Hampshire bench of magistrates Richard Travers Dixon, of Lang Down Firs, Hythe, has pleaded not guilty to a charge of driving a motor-car at excessive speed on the road between Alresford and Alton, on May 4th. Police-constable Percy said he was on duty in plain clothes at 4.15 p.m. on May 4th near the Chequers Inn, Ropley, on the highway leading from Alresford to Alton. He saw defendant driving a motor-car towards Alresford at a furious speed, and, timing him after he had passed a bend in the road, found that he travelled a distance of 260 yards in twenty seconds. Witness was certain of the time and distance, and added that it worked out at thirty-three miles an hour. Col. Stratton Bates questioned the constable at length as to the exact stretch of road, the position in which he was standing, and as to when he took out his watch. On the watch being produced the second hand was found to be broken. Col. Stratton Bates commented on the uselessness of the watch, and expressed the opinion that a map ought to have been produced to determine exactly where the offence was committed. In the position in which witness was standing it would be impossible to tell whether the car was going fast or not, and to get any idea as to time there should have been an observer at either end of the piece of road in question. The police were making use of an obsolete Act. Deputy Chief-constable Silience contested this point, and mentioned a case in which appeal was made on the ground that the watch used was not a stop-watch. The appeal was heard in London on March 13th last, and was dismissed with costs. The Chairman said it was for the bench to administer the law as they found it. There was no doubt defendant was travelling at excessive speed, and he would be fined £1 and 13s. costs.

At the Leicester County Police Court, George Belville, of Stoughton, was summoned on Saturday for driving a motor-car at a speed exceeding twelve miles an hour, at Oadby, on the 11th May. Mr. W. Rowlett appeared on behalf of the police, and Sir Thomas Wright for the defendant. Police-constable Payne said defendant drove the car through Oadby on the previous Sunday evening at the rate of eighteen to twenty miles an hour, and two other witnesses estimated that he was going at that pace outside the village of Oadby. Fined £5 and £1 10s. 6d. costs.

FATAL ACCIDENT.

An inquest was held at Edenham on Tuesday on the body of T. W. Cunningham, motor-car driver, in the employ of Lord Willoughby, M.P., of Grimsthorpe Castle. On Sunday morning the deceased took his brother and two of the Earl of Ancaster's employees for a short run on a 10-h.p. Wolseley car, which he had only driven from Birmingham the previous day, and while descending a small hill at Swinstead the car swerved from side to side, ultimately turned over on its left side, throwing the occupants out. All were more or less injured, and Cunningham died within two hours. One of the occupants, who is an expert driver of cars, considered that the deceased quite lost his head and put on the brakes too quickly. A verdict of accidental death was returned.

THE BEXHILL SPEED TRIALS.

In connection with the Speed Trials at Bexhill, we have received a number of letters from competitors.

The Wolseley Tool and Motor Car Company, Limited, write:—"We beg to call your attention to an error in the published results of the Speed Trials at Bexhill which affects us very seriously. Our 30-h.p. racing car, which competed in Class A (vehicles under 1,000 kilogs.) is placed fourth, and timed at 49½ secs., whereas the correct time should be given as 48½ secs., that is ½ sec. faster than the Mercedes car driven by Mr. Campbell Muir. Consequently the Wolseley should be placed third."

The New Orleans Motor Company, Limited, write:—"In your report of the Bexhill meeting we notice you state the third prize in the 'Appearance' Competition was won by a 20-h.p. Panhard. Would you please allow us to state that it was Mr. A. C. Harmsworth's New Orleans which gained this award. It may perhaps be of interest to state that, in the heat which the Committee ordered to be run between the Gladiator and the New Orleans car before deciding whether the previous heat was a good start or not, our car in beating what was declared to be the winner did the course in 1 min. 7 secs."

The Speedwell Motor and Engineering Company, Limited, write:—"With reference to the steam tourist section of the races at Bexhill, we wish to draw your attention to the fact that, although the races were supposed to be run against time, the second fastest was not recognised. There were two Gardner-Serpollet, two Miesse, and two Locomobile cars entered for this section, and for some reason the two Serpollets had to run together. The loser of this heat was, according to unofficial timing, only four seconds longer than the winner. In the final the Serpollet had to run against the Locomobile, which it beat by nearly half time, yet the Locomobile takes second honours. This is scarcely as it should be, and we would call attention to it, so that it might be guarded against in the future."

THE IDENTIFICATION OF MOTOR CYCLES.

SIDNEY MILLER appeared at the Lawford's Gate Petty Sessions, in answer to a summons under the Locomotives on Highways Act, for driving a motor-bicycle at Filton, on the 11th inst., without having the owner's name and address properly displayed on the vehicle. Police-constable Smith deposed that on the day named he saw defendant in charge of a motor-bicycle at Filton. Witness stopped him and asked him where the name and address of the owner of the vehicle were. Miller replied that they were not on the cycle. He then produced an envelope, wrote his own name and address, and affixed it to the machine. Defendant pleaded that the name of the owner was on the vehicle, but not of the required size. He was unaware that the lettering must be one inch high. Superintendent Cooke stated that the lettering on the machine was about an eighth of an inch in size. Mr. Latham, the magistrates' clerk, explained that it was the first case under the Act they had had at that court. The object of the Act was that a motor-vehicle should be easily identified. The bench decided that as it was the first case of its kind they had had to deal with they would inflict merely a nominal penalty—1s. and costs.

ANNOYING A MOTORIST.

WILLIAM EVERITT, cab-driver, of Caledonian Road, N., has been summoned before Mr. Bros, at the Clerkenwell Police Court, for driving to the common danger. Mr. Staplee Firth appeared to prosecute, and Mr. Pattison defended. Major Bailey, in command of troops in the Isle of Wight, said that on the afternoon of April 23rd he left the Agricultural Hall, Islington, where the Motor-Car Exhibition was being held, with a motor-car. In Rosebery Avenue the defendant drove up from behind with his horse and cab and cut in front of him, necessitating his arresting the progress of the car. From Rosebery Avenue to Shaftesbury Avenue defendant nursed the motor-car, arresting its progress whenever he could, and at other times cutting in front of it whenever the motor-car happened to get the lead. At the Trocadero the complainant called a constable, who took the defendant's name and address. Mr. Bros ordered the defendant to pay a fine of £2 and £2 2s. costs, in default one month's imprisonment.

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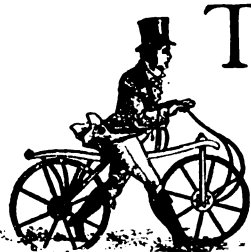
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COMMENTS.



THE cessation of hostilities should enable motor-car firms to realise the vast possibilities for an export trade that exist in South Africa. Already many motor-cars are in use in the leading cities, and others are awaiting shipment—orders having been given some time ago. Readers will be interested to know that the *Journal* has many enthusiastic subscribers in the new British colonies, and that an English firm has already some cars on the way to the mines near Johannesburg.

The Show Question.

THE history of the Exhibition question receives another chapter this week, the agreement between the Automobile Club and Messrs. Cordingley and Co. having been definitely terminated. As will be remembered, in accordance with the resolution of the trade at a meeting of the Automobile Club in June, 1901, Mr. Cordingley booked the Agricultural Hall for a certain time in 1902 and 1903. The financial obligation thus entered upon, it was understood that no alteration of the arrangements then made would be attempted. Such, however, has not been the case, and in view of the suggestions made that it was likely that the Club would give its name to an Exhibition elsewhere than at Islington, an announcement was made that it was Mr. Cordingley's intention to terminate the agreement with the Club.

No Club Show Next Year.

THE Club entered into negotiations with other show promoters, and just when it was thought that their official Exhibition would take place elsewhere than at the Agricultural Hall, the whole thing collapsed, and the patronage of the Club was withdrawn from the proposed Crystal Palace Exhibition. Exhibitors at the Automobile Show at the Agricultural Hall were so satisfied with the business done that many at once booked space for 1903, and it is evident that the trade intend to rally again at Islington next year.

Abrogation of Agreement.

SEEING that Messrs. Cordingley and Co. had adhered to the arrangement with the Club, and that the resolution of June, 1901, had not been rescinded, an advertisement of the Automobile Club Exhibition appeared last week, which has had the effect of drawing from the Secretary, under the direction of the Club Committee, a statement to the effect that the Club "will not give its patronage or name to any Exhibition so long as the trade were not unanimous on the question of exhibitions." So

that we have now a definite situation, for which the trade will be thankful, as it clears the course, and leaves everyone free to book at the Exhibition recognised by the Automobile Mutual Protection Association, and which will be the eighth of the series promoted by Mr. Cordingley. As intimated last week, the measure of support already accorded is most gratifying, and it remains but to be said that the next great International Automobile Show at the Agricultural Hall will be held from March 21st to 28th, 1903. A list of the firms who have already taken space is given on page xxxi.

An Enthusiastic Motorist.

THE photograph on another page is that of Mr. Holden, late of Eastwell Park, near Ashford, who, with his wife, is well known in London society. He is an enthusiastic motorist, as may be inferred from the fact that his motor stud includes the following:—6-h.p. Mors, 10-h.p. Mors 'bus, 10-h.p. open Mors with special body, 10-h.p. Mors landau, and 16-h.p. open touring car. He has a 15-h.p. Mors on order, as well as a Locomobile.

Brake Trials in America.

THE Chairman of the Technical Committee of the Automobile Club of America has issued a report of the brake tests recently held near New York. "Seventeen different types of motor-car, running at about eight miles an hour, stopped upon signal in an average distance of nine feet. A victoria, drawn by two horses going at a nine mile gait, required seventeen feet, eight inches, and a four-in-hand coach, running at the same speed, required twenty-six feet for stopping. At a fifteen-mile speed the automobiles stopped on signal in an average distance of twenty-nine feet, the victoria in thirty-seven feet, and the four-in-hand in seventy-seven and a half feet. At the twenty-mile speed the motor-car stopped in an average distance of fifty-three feet, and the four-in-hand coach in ninety-one feet." The report adds, "The principal results of the tests were the strong impression produced upon all that the speed of eight miles an hour is very slow indeed; in fact, more so than most spectators realised; and that automobiles can be manoeuvred with great ease and convenience."

The Insurance Question.

No joint action has been agreed upon by the insurance offices as to the insurance of motor-cycles or motor cars, the only strong point of agreement amongst them being the hazard that attaches to them and the obvious inexpediency of risking other property, such as the contents of a private house, by introducing motor-cycles with petrol into the premises. The conditions of every fire office contain a clause that if anything be done on or upon the premises to which the insurance refers, by which the risk is increased, without notice to, and the assent or sanction of the company, the insurance ceases to attach, and it is certainly desirable that the owners of motor-cycles should realise this fact. The insurance companies would prefer to take up a position

which would induce the public to keep their motor-cars and motor-cycles in separate buildings, rather than fix a special rate or frame new conditions. The foregoing represents the official view with regard to what is likely to become an important matter to motorists.

Portsmouth Automobile Club.

THE Portsmouthians had an enjoyable run to Bognor on Saturday last. The cars that started were: Mr. Cox's 8-h.p. Clement—he was accompanied by Mr. Pearson, of Sunderland, one of the head officials of the N.C.U.—Mr. G. Gale's 8-h.p. Daimler, and Mr. F. Irish's Locomobile, and also a number of cycles. Tea was partaken of at the Royal Pier Hotel, the town being reached in a couple of hours. Rain spoilt the run home, but it is a noteworthy fact that on neither journey were there any breakdowns. The Club, which was only formed this year, is thriving well, has now fifty-one members, and proposes affiliation with the Automobile Club of Great Britain and Ireland.



THE "SHROPSHIRE" AND "VIVIENNE" READY FOR THE ASCENT.
Photo by [Argent Archer].

Balloon Ascent at Ranelagh.

At the invitation of the members of the Aero Club, a large number of motorists, occupying about forty automobiles, visited the beautiful grounds of the Ranelagh Club, at Barnes, on Saturday afternoon last, to witness the ascent of three balloons. The first ascent was at 3.30 p.m., and while the preparations were being made the band of the 1st Life Guards played a lively selection of music. The first balloon to rise was the "Graphic," belonging to Mr. Frank Butler, and containing as passengers Miss Vera Butler, Mr. C. F. Pollock, and Mr. J. Holder, this being the latter gentleman's maiden ascent; the "Vivienne" was the next away, in charge of the owner, Mr. Leslie Bucknall, his cousin and Mr. Stanley Spencer being passengers; the "Shropshire" was the last to rise, with Sir Vincent Kennett Barrington, Mr. S. F. Edge, and Mr. Percival Spencer. The day was an ideal one for ballooning, and fine trips were indulged in, the "Graphic" not descending till dark, in Worcestershire, having travelled about 120 miles. Mr. Butler informs us that they had ballast enough on board to last for several more hours. They economised a great deal, by trailing their 250 feet of rope over the fields, etc. To those not expert in aerial travel it is well to mention that at least a reserve of two bags of ballast must be kept for emergencies, and in this instance the passengers on the "Graphic" had considerably more than this quantity.

The "Vivienne" descended at Warwick about eight o'clock, but the "Shropshire" did not go beyond Bicester.

Ranelagh and Afterwards.

AFTER listening to the band for some time and watching the bicycle polo players, the tea lawn being crowded, we drove our car to Sheen House, which just now is looking its best. Returning to town, and the evening being a sultry one, we made up our minds to run down to Brighton. It was after seven o'clock when a start was made, and over forty minutes were wasted in getting to the end of the tram lines along the Clapham Road. These are "up" for the purpose of laying cables, and the road is altogether in a shocking state. However, once free, we got along well, and duly passed through Reigate, where it commenced to rain. A couple of miles further on the not unusual familiar sounds of a loose chain gave warning of a puncture. The cause was a sharp flint stone, which had become embedded in the outer cover and then worked through. Putting in a fresh inner tube in the rain is not the pleasantest of occupations—but needs must, etc. A halt was made for lighting up at Crawley, and a fast run into Brighton was made, this latter place being reached a minute or two after ten, the rain still pouring.

Through Sussex Lanes.

THE Brighton headquarters of the Automobile Club are at the "Old Ship," and here we stayed. Since our last visit Mr. Burkhardt, the courteous manager and enthusiastic motorist, has built at the back of the hotel a large garage, with pit, etc., and in addition stocks petrol, etc. Sunday broke gloriously fine, and so the services of the car were requisitioned to take us *via* Newhaven to Lewes, through the most charming of country lanes. Here the day was spent, and the return journey made without incident. Monday was sultry but fine, and a non-stop run through to London was made, town being reached in time for luncheon. At several of the villages the children were met marching in procession, the church bells were ringing, and the countryside generally seemed to have given itself up to rejoicing.

Photographic Experiences.

THE motor-car races at Bexhill led to a large number of exposures by users of hand-cameras, not, it is to be feared, with great success in the case of the fastest and therefore most interesting cars. Speeds of upwards of fifty miles an hour are beyond the range of the average shutter, and practically only the users of focal plane shutters stood any chance, especially as, with the usual contrariness of events, the fastest times, observes the *Telegraph*, being done when the light was poor. However, many optimistic camerists snapped off their plates with a zeal worthy of brighter prospects of satisfactory results. Most of them would probably never have dreamed of exposing a plate under similar conditions of shutter and light on an express train, but they seemed to regard the speed of the cars as something quite different.

Motor-Cars in Parliament.

MOTOR-CARS have loomed large in Parliamentary chronicles of late, and by inaugurating a debate on the subject while the Home Secretary's salary was under discussion, Mr. Norman has rendered a service to the movement. He commenced his attack by asking a question with regard to the case of Mr. G. C. Ashton-Jonson, reported in last week's *Journal*. Mr. Ritchie declined to review the decision of the Guildford magistrates, seeing that there was so much conflicting evidence in the case. Upon that Mr. Norman waited his early opportunity and again raised the matter when a resolution to reduce the Home Secretary's salary was before the House.

Attempts at Humour.

IN the discussion Mr. T. G. Bowles made some amusing comments, starting with the suggestion that the fine should have been £10 instead of £5. If the Home Secretary went to magistrates and said the Government did not approve of the way they administered the law, some magistrates would return a very rude answer indeed. The contention of Mr. Norman was that there should be one law for an empty road and another law for a road that was occupied. To this Mr. Norman replied, and said in his view the law ought to regard the people on the road and not the road itself. Mr. Bowles added that automobiles were not prevented from going at a speed of 30,000 miles an hour for the sake of the surface of the road. The law was made for the safety of the people on the road. When these gentlemen rode this fatal and never-to-be-forgotten 176 yards, how did they know some old woman, cat, or dog was not going to turn into the road? To his mind the magistrates came to a most sound decision on the evidence of a conscientious policeman, who took the time accurately. The speech may have raised laughter, but it did not convince anyone.

Mr. Ritchie's Reply.

REPLYING on the discussion, Mr. Ritchie said that this was a case of conflicting evidence. Did Mr. Norman really seriously wish him to reverse the decision of magistrates in a case where they heard the evidence and he (Mr. Ritchie) did not? The magistrates who heard the evidence were the best people to decide as to what penalty should be imposed. The proper course was to leave the matter in the hands of the properly constituted tribunals, and he should be taking upon himself a responsibility which he ought not to exercise if he adopted the suggestion of the hon. member. Mr. Scott-Montagu wound up the debate, declaring that in the case under notice a great injustice had been done. There were benches of magistrates who carried their dislike to motor-cars to such an extent as to become prejudiced. The method of timing adopted by the police in the deliberately-laid traps was most perfunctory. On this latter point probably the police themselves would agree with Mr. Montagu.

The Identification of Motor-Cars.

THE question of the identification of motor-cars is again disturbing the peace of mind of many folks whom we thought had other duties in hand. Thus, following the lead of the Boston Chamber of Commerce, the similar organisation at Lincoln has adopted a resolution suggesting that motor-cars should be numbered with figures not less than three inches high and two inches wide, with distinctive lettering for each county. This idea is one which opens up great possibilities of complication, a fact which the wisacres of both Boston and Lincoln overlooked when drawing up the resolution. Seeing that England has forty counties and Wales another dozen, we now want someone to come forward with specific suggestions as to the distinctive marking for each county. As Surrey has taken so much interest in the matter, we await proposals from someone in that area.

District Registration.

MR MARSHALL HILL has also views on this subject, and proposes that great Britain should be divided into twenty-five districts, each represented by a letter of the alphabet—the letter I being ignored from the calculation. Then the largest police centre in each of these districts should be the automobile registration centre for that area. It should be made compulsory for every car to carry on the rear a number together with the letter of the district in which it is registered. Whilst the Lincolnshire folks would be satisfied with figuring three inches high, Mr. Marshall Hall suggests nine inches as the minimum that would

meet his desire. He thinks that in this way the difficulties of motor-cars travelling outside small registration districts would be met, and identification would be easy and certain. It certainly opens up a new idea of education for the rural policeman, who, in addition to being armed with stop watches, opera glasses and other modern instruments of their craft, will have to carry with them directories of the registration districts and probably other volumes to explain the complications of the same.

A Royal Motor Company.

AMONG the members of Lord and Lady Warwick's week-end house party at Warwick Castle have been Lord Cairns, the Hon. J. Scott-Montagu, M.P., and Mr. G. Cornwallis-West, who took their motor-cars to Broughton Castle on Saturday, to take the Duke and Duchess of Connaught to Warwick. From Broughton six motor-cars set forth, but owing to the rain two turned back to Banbury. The Royal party arrived at Warwick in a very wet condition, but, despite that, the trip by automobile was a decided success, and should do something to bring the Duke of Connaught within the pale of Royal automobilists ere long. On Sunday the King took a motor-car trip, thus emphasising the favour with which he regards the automobile.



Photo by

THE GRAPHIC MAKES A START.

[Argent Archer.

Trials Abandoned.

OWING to the refusal of the authorities of Richmond Park to allow trials of motor-cars on the test hill there, the hill climbing and consumption trials of the Automobile Club, announced to take place to-day (Saturday) have been abandoned. This regrettable step cannot be avoided, and automobilists rightly have cause to complain that the hill, so well fitted to demonstrate the capabilities of motor-cars, should be withheld from their service, especially when the proposed trials are undertaken by a

representative organisation which has hitherto conducted such tests without danger or inconvenience to the public. On Tuesday the Club held its quarterly 100 miles trial, the two cars—a Rochet-Schneider car and the Oldsmobile—starting from the new Club House in Piccadilly.

Leaving Horses Unattended.

THE folly of leaving horses unattended in the public streets receives constant illustration, and was nearly the cause of an accident at Newbury the other day. A team of horses appear to have been left unattended in Northbrook Street. Sir Francis Jeune's motor-car was coming from the railway station, having two ladies as passengers, when the horses started and rushed away in a dangerous style. They were stopped some little distance off, and fortunately no one was hurt. The driver of the car was proceeding slowly and sounding his horn; had an accident occurred, the owner of the horses would have had no one to blame but the silly custom of leaving horses unattended in the public highway. Horses are just as likely to be frightened by unusual objects passing by, and by the noise of peace celebrations, as by the motor-car; hence the necessity for them being properly attended.

The Dust Problem.

DR. GUGLIELMINETTI, of Monte Carlo, has endeavoured to find a remedy for the dust evil which arises from the motor-cars on the Riviera, and he advocates as the result of his labours the tarring of the roads. In California and other American districts water has given place to petroleum as a dust-layer. In Algiers olive oil and naphtha oil have been used since 1896. The American method is to cover the roads with a layer of heavy unrefined petroleum heated to 80° C. An asphalt-like deposit, which is solid and durable and forms but little dust in summer and no mud in winter, is formed. This roadway is greatly appreciated by drivers and a saving of 45 per cent. of watering expenses is effected. Two applications of petroleum a year are sufficient; 5,000 litres of petroleum, which cost 400 francs, are required per kilometre. But in France the cost would be five times as much. Dr. Guglielminetti therefore turned his attention to coal tar, which has been applied to roads in the Haute Garonne and in Ravenna in 1901. In the latter town 246 metres of roadway were treated with excellent results. The authorities at Monte Carlo have been induced to try the tar method on the road leading to the slaughter-house. In spite of the prolonged period of drying the results surpassed all expectations. The surface became so hard and compact that it was difficult to break up. There was no dust, and rain did not penetrate the layer formed by the tar. After forty days' traffic the surface was not damaged, and had resisted the wear and tear of wheeled traffic. The cost was from six to seven centimes per square metre. The municipal authorities and hotel-keepers of Monte Carlo are moving in the matter.

Still They Come.

IN addition to the three new sixpenny weekly motor papers announced last week, we hear of yet another. This, it is said, will be edited by the Earl of Rosslyn, who will doubtless hope to gain the favour of the trade. Certainly the automobile agents and manufacturers need not expect to be ignored by those responsible for the motor papers lately started and about to be commenced.

A French View.

ONE of the French visitors to Bexhill on the occasion of the recent speed trials was M. Paul Meyan, of *La France Automobile*. Commenting on the meeting in the columns of our contemporary, M. Meyan remarks that what struck him most was the sporting spirit which animates the English race. He was greatly impressed with the large amount of

interest shown in the trials, and is certain that on the next occasion speed trials are held at Bexhill a much larger number of French *chauffeurs* will be present.

Edison's New Accumulator.

A GOOD deal has been heard lately of Edison's new accumulator. An electrical "run-about" which was recently tested was equipped with a battery of twenty-one cells. It is stated to have carried two persons, and ran sixty-two miles, climbed several hills, and came back with only 83 per cent. of the original speed lost. Another vehicle ran eighty-five miles on level roads before coming to a stop. In the course of an interview Mr. Edison stated that his accumulator "is composed of tiny bricks specially prepared of nickel and steel, suspended in an alkaline solution. The batteries run a hundred miles without recharging, and then they are quickly charged. The only renewal necessary is the occasional addition of a little water lost through evaporation." Should the statements with regard to the new invention be substantiated it will undoubtedly prove to be an important advance. But undue stress has been laid on the fact that the car travelled between 80 and 100 miles without recharging. This is by no means the novelty which it has been taken to be. A year ago the British Electromobile Company produced a car which ran 94 miles on one charge, and distances up to 120 miles can now be covered. Moreover, the Edison accumulator is claimed to develop 1 h.p. per 53 lbs. of cell, whereas the A B C accumulator shown at the recent Exhibition gives the same result on 44 lbs. of cell.

A Battle of Flowers.

IN connection with the French charity fetes at Earl's Court, an Automobile Battle of Flowers will be held. The vehicles will be divided into six sections, viz., two-seated cars driven by ladies; similar vehicles driven by gentlemen; three or more seated cars driven by ladies and gentlemen respectively; groups of two similar cars decorated in the same style, and groups of four similar cars decorated in the same style. The Committee include Messrs. R. W. Wallace, K.C., Mark Mayhew, Paris Singer, the Hon. C. S. Rolls, the Hon. J. Scott Montagu, M.P., Stanley Spooner, Chas. Cordingley, J. Phillips, J. E. Hutton, P. Richardson, C. Jarrott, and S. F. Edge, with Mr. Edward Kenealy as hon. sec. An invitation has been sent to all the leading automobile firms in the country to take part in the affair, which promises to be one of considerable social importance.

The Manchester Club.

ON Saturday, the Manchester Automobile Club held a run to Nantwich, where the Brine Baths Hotel was made the headquarters for the day. For the convenience of members attending, three alternative routes were suggested, *via* Altrincham, Crewe, and Tarporley respectively. The membership of the Club already exceeds one hundred, and new members are constantly seeking admission. Several attractive runs have been arranged for the season. On June 14th there will be a run to Buxton; on July 12th to the Wirral Peninsula, making Leasowe Castle the headquarters; and on July 26th to the Congleton and Macclesfield District, where the members will be entertained by Mr. Gerald Higginbotham.

Steel Roads.

A COMMITTEE of the Automobile Club of America has been investigating the subject of steel roads, and the Club and several of its members have made liberal subscriptions for the purpose of building a sample section of steel road in the vicinity of New York. The Committee have been in consultation with President Cantor, of the borough of Manhattan, and Chief Engineer H. W. Onley. Speculation is rife as to whether the solution of the "dust problem" may come through "steel roads." There is no doubt that motor-cars, macadam, and high speed form a com-

bination which creates an insufferable amount of dust, and that this evil is one of the most serious drawbacks to the enjoyment of automobile travel. It is just possible that this enterprise of the A.C.A. in connection with steel roads may lead to a demonstration which will alter the complexion of road improvement problems entirely. In this respect the United States may set the pace for the world, by virtue of the very backwardness of its road system.

Roads and Transport in Madagascar.

EVER since the definite conquest of Madagascar by the French in 1895, the great problem to be solved has been the creation of roads to transport men and goods from the coast to the capital, Tananarivo. The newly completed macadamised road, which has in the main followed the old native track, is undoubtedly a remarkable piece of engineering. The gradients nowhere exceed the limits of safe locomotion by carts, carriages, bicycles, or automobiles. The road is just 150 miles long in its circuitous track, though under 100 miles as the crow flies. For some years to come the interior transport of the country will be by the macadamised road mentioned, and the question of what will be the system of vehicular traffic has yet to be solved. Hitherto, goods have been transported on men's shoulders, one man carrying from 60 to 80 lbs. The first tentative departure

rettes, and six or seven large cars, in addition to those used in the mail service. By the courtesy of *La Revue de Madagascar*, we are able to reproduce on other pages of the current issue some interesting pictures of the motor-cars on the Island.

Alcohol Motors.

IF, as has been maintained, the alcohol motor has no future for motor-car work, and is inefficient and far more costly to work than the petrol or oil motor, one would scarcely feel inclined to believe it after looking over what has been accomplished with it in France and in Germany. Indeed, Mr. Frank H. Mason, in an article on heat, light, and power as obtained from alcohol in Germany, in the June number of *Cassier's Magazine*, furnishes excellent illustrations of the fact that the "spirit" motor, as it is called in Germany, is even now being applied to a wide variety of uses, not the least of which is the driving of all kinds of vehicles. Perhaps, therefore, the alcohol engine is not nearly so bad as it has been painted. Then, too, it must be borne in mind that the matter of economical work depends very largely upon the relative prices of oil and alcohol, and the price of the latter, particularly in Germany, has been brought down to a very low figure, so that the increased consumption of alcohol in a spirit engine over the quantity of petroleum essence

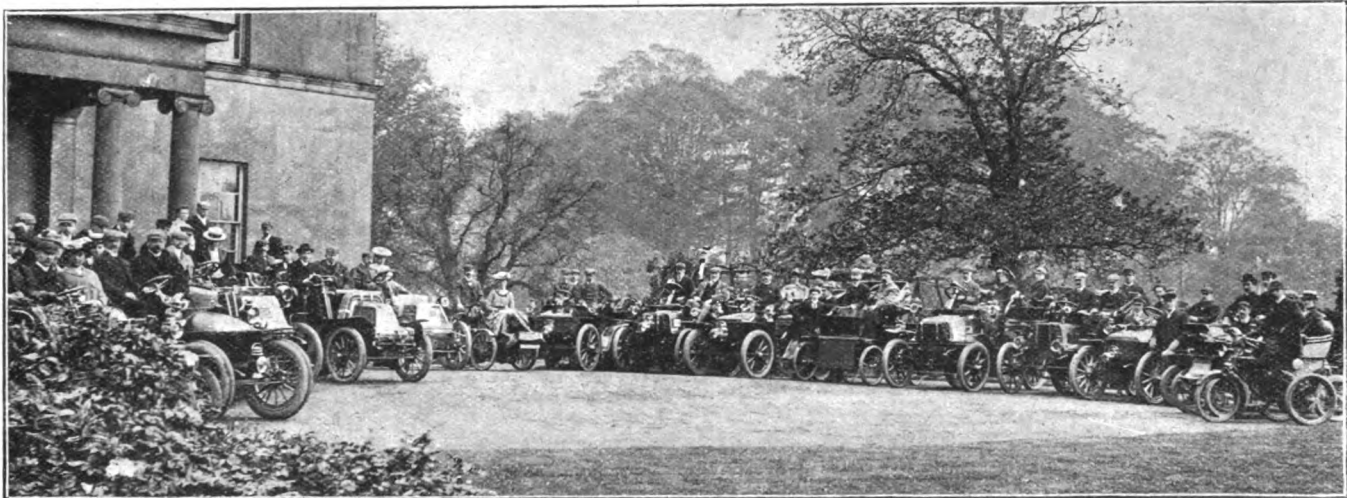


Photo by]

THE MEET OF THE MANCHESTER AUTOMOBILE CLUB AT NANTWICH.

[R. Banks.

from the old methods was a convoy of three American waggons, each carrying about 12 cwts. (i.e., about fifteen men's loads), and drawn by four oxen, the journey occupying thirteen days from Mahatsara to Tananarivo, a distance, as already mentioned, of 150 miles. Several small enterprises have followed, such as mule carts, ox carts, and hand trucks, but nothing has yet been established on a large scale.

An Automobile Mail Service.

SINCE the early part of 1900 the enterprising Governor-General of the Island, General Gallieni, has been making extensive experiments with motor-cars in connection with the transport of the mails between the coast and the capital. These trials have been so successful that five vehicles, all Panhards, are now in use, and a further number are to be put to work on the completion of a road to Tamatave. Tananarivo itself is built on a hill. Round the base of the hill a magnificent esplanade, twelve miles in circumference, has been constructed, and this is largely used for carriages, horses, and promenaders. Circulation over intermediate parts of the city must be made in "filanjana," or chairs, the hire of which is regulated by a tariff, as with cabs at home; for, unless one be a trained athlete, walking is painful. At present there are in the city seven motor-cycles, several voitu-

required for the same power may not be worth much consideration. But, whatever the disparity of costs may be, alcohol, as claimed by its advocate, has many inherent virtues to recommend it for power purposes.

THE Automobile Club will have a run to Folkestone on Saturday, the 21st inst. Tea will be taken at the Crown Hotel, Sevenoaks, at 4 o'clock.

A FURTHER meeting in connection with the formation of the Lincolnshire Motor-Cycle Club has been held, at which the rules were adopted, and the question of a badge deferred for a few days.

At the Bath and West and Southern Counties' Agricultural Show held at Plymouth last week, interest was taken in the two Wolseley cars which were on view at the stand of Messrs. Hill and Boll.

SEVEN summonses for furious driving were down to be heard at Uckfield on Thursday last. The alleged offenders were Messrs. A. T. Mulliner, E. Midgeley, G. Kenyon, A. E. Crowder, W. J. Peall, and E. de Wilton.

THE Roads Improvement Association is urging the Commissioner of Police to call the attention of railway companies, carmen, and others to the penalties imposed by Section 78 of the Highways Act, 1835, upon drivers who, by not keeping to the left or near side of the road hinder the free passage of other carriages.

The French Alcohol Motor Competition.



THE CIRCUIT DU NORD.



THE CONTROL AT ARRAS.
THE FRENCH MINISTER OF AGRICULTURE AT ARRAS.

THE HEADQUARTERS AT ARRAS.

THE ENTRANCE TO THE GARAGE.
THE CARS IN THE GARAGE AT ARRAS.

OUTSIDE THE GARAGE AT ARRAS.
THE PANHARD ACCESSORY-CARRYING CAR.

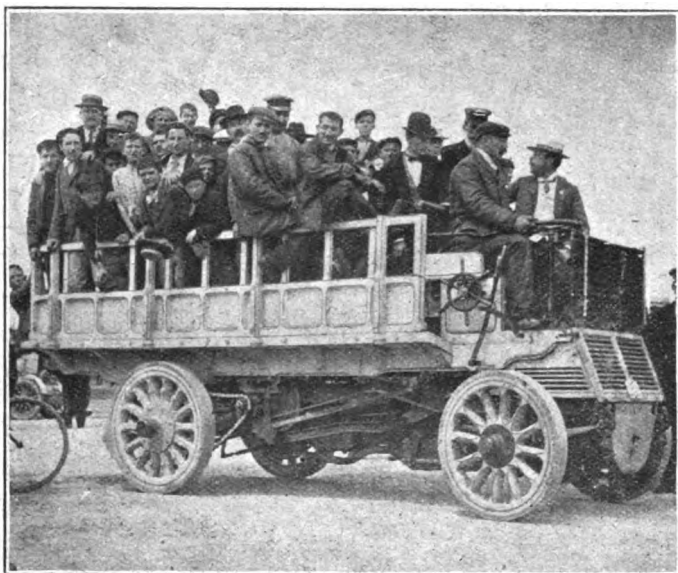
THE CONTROL AT ST. GERMAIN.
[La France Automobile.]

AUTOMOBILE FÊTE AT NAMUR.

By AUTOMAN.

LAST Sunday and Monday the automobile competitions at Namur took place under favourable atmospheric conditions. Namur is a picturesque town on the banks of the river Meuse, the chief feature being the "citadel," which is a fortress situated on a precipitous hill which towers over the town and almost cuts it in two. The two principal events were the hill-climbing trial and the Belgian kilometre record.

From the point of view of the spectator, no hill-climbing competition could be better placed, for the hill in question is a zigzag road, two kilometres and a half in length, and with very stiff gradients, right up the face of the hill, in such a manner that the spectators can watch the progress of the cars up the face of the hill without any difficulty.



THE GOBRON-BRILLIÉ PETROL LORRY.

In addition to speed, great skill is required to safely negotiate the turns, which are the most severe that I have ever experienced. A voiturette and a bicycle came to grief at the first turn, and there were many narrow escapes.

The hill climbing trials commenced at 9 a.m., and there were nineteen competitors, with the following results:—

1. Wilford, on a tricycle, in 2 minutes, 43 $\frac{3}{4}$ seconds, at an average speed of 62 kilometres, or 38 $\frac{1}{2}$ miles per hour.
2. Roland, on a Gobron-Brillié, 3 minutes 15 $\frac{1}{2}$ seconds, at an average speed of 48 kilometres, or 29 $\frac{1}{4}$ miles per hour.
3. Dechamps, on a Dechamps, in 3 minutes 19 $\frac{2}{3}$ seconds, at an average speed of 47 kilometres, or 29 $\frac{1}{4}$ miles per hour.

After the racing cars had completed their trials, M. Roland, of the Gobron-Brillié Company, negotiated the hill successfully in a 20 h.p. petrol lorry with forty passengers. It was really a remarkable sight to see this monster with its living load rolling up the hill with the greatest ease and at a good pace. M. Roland tells me that it is capable of doing twenty kilometres (12.2 miles) per hour on the level, with a load of six tons.

The honours of the day were divided between Gobron-Brillié and Dechamps, the latter winning the 1,000 kilogrammes class, and the former the 650 kilogrammes class.

ACCORDING to a contemporary, a gentleman owning a "sixteen-horse car" is a motorist.

MR. RUDYARD KIPLING and Mr. Beerholm Tree have become members of the Automobile Club. M. Léon Serpollet has also been elected to membership.

MOTOR SERVANTS.

A COMMITTEE of the Automobile Club having considered the question of the training and engagement of motor servants, has now suggested that the Club might purchase a vehicle, and that the keeper of the Club motor store-house should devote his spare time to the training of those who desire to become motor mechanics. It is thought that the training might consist of:—(1) Elementary instruction in the principles of construction of the petrol engine; (2) instruction in tube ignition; (3) instruction in the various forms of electric and magneto ignition; (4) the instructor might disarrange the mechanism of a car in such a manner that it would not work, and then require the servant to put it right. For instance, unknown to the servant, the instructor might place water in the carburettor; might short-circuit the electric system; might insert a cracked ignition plug or a cracked ignition tube; might break an electric contact; might loosen the screw by which the earth-wire is attached to the frame; might block the petrol pipe; might derange the timing gear, etc.

The following recommendations have been made:—That as the nucleus of a school of instruction for motor servants, the training of servants be undertaken at the Club motor house, such training to be confined, in the first instance, to petroleum spirit cars; that the training be confined, in the first instance, to servants selected by members of the Club, and sent by them to the Club for training; and to men who may be selected by the Club at the request of the members for training for them; that if there are sufficient learners, demonstrations in the working of different cars of the various manufacturers and agents be given before them.



M. DÉCHAMPS ASCENDING THE HILL.

In this connection the Committee suggest, as a financial basis, that the life of a car costing, say, £250 be taken at three years = £80 per annum; add for repairs, £50; say, per annum, £150. It is thus estimated that the cost to the Club would be about £3 per week. It is suggested that the Club should charge a member £3 3s. for the training of the servant, the time of training to be limited to three weeks. During the training the man is to be kept and paid (if necessary) by the member, not by the Club. The candidate would not be allowed to touch members' cars, except for washing, etc., under the direction of the Club motor house-keeper.

With regard to the engagement of motor servants through the Club no fee is, at present, to be charged the applicant, but the member of the Club engaging a man on the Club register will be expected to pay a fee of £1 1s. Mr. E. H. Lancaster, who has been motor engineer to Mr. Harmsworth, has been appointed to attend to the cars of members and to train servants.

CAUSES OF FAILURE IN MOTOR-BICYCLES.

NO doubt the chief causes of the failure in motor-bicycles last year, when there were practically but three makes on the market—namely, the Werner, Minerva, and Singer—were due to carburation, as all these motors are fitted with surface carburettors. I will confine my remarks chiefly to the Werner motor-bicycle, 1901 type, with which I have had a good deal of experience. In warm weather there is not much difficulty experienced as regards the carburettor giving off sufficient gas to supply the motor. At all times, however, whether summer or winter, the surface carburettor which is fitted was a source of great trouble, owing to the fact that in riding the machine over very bumpy roads the petrol in the carburettor is thrown about, and thus it gives off more gas than is required, affecting the running of the motor considerably. This difficulty is only overcome

the best results from the engine, a remark which applies to all machines in which the trembler is on the engine. I have had very little trouble with the belt, particularly after the first fortnight's usage. The belt on the front-driving Werner is of V shape, and I recommend that a new belt should be oiled with castor oil, by suspending the belt and letting the oil run down the groove. A belt thus treated certainly grips better, and its life is prolonged to a very large extent.

Another cause of the motor not running well arises from trouble with the inlet valves. There is no doubt that in runs of an hour's duration, or longer, the motor gets extremely hot, causing the inlet valve stem to stick owing to oil or by the by-products of the explosions getting on the stems. There are two ways of getting over this difficulty. One is by taking out the inlet valves and well washing the stems with the finest blacklead and petrol, which on evaporation leaves them well coated with blacklead, which I have found to be the best lubricant where great heat



THE MADAGASCAR AUTOMOBILE MAIL SERVICE—THE FLEET OF CARS AT TANANARIVO.

by controlling the air inlet. What is wanted in cold weather to give satisfactory running with the 1901 Werner is that the carburettor should be warmed with the pipe from the exhaust. This has been done by a number of Werner riders by using a flexible tube from the bottom of the exhaust box to the tank, but it is not altogether an easy matter, as the motor, being on the head stem of the bicycle, moves independently of the carburettor.

Another source of difficulty lies in the fact that the induction coil is situated on the seat pillar stem, and is close to the back wheel, which, in wet weather, throws up a quantity of mud, and very often causes a short circuit which at once stops the motor. This trouble is only overcome by thoroughly drying the wires. The covering of the coil is a matter which should also be attended to by users of the Werner.

Stoppages are also often caused by poor adjustment of the blade. A little time and patience spent on the adjustment of the platinum-tipped screw, where it comes in contact with the trembler, is well spent. The point of the platinum-pointed screw, too, must be kept in first-rate condition by the aid of a very fine file—a watchmaker's file is found the most suitable—in order to get

is generated. In the event of a stoppage on the road caused by the inlet valve sticking, a little petrol squirted by an ordinary bicycle lubricator on to the stem will overcome the difficulty very easily.

With regard to the use of petrol for starting the engine, this I invariably use when first starting out, squirting a little into the combustion-chamber through the compression cock. This enables the motor, in nearly every case, to be started after a few turns of the pedal. Another cause of failure in the old Werner was often due to the fact that the reserve petrol tank was not fitted with a small tap to allow air to get in as the petrol fed into the carburettor. This was a great stumbling-block to many riders of the machine, for, as the petrol fed into the carburettor, a vacuum was set up, which eventually stopped all further flow.

T. UNDERWOOD.

MESSRS. HOYLE BROTHERS AND Co., LIMITED, of Brighthouse, have taken up the construction of motor-cars, to which they have given the name "New Century."

FROM LAND'S END TO LONDON.

BY MRS. HENRY EDMUNDS.

AS many readers have shown interest in my husband's account of "Antrona's" run to Cornwall, perhaps they may care to read the story of the return journey, written from a lady passenger's point of view. Falmouth is situated in a very hilly district, and after "Antrona's" arrival the rain fell every day, so that we had little opportunity of going about; but on Sunday "Antrona" took us to church, much to the surprise of some of the residents, who were not in the habit of seeing that sort of vehicle in front of the church door.

The morning of the last day of March promised to be fine, so our party of five (including a guest from London, who had never before ridden in a motor-car), started for the Lizard, the car climbing the steep hills which surround Falmouth, up among the granite quarries, the views of coast scenery seen from the hill tops being very fine. Soon we turned inland and went along a narrow road over rugged granite hills until we suddenly came to a halt, for, blocking the way, was a huge load of granite on a heavy trolley, the axle of which had broken. Every attempt to pass proved futile and we turned homeward and gave up all hope of seeing the Lizard that day. The weather had broken and a fine rain was falling, so we were somewhat resigned to the disappointment, especially when we heard later that the weather had been very wet at the Lizard.

However, it does not always rain, even in Cornwall; a change came, the sun appeared, and "Antrona" left the Falmouth Hotel on the morning of April 2nd for a journey to Land's End and the Lizard. We passed through Falmouth's tortuous streets up over a most trying hill, on to Penryn to the bridge, where we were stopped by a man who said that the bridge was closed for repairs. The climb up the long narrow main street of Penryn was one to be avoided, if possible, so much argument was used to induce the keeper to open the gate; he finally yielded, and the car passed over the gap left by a broken plank and went slowly on through the village.

The day was to prove eventful; soon one of the little things which happen to motor-cars afflicted "Antrona," and diagnosis took time, during which her passengers enjoyed the beauty of the surrounding country and studied character by watching the village children who gathered to look at the car, which was a novelty to them. Again and again "Antrona" started and stopped until a drop of oil found the required spot, and then we went steadily on to Redruth, passing a number of old mining shafts. It was sad to see only the debris of a past industry, and we hoped that in the near future means might be found for profitably working the mines and so bringing the tin from the deeper veins, which still lie untouched, to the surface.

At Redruth a number of people seemed to take an unexpected interest in "Antrona's" approach. The landlord of the hotel appeared, conducted us indoors and explained that there had been a rumour that the King was coming on his motor-car. After doing justice to a good lunch we started to continue our journey, and found, to our surprise, that the streets were lined with expectant crowds, loyally displaying patriotic bunting, and eager to show their devotion to their King. Would that it might have been more suitably rewarded. The crowd continued to line both sides of the streets for a couple of miles, until Camborne was passed. Many took off their hats to the man at the wheel; but, alas! the people were looking for their King and not a fellow-subject.

We went on through Hayle, and stopped at a railway station, where two of the party left us to travel by the prosaic railway to Newquay; we then continued our journey to Penzance, arriving at the Queen's Hotel a little before six o'clock. Information about the locality, and particularly about the state of the roads, was gleaned from fellow visitors, one of whom, an artist, joined us on Thursday morning for a run to Land's End. This was one of those perfect days which only occasionally fall to the lot of humanity, and which will always remain a living memory. "Antrona" carried us over the hills on towards Land's End. The

limit of road travel was reached and a most glorious view lay spread out before us. The brilliant colouring was marvellous; the rocky headlands jutted out into a sea where emerald, turquoise, and sapphire tints blended each into the other, with a purple glow in the distance which defies description. The spring sunshine glinted back from every wavelet, and the blue sky was flecked with snowy clouds.

The return journey to Penzance was made by St. Just, over very good roads, and our guest was greatly impressed by "Antrona's" power, especially by the fact that it was not necessary to walk up the hills. Penzance was reached in time for lunch, where the photograph shown was taken, and a start made for the Lizard. The sun shone brightly as we passed St. Michael's Mount, the picturesque seat of Lord St. Levan, recently visited by the King. The horses in this part of the world are unaccustomed to motor-cars, and their drivers more so; one group of vehicles made a most ludicrous picture. The first, a carriage drawn by two horses, stopped, and frantic gestures blocked "Antrona's" approach until the occupants alighted and sought refuge in a neighbouring field; the horses looked mildly at us as we passed on toward a heavy cart drawn by three horses tandem,



MR. EDMUNDS AND PARTY AT PENZANCE.

whose driver pulled off his coat and standing on tip toes tried to hold it over the eyes of the leader, to shut out the awful sight of "Antrona's" approach. A third team nearly blocked the way; but soon all were passed. Not one of the horses in this group was restive, it was the people in charge of them who showed most unreasoning fright. Many times one of our party went and helped frightened drivers and led the horses past the car. In each case the horses showed that they did not fear the motor when they were properly handled. After a delightful run of an hour and a-half the Housel Hotel at the Lizard was reached in time for dinner. The sunset threw vivid lights on the wonderful view; and the brilliant colouring nearly equalled that seen at Land's End earlier in the day. It is almost unprecedented to visit Land's End and the Lizard in one day and only possible by motor-car. The distance travelled was fifty-three miles over very hilly country. We started at 10 a.m. and completed our journey before 6 p.m.

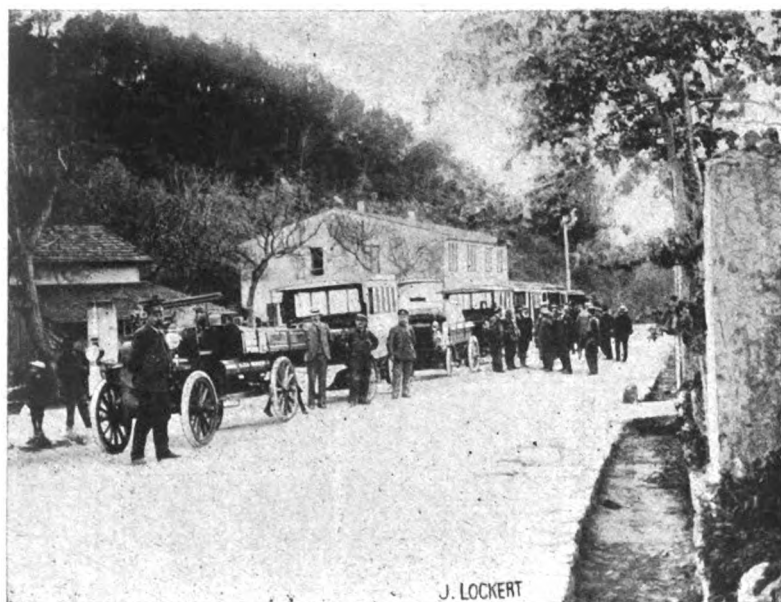
The start for London and home was made on Friday. We left the Housel Hotel at 10.15 a.m., went steadily on, overtaking a carriage which had started some time before to carry passengers to Helston, the nearest railway station, eleven miles from the

Lizard. We soon passed Helston. The moorland, with its golden gorse, faded away in the distance; and the rich agricultural country came into view. Falmouth lay some distance to our right. The landscape was very undulating here, and beautifully diversified; primroses crowded together on the hillsides and a few trees were putting forth their first leaves. We occasionally passed stone crosses carved with interlacing osier patterns, and interesting in recalling the early days of Christianity, before there were large churches in Cornwall, and when open air services were the rule. The cross then marked the place where the congregation gathered. "Antrona" went rapidly on until Truro was reached and a halt made at The Red Lion Hotel, and at 1.30 we restarted towards Ladock, passed through it, and went on over a very good road to St. Columb, a long straggling town with quaint old houses. As we went down the hill toward the Market Place two ladies, in frantic terror at our approach, dragged their pony out of the way; a man came out to help them, and each pulled the poor animal in a different direction. I wonder he survived such treatment.

Another steep climb awaited us, followed by a descent to Wadebridge. Then we went up and up to Camelford; rain had

delighted with the sensation; a dozen children packed in at once made a charming picture.

We left Yeolmbridge on Monday morning at 9.45; went through Launceston, and soon were up on Dartmoor, with the golden gorse about us as far as the eye could see. The east wind blew in our faces, but we were thoroughly warm in our nest of rugs; and even the invalid of the party felt refreshed and invigorated by this method of open air treatment. A halt of a few minutes was made at Okehampton, where our driver refreshed the inner man, and then went on to Exeter, arriving there at 1.45 p.m. The road surface was much better than on the journey down, as the new "metal" had been rolled, and only a few patches of rough stones were encountered. At Exeter we stopped for lunch at the Royal Clarence Hotel, and afterwards visited the Cathedral, and much admired the beautiful vista of the nave, with its fine Gothic pillars. Time pressed, however, "Antrona's" store of petrol was replenished, and we left the hotel at 3.30. A few horses objected to our approach, and we had one narrow escape from a serious accident. A pony and trap backed into a young horse (drawing an American trotting car), which was also much frightened at our approach, and turned



SOME OF THE CARS AT LA TURBIE.



THE DE DIETRICH AT AUTUN (SAONE ET LOIRE).

THE PARIS-NICE HEAVY CAR TRIAL.

begun to fall and the steep descent through the town was made more difficult by the wet. Suddenly "Antrona" side slipped and turned almost against one of the houses, quivered, then righted herself, and, guided by careful hands, crept inch by inch down the steep hillside and out into open country; another climb to about 1,000 feet above sea level, and then on to Davidstow, and again out on to the open moorland. Some horses were grazing here by the road side, and they took the road directly in front of us, and trooped along ahead. The rain fell heavily, so the hood was put up, which thoroughly sheltered those of us who occupied the back seat. The man at the wheel had a hard task in guiding "Antrona" down the long steep hill, as the surface was very slippery, and the last two hours' journey proved the most difficult and trying of the run both to the car and to the driver. We passed through Launceston, riding slowly down the steep St. Thomas's hill, and then across the line into Devonshire to Yeolmbridge, where our day's journey ended and friendly voices welcomed us with true West Country hospitality. The day's journey was a record one—from one end of the county to the other. Ten gallons of petrol were consumed from Penzance to Launceston, including the journey to The Lizard. The steepest gradient encountered was one in eight, and the greatest height reached 1,000 feet. The village people took a great interest in the motor-car, and many of them were taken short rides on it, and were

so sharply at right angles as to nearly overthrow the carriage, in which two people were sitting. "Antrona" stopped, and our man was soon at the horse's head, and led him safely past.

The direction posts indicated that we were on a wrong road; so we made many enquiries as to the way to Honiton, and there was much difficulty in finding any one who could direct us. At length a cross road was pointed out, which led us directly to the main road, and after that we went on over the steep Straightway Hill to Honiton. We stopped for tea at the hotel, then went on through the broad main street and found that a long climb awaited us, succeeded by a curving descent that seemed interminable. We wound through the picturesque village of Yarcombe and crept slowly down the hill, when smoke began to issue from the band brake, which had been overworked; so we stopped for several minutes to let it cool, and enjoyed the view of the surrounding country. On arriving at Chard we were welcomed by our friend the Mayor, who met us in the street waving the telegram we had sent to tell of our coming. He had only just arrived from London, so we met most opportunely. We reached the George Hotel at 6.30, where we were very comfortable. The following morning our friends took a run on "Antrona" to Ilminster, while some of us explored Chard and learned many interesting things about the place. It is the highest town between the two Channels, and a stream

of water flows each side of the main street; one of these reaches the Bristol and one the English Channel.

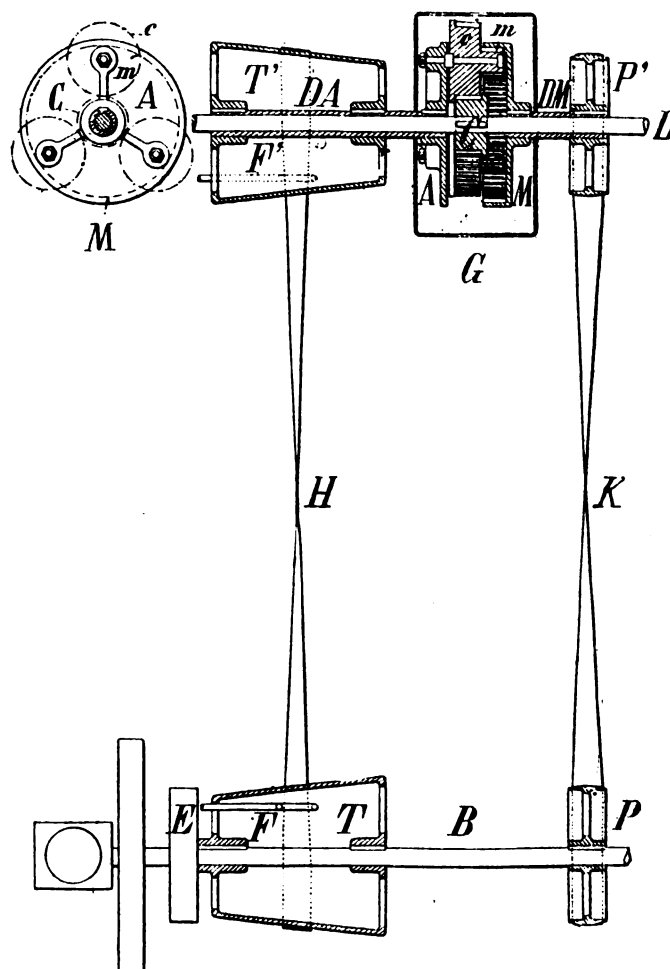
We started at 3.30, carrying pleasant memories of our visit to Chard. Crewkerne, Yeovil and Sherbourne were passed in quick succession, but night approached; so we decided to remain in Shaftesbury instead of pushing on to Salisbury. The road to Shaftesbury is broad, with good surface, and winds up the hill with an easy gradient; Shaftesbury is a "city set on a hill" more than 700 feet above the sea level. Three counties meet in the park, which commands an exceedingly beautiful view. We spent the night at the Grosvenor Hotel, where we were very comfortable and slept as only motorists can sleep after a day's touring in the keen April air. Our time in Shaftesbury was short; but we made a mental note to go there again at the earliest opportunity. There is much of interest in the neighbourhood and it is a delightful place in which to stay. Wednesday morning saw us start early, soon after nine, as we wished to reach home that day, and we went through most beautiful country for ten miles or so, when our batteries gave out, and refused to do any more work, although some time was spent trying to persuade them to do so. Presently the burners were lighted, and we continued our journey with tube ignition. At Salisbury we enquired the way through the town of a clergyman, who most kindly mounted his bicycle and acted as our pilot, thereby saving much trouble and delay; he led us through one street after another and around corners quite unknown to us and left us in the main road for Andover, which led over the bleak Salisbury Plain, where the east wind blew with unabated vigour. We managed to keep warm, however, and we arrived at Andover at 1.15 p.m. The stock of petrol was replenished here, and we left, after lunch, at 2.30. The burners had given some trouble, and finally brought us to a stop a little while after leaving Whitechurch, in a small village where most of the male population gathered to look at "Antrona." An old man, evidently bewildered at such an innovation, walked away, shaking his head and saying, "I be feared to look at un." However, he came back and looked until we again moved on, only to stop a little further up the hill. Then our last trump card was played, a spare battery was connected up, and the effect on "Antrona" was magical; she went on in splendid form and soon made up for lost time. Basingstoke soon lay behind us, and on we went through beautiful country, which we admired greatly, and we found that, even after seeing the rocky headlands and steep hills of Cornwall, and the wild moorland and charming valleys of Devon and Somerset, the softer loveliness of the home counties appealed to us more than ever. We passed Bagshot, and on to Egham "Antrona" quickened her pace. We looked into Windsor's great forest, then Staines and Kingston were passed and home reached at 7.45 p.m.

"Antrona's" journey to Cornwall and back is a thing of the past; but she deserves a word of commendation for so bravely doing her part. All her mechanism did very good work under most trying circumstances. Steep gradients, rough surfaces (sometimes wet and slippery) all combined to make the journey a difficult one. The Collier tyres were a great comfort, as they gave no trouble and brought us to our journey's end without giving any anxiety. May I also add a word in praise of motoring as a health restorative, for I had been weakened by months of painful illness and was unable to walk, or endure much fatigue, before this tour, and the hundreds of miles of travel in the open air have been of great service in restoring my health? I therefore recommend motoring as the finest tonic possible.

In consequence of the rapid development of their business, Messrs. Panhard and Levassor have acquired more extensive premises, situated in Kimberley Road, Willesden Lane, Edgware Road, N.W. The new works have been built to enable all repair work to be executed with accuracy and despatch. A large stock of spare parts and accessories for Panhard cars of all types is kept on hand.

THE MASSIGNON VARIABLE-SPEED GEAR.

A NEW variable-speed gear has recently been introduced by M. Maurice Massignon, of St. Mandé, France, by means of which any desired forward speed and a reverse motion can, it is claimed, be obtained. Referring to the accompanying illustration, for which we are indebted to *La Locomotion Automobile*, *B* is the motor-shaft, *T* is a conical pulley, and *P* an ordinary pulley fixed to this shaft. Power is transmitted from the pulleys, *T* and *P*, to the counter-shaft, *D*, by means of the belts, *H* and *K*, the cone pulley, *T'*, keyed on the hollow shaft, *BA*, the plain pulley, *P'*, on the hollow shaft *DM*; and the epicycloidal gearing, *G*. The latter consists of an internally-toothed wheel, *M*, keyed on the end of the hollow



shaft, *DM*, and rotating at the same speed as the motor, through the intermediary of the pulleys, *P* and *P'*, and the belt *K*, 2, a disc, *A*, keyed at the end of the shaft, *DA*, rotating at variable speeds by means of the cone pulleys, *T* and *T'*, and the belt, *H*. The disc, *A*, carries a number of double planet wheels, *c*, meshing with the pinion, *C*, on the shaft, *D*, and the pinions, *m*, meshing with the internally-toothed wheel, *M*. The action of this device will readily be seen from the illustration. The striking forks, *F* and *F'*, permit the position of the belt, *H*, to be varied upon the cones, *T* and *T'*, and hence cause the relative speed of the second member of the epicycloidal gear to be varied within certain limits. By regulating the position of this belt, the speed and the direction of rotation of the shaft, *D*, can be varied at will.

THE exports of motor cars and parts from the United States during the month of March amounted to £17,670.

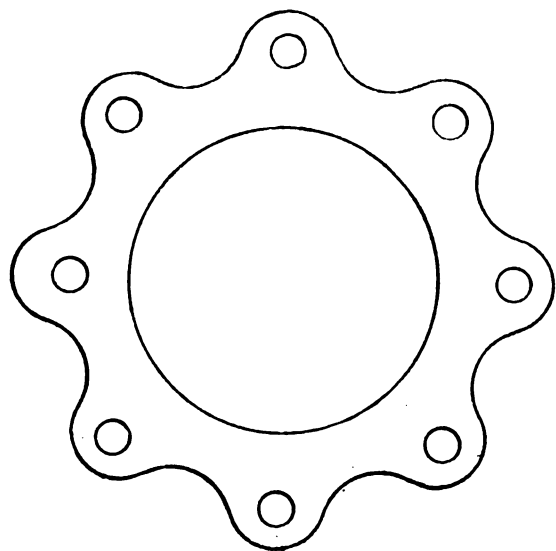
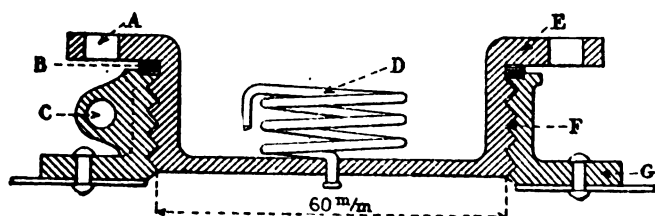
CONTINENTAL NOTES.

BY "AUTOMAN."



WITH the return of the hot weather the dust question comes up again. There are two evil spirits hovering over automobilism and endeavouring to dull the keen edge of the motorist's pleasure, and each one representative of a season. The side-slip fiend, now that the winter is gone by, is forgotten, save for an occasional reappearance after a shower; the dust fiend, however, takes its place, and inventors set their brains again to work to find a means of "laying the dust." This dust question has been particularly baneful on the Riviera, where the favourite Corniche drive between Nice and Monte Carlo has become almost impossible to the pleasure seeker on account of the clouds of dust occasioned by the automobilists.

In connection with the recent alcohol fuel consumption trials in France, a special fitting was designed for the fuel tanks, with which all vehicles competing had to be provided. The rules of the contest referring to this part were as follows:—The tank must be fitted with two openings for filling, each 6 centimetres (2.4 in.) in diameter. The plug of these openings must conform to the design shown herewith. The openings must be



located in the upper part of the reservoir and at opposite sides to facilitate the filling and the escape of air. The openings must be readily accessible to permit a rapid filling and measurements of the liquid remaining in the tank. The tanks must not have any plunger tubes nor separating walls on the inside. The walls of the tank must be perfectly rigid and incapable of bulging. The contestants are required to so locate their fuel tank that it can be inspected by the commissioners from all sides. Simple piping must be employed to connect it to the carburettor; the fuel admission opening will be stamped. The contestants must state the exact capacity of their tanks, in litres. Every vehicle will be equipped with a rule, with a scale indicating the quantity in litres of fuel in the tank by being immersed in it vertically.

THE Paris-Vienna motor-car race is authorised now officially by the French Government. The date has been fixed for June 26th, 27th, and 28th—that is to say, coincident with the Coronation. It is a pity that this date should have been selected, for it will prevent many people who take great interest in it from participating as competitors or spectators, and the interest in it in England will be swamped by the excitement of the Coronation *fetes*. It is unlikely that the Swiss authorities will be persuaded to allow any racing on their territory, but there is no knowing. Ideas are undergoing a rapid change on the subject of automobiles, and the reign of common-sense will no doubt reach the Alps in due course.

Two new bye-laws have been added to the racing rules by the *Commission Sportive* of the A.C.F. In the first place, "rescue cars" along the line of route are forbidden, and any firm employing them will be subject to disqualification, which will apply to all the cars of its manufacture. It was fast becoming the custom in road racing to send a car after the racers, carrying spare parts, so that in case of an accident to a small part it could be replaced on the road, and the race continued. These "rescue cars," not being in the race, were in the habit of rushing at full speed through the controls, and of passing and repassing the racers, and the suppression of this nuisance is a move in the right direction. The second innovation is the veto which is put on all racing trials over the course before the race, and any racing car seen exceeding the regulation speed will subject the driver and the maker to disqualification without the return of the entrance fee. The bye-law is the direct result of what occurred on the Nice-Abbazia road just prior to the date fixed for the race. There is but little doubt that the authorisation was withdrawn on account of representations made by influential persons along the route, owing to racing cars having tested their speed in an inconsiderate manner on the roads, scattering havoc amongst the domestic animals and frightening the peasants. To prevent the repetition of these difficulties the A.C.F. have taken a wise decision, and mean to enforce it sternly. Those who want to study the route had better take a slow car and run it steadily, as correspondents along the route are on the look-out for offenders.

THERE are altogether 145 entries for the Paris-Vienna race up to the time of writing, and the lists remain open until June 15th. It is therefore likely that nearly 200 entries will be received. There will, of course, be many cars scratched, but a field of from 80 to 120 will probably remain and come up to the starting post. It will therefore take from two and a half hours to four hours to get them all off, at the very least computation. The conditions this year, it must be remembered, are much more severe than last year, and it may be safely predicted that a large proportion of the starters will not get through at all. I shall be surprised if one-half reach Vienna. All the repairing has now to be done on the road, and the simple fact of having run through from Paris to Vienna in the stipulated time will be a recommendation for any make of car.

THE French papers are having a good laugh about Edison's new battery applied to motor-cars. The battery may be a wonderful and useful invention, and a great improvement on anything that exists, but this needs yet to be proved, and Mr. Edison, before startling the world with an automobile drive of 100 miles on one charge, would have done better in first getting to know what other people have already done. Both Krieger and Garcin covered 125 miles on one charge more than a year ago.

THE Alcohol Exhibition in the *Gallerie des Machines* continued to be a great attraction to automobilists all last week. On Friday morning M. Loubet, the President of the Republic, paid a long visit to the show, and went round to all the stands, accompanied by the Minister of Agriculture, M. Jean Dupuy. The President takes a great interest in the motor-car movement, and he complimented the successful competitors in the various trials.

WHEEL STEERING DEVICES.

WHEEL steering devices belong to two general groups, viz., (1) those that are reversible, and (2) those that are irreversible. Both types have their advocates, because both have good as well as bad features. Inquiries are frequently made in regard to wheel-steering devices, and I feel warranted, writes Mr. H. D. Meier in *The Horseless Age*, in stating that the majority of automobile builders who construct carriages exceeding in weight 1,200 pounds have either adopted wheel-steering or seriously contemplate doing so.

What is in demand is a device with as little back-lash as possible. There is practically no lost motion in any wheel-steering device so long as it is new—provided that the workmanship is good and the design of a mechanical nature; but it is not long before the link actuating parts begin to show wear. Of reversible transmission devices commonly used in steering-gears we have the rack and pinion (the former part being connected by a link to the steering knuckle arm) and the gear and sector. The two are mechanical equivalents and are deservedly popular, because, if properly proportioned, they cannot wear excessively, and any

and pinion, because any reduction can be had with a given size pinion, and the latter and the gear sector can readily be inclosed in a dustproof case and made to operate in a bath of oil. This would seem to leave but two systems out of four that are of real all-round practical use and applicable to any type of vehicle.

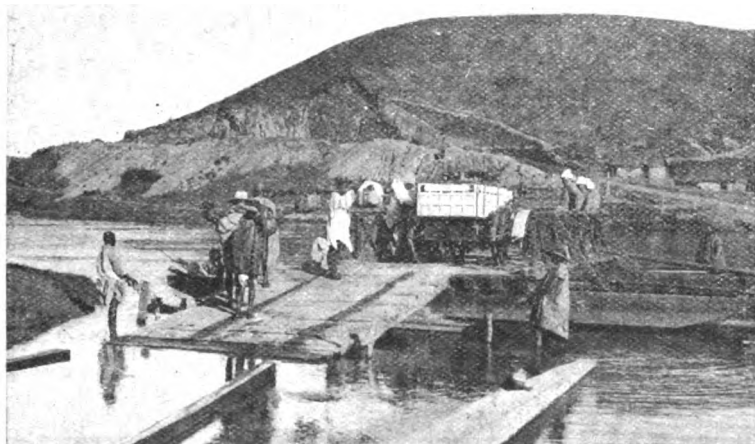
THE St. Nicholas Skating Rink in New York is to be converted into an automobile garage.

THE first draft of a standard form of guarantee has been prepared by the executive committee of the American National Association of Automobile Manufacturers.

SIR JAMES MILLAR, Bart., has just purchased a 16-h.p. Panhard from the British Automobile Commercial Syndicate. It is fitted with a Roi-de-Belge body, built by Messrs. J. Rothschild and Son.

ONLY motor-vehicles propelled by electricity or by steam generated by the use of coke are allowed on the dock premises of the London and India Docks Company.

IT is rumoured that a policeman is being placed behind a hedge on Broadwater Common, near Worthing, on Sunday to watch for motorists exceeding the legal limit.



CONVEYING ONE OF THE CARS ACROSS THE FERRY AT MOUGORO, MADAGASCAR.

sudden blow to one of the steering-wheels will not strain the running gear much, because of this feature of reversibility. However, all shocks are transmitted to the steering hand-wheel, and as a result the driver's hands soon tire. The effect on the nervous system is not at all pleasant, and many a motorist driving on rough roads may have been induced to shorten his day's run on this account.

Irreversible devices in general use consist either of a worm and worm wheel sector or a square-threaded shank working in a sleeve or nut, which in turn engages a bell crank that operates the main link of the steering device. French vehicles, with few exceptions, are equipped with the worm and worm wheel sector type of steering device, which is quite satisfactory for a short time. In use the thread and tooth surfaces of the worm and worm wheel respectively soon begin to show appreciable wear and back-lash, which steadily increase with use. The great amount of lost motion makes this device less positive and rather slow acting. The "square-threaded shank and sleeve"—the latter is virtually a nut—is an ideal device compared to the one just described, as the possibility of wear is slight if a fair-sized thread is used and the sleeve is made long enough. This type of mechanism is used on the Rochet-Schneider vehicles built in France and others. Of all the devices described the worm and worm wheel sector type is certainly the least satisfactory. The pinion and bevel gear sector system is better than the rack



THE MADAGASCAR AUTOMOBILE MAIL SERVICE—ON THE ROAD TO MANDRAKA.

NEW members of the Automobile Club include Lord Hastings, Sir Alfred Cooper, Sir J. W. Malcolm, Bart., Sir E. Malet, K.C.B., Sir Coleridge Kennard, Bart., Sir Lindsay Wood, Bart., Mr. W. E. Harrison, J.P., Mr. W. Arkwright, J.P., Mr. W. Rees Jeffrey, Mr. G. S. Bayley, J.P., and Mr. Herbert Ingram.

A COMPANY has been formed, under the style of Stringer and Co., to run motor-cars from Rotherham, near Sheffield, to Parkgate. The vehicles will be supplied by the Motor Manufacturing Co., and, according to a local newspaper, "will be worked by petroleum, as a result of which there is no risk of explosion."

THE Scottish Road Book for 1902 has been issued by Henry S. Nisbet and Company, Limited, of Glasgow, in an easy and concise form. More than a hundred and thirty road routes are given; there is a comprehensive list of hotels, a lamp-lighting table, and other information of interest to those who go by road—whether by cycle or by car.

THE Orient is the name of a new American bicycle which has been put on the English market by the Remington Automobile and Motor Agency. The motor, which is a 2-h.p. Aster, is located inside the frame, and drives the rear wheel by a belt which is provided with a jockey pulley. The machine has a long wheel base, and is claimed to be able to attain speeds up to forty-five miles an hour.

THE WHY AND WHEREFORE OF THE DIFFERENTIAL GEAR.

IN order to secure sufficient adhesion of the driving wheels to the ground (*i.e.*, to prevent slipping of the wheels) and to secure a balanced-driving effect, at least two of the wheels of a four-wheeled vehicle must have power transmitted to them, and these two wheels must be on opposite sides of the vehicle—that is, both either on the front or on the rear axle. With very few exceptions the driving wheels are placed on the rear axle.

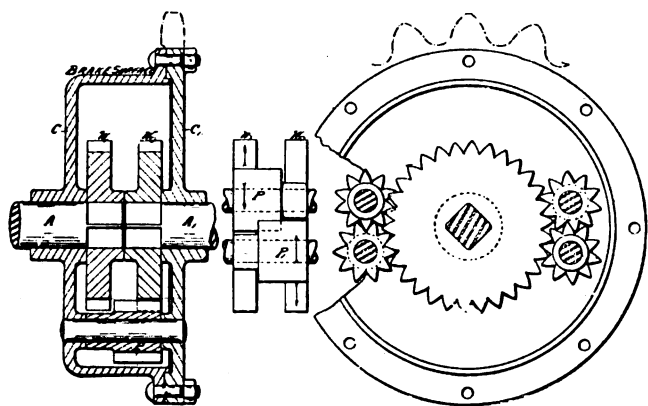


FIG. 1.—A SPUR DIFFERENTIAL GEAR.

On reflection it will easily be seen that when a vehicle describes a curve all the wheels turn at different speeds, since the radius of the curve described is different for each wheel. It is, moreover, self-evident that the inner wheel turns slower than the outer one in describing a curve. The arrangement of the driving mechanism must, therefore, be such as to allow of this unequal motion of the two wheels on curves, while at the same time it must impress a substantially equal turning effort on the wheels under all conditions.

Where two independent motors are used for propulsion, each being geared to one of the driving wheels, these conditions are satisfied, since all the motors used for motor-car propulsion have the characteristic that their running speed automatically decreases when the resistance against which they operate increases, as it does in the case of the inner wheel when a vehicle describes a curve. Many electric vehicles use two independent motors for driving, but in steam and petrol vehicles double motors are practically never used.

To satisfy the above-mentioned requirement, *viz.*, to allow the two driving wheels to turn at unequal speeds and to always impress equal turning efforts on the two—with a single motor, a differential gear is employed, also called a balance gear, a jack in the box, a compensating gear or an equalising gear. Two general forms of differential gears are at present in common use—bevel differential gears and spur differential gears.

This leads us into the subject of gearing, and it may be well to define here some of the most frequently employed terms used in connection with gearing. Gears are nearly always used in pairs of different diameters, the smaller one being called the pinion and the larger one the wheel. A spur gear is a gear with straight teeth on a cylindrical surface, the two axes of a pair of spur gears in mesh (*i.e.*, in operative relation) being parallel. A bevel gear is a gear with straight faced teeth on a conical surface, the two axes of a pair of bevel gears in mesh being always at an angle to each other and intersecting. Helical gears (also called spiral gears) are gears with teeth of a helical curvature on a cylindrical surface. A pair of helical gears with parallel axes are called screw gears. A part of a gear wheel is called a gear sector. A rack is a straight bar with gear teeth cut on it. A spur wheel with the teeth on an internal cylindrical surface is called an internal gear. The pitch of a gear relates to the size of the teeth. Gear wheels of the same kind, with teeth of the

same pitch, will mesh properly and operate together, no matter what be the relative number of teeth of the two.

Every differential gear comprises a wheel or casing, by means of which the power is applied to it, and two gear wheels, by which the power is transmitted to the two driving wheels. While in the simplest form of differential gear these two are all the gears required, the two most common forms, above referred to, employ in addition a number of pinions which have a bearing support in the wheel or casing, and which transmit the turning effort from the said casing and divide it equally between the two gear wheels connected with the driving wheels. In a bevel differential gear the pinion and the wheels are, of course, both bevel gears.

In Fig. 2 is shown a typical design of bevel differential gear. In this case the driving axle is not divided, but extends entirely through, from outside to outside of hub. One of the driving wheels is fastened to the axle *A'* and the other to the sleeve *A*, which is slipped over the axle. The two bevel wheels *W W'* of the differential are shown as keyed to the axle and sleeve by keys *K' K* respectively. These two bevel wheels *W W'* are connected by three bevel pinions *P P P* rotatable on studs, which are held in the two-part casing *C G'* and in the spider *B*, which latter has a bearing on the axle between the two bevel gears. To the casing is fastened a sprocket wheel, bevel gear or spur gear, for driving, as indicated in dotted lines in the figure. It is easily seen that when the casing of the differential rotates around the axle centre and the pinions *P P P* do not rotate around their studs, the bevel wheels *W W'*, and consequently the driving wheels, turn around their axes at the same speed. When the pinions rotate around the studs at the same time that the casing is rotated around the axle centre, the two driving wheels will rotate at different speeds. The pinions form double armed levers with equal arms. The power is applied at the fulcrum (the stud), and the forces or pressures on the opposite tooth contacts are equal. As the distance of the tooth contacts on the two bevel wheels from the centre of the axle and sleeve is the same, the turning efforts or torques impressed on the axle and sleeve are equal, which is the second of the requirements to be satisfied.

Fig. 1 illustrates a spur gear differential. In this drawing a divided axle is shown. To the inner ends of two half axes *A A'* are fastened the spur wheels *W W'*. These are surrounded

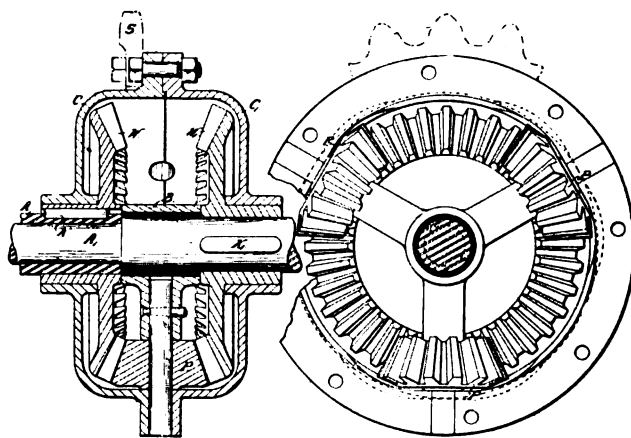


FIG. 2.—A BEVEL DIFFERENTIAL GEAR.

by the two-part casing *C G'*. Through the walls of the casing pass studs *B B B B* parallel with the axle, and on these studs are mounted, so as to rotate freely, spur pinions *P P P P*. It will be noticed that the spur wheels *W W'* are a certain distance apart, also that the pinions are about twice as wide as the wheels. Each pair of pinions is so arranged that each single pinion is in mesh with the other, with one-half the length of its teeth, and with one of the wheels *W* with the other half length of its teeth. It will now easily be seen that when the case is rotated around the axle centre and the pinions do not turn on their studs, the two spur gears *W W'* turn at equal speeds. When the pinions

rotate around their studs while the case moves around the axle centre of one of the wheels W W turns faster than the other one.

The number of bevel pinions or of pairs of spur pinions varies. Two is the smallest number that should ever be used, and sometimes as many as five are employed. The spur gear differential has the advantages over the bevel gear differential that it is cheaper to manufacture and avoids all end thrust on the gears and pinions. The former is a little less compact than the other. The differential gear may be placed on the rear axle, on a countershaft or on the motor shaft. When it is not on the rear axle two chains or other transmission devices are required to transmit the power to the driving wheels. The practice of placing the gear on the rear axle is gaining in favour, and is, according to the *Horseless Age*, almost universal in the United States.

HERE AND THERE.

THERE is no vacation in the school of automobile experience.

GOOD workmanship in a motor-car, like phosphorus, shows up best at the darkest hour.

LORD SHAFTESBURY is about to become a motorist—another proof of the interest of the aristocracy in automobilism.

THE Police Department of Atlantic City, N.J., have placed an order for an electrical patrol wagon.

MR. WM. STARLEY, of Coventry, has issued a little book giving an account of the life and inventions of James Starley, "the father of the cycle industry."

THE British Automobile Commercial Syndicate are now appointing agents for the Clement cars, and the Bristol Motor Company has secured the agency for their district.

MR. M. GRAHAME WHITE has apologised to the Automobile Club for having driven in a manner calculated to injure the interests of automobilism at the Dashwood climb on the 10th ult.

IT is reported that one of the chief French firms of motor-car builders has purchased a stretch of ground outside Paris for the purpose of making a track on which automobile racing can be carried on.

LORD DUDLEY and Lord Hardwicke have been at Braemar for a week's salmon fishing in the Dee. They made the journey between Aberdeen and Braemar (about seventy miles) on a motor-car.

THE new public motor-car service in Porto Rico appears to be in successful operation. Three cars have been placed in service between San Juan and Ponce by the Automobile Transportation Company of Porto Rico. The cars used are of the petrol type.

ACCORDING to the *Leeds Mercury*, the county magistrates, who to-day are trying to put down the motor-car, are the descendants of the stupid people who, in their day of power, would not have a railway within ten miles of their estates. Their heirs and successors do not speak respectfully of their wisdom.

THE Wilkinson Tyre and Tread Company, Limited, has been registered, with a capital of £5,000 in £1 shares, to acquire the business carried on by Mr. C. H. Wilkinson, at Princess Street, Huddersfield, as the Wilkinson Tyre Manufacturing Company, and to manufacture and deal in tyres for motor-cars, etc.

A LADY, who carries on the business of a fruiterer at Bray, brought an action against Messrs. Guinness, Son, and Co., for damage to some grapes, etc., spoiled by the smoke from the defendants' motor-cars. The Recorder of Dublin characterised the action as a frivolous one, and it was dismissed.

MR. E. G. WADDILOVE, of Lincoln's Inn, W.C., complains that it has become the practice for motor-car drivers to race down the Portsmouth Road at Roehampton to Kingston Vale, where there is a straight piece of road with a fall of a hundred and ten feet in three-quarters of a mile.

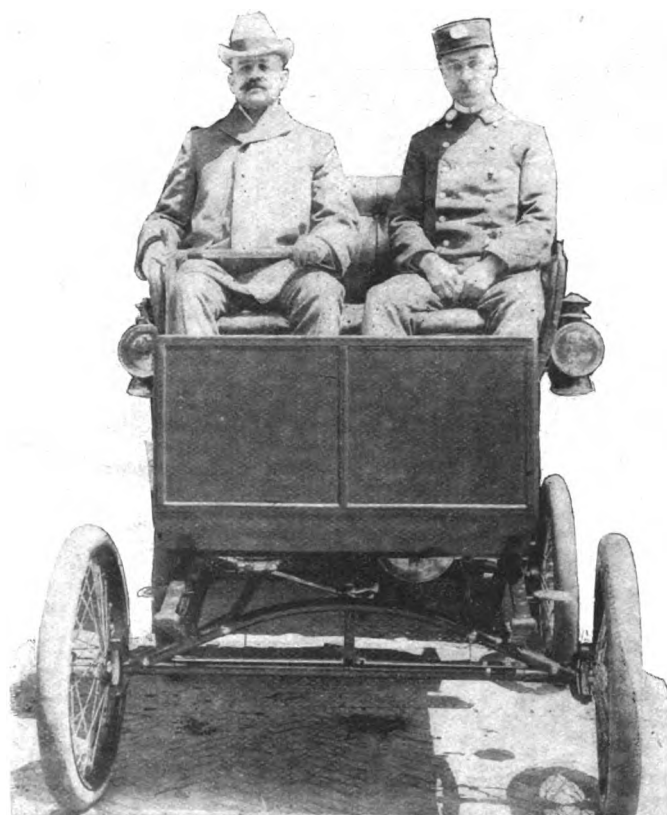
MOTORISTS are warned not to go along the Hemley Road, Gornal Wood, Sedgeley, where mining operations have caused serious subsidences.

MOTORISTS in the Hampton Court district will find the motor and cycle works of Mr. Rowland Williams, in Walton Road, East Molesey, well adapted for repairs of all kinds.

MR. A. E. CORFIELD, of Cardiff, has sent us a sketch of a new pneumatic tyre he has designed with the view of overcoming the puncture demon. He is having a set made, and intends to experimentally fit them to a M.M.C. car.

ON Friday last the motor fire engine built by Mr. T. C. Crowden for the Norwich Fire Insurance Company was put to a severe test at Worcester, being under steam from 1 p.m. to 1 a.m., and undergoing its trials without a hitch.

THE accompanying illustration shows Mr. Edward F. Croker, the chief of the New York Fire Department, on his latest steam car. Mr. Croker has used a Locomobile for the past three years, and in



THE CHIEF OF THE NEW YORK FIRE DEPARTMENT ON HIS LOCOMOBILE.

the new car has had a number of special features incorporated, as a result of his experience. The car, which is of strong and heavy construction, with an extra wide seat, attained a speed on its trial trip of thirty miles an hour.

A MOTOR-CAR on the premises of the Long Acre Motor-Car Company, in Long Acre, W.C., caught fire on Monday, and was pushed out into the street, where it was attended to by members of the London Fire Brigade who arrived at the scene.

WE learn from Mr. G. Calvert, of Mildmay Park, N., that in future he will make his "Seer" plugs with platinum wire only, as he has found those with the metal ones to be unreliable, owing to the unequal expansion of iron and glass—an inequality which does not exist with platinum and glass.

THE Automobile Club of America has established a country club-room in the Garden City Hotel on Long Island, which will probably be visited frequently by the members of the Club during the summer months. The Club members will have all the privileges of the hotel, including swimming and shower baths, billiard room and charging and storing facilities, besides the exclusive use of their special room.

A MOTOR gymkhana will take place at Ranelagh on the 14th inst.

MANY of the larger hotels in Switzerland are replacing horse-drawn omnibuses by electric vehicles.

A 12-H.P. Progress car has arrived at Llanfair (Montgomeryshire) to the order of Messrs. John Brothers.

ACCORDING to the *Motor World*, liquid air has been conclusively proven to be first cousin to liquid moonshine.

MR. AND MRS. MARK MAYHEW are spending their honeymoon touring in Wales on a Panhard car, lent by the Hon. C. S. Rolls.

DURING the summer, speed trials will be held by the Lincolnshire Automobile Club on Lord Ancaster's estate at Grimesthorpe.

DURING the Belgian military manoeuvres, to be held from the 16th to the 21st inst., some further trials are to be made with motor-cars.

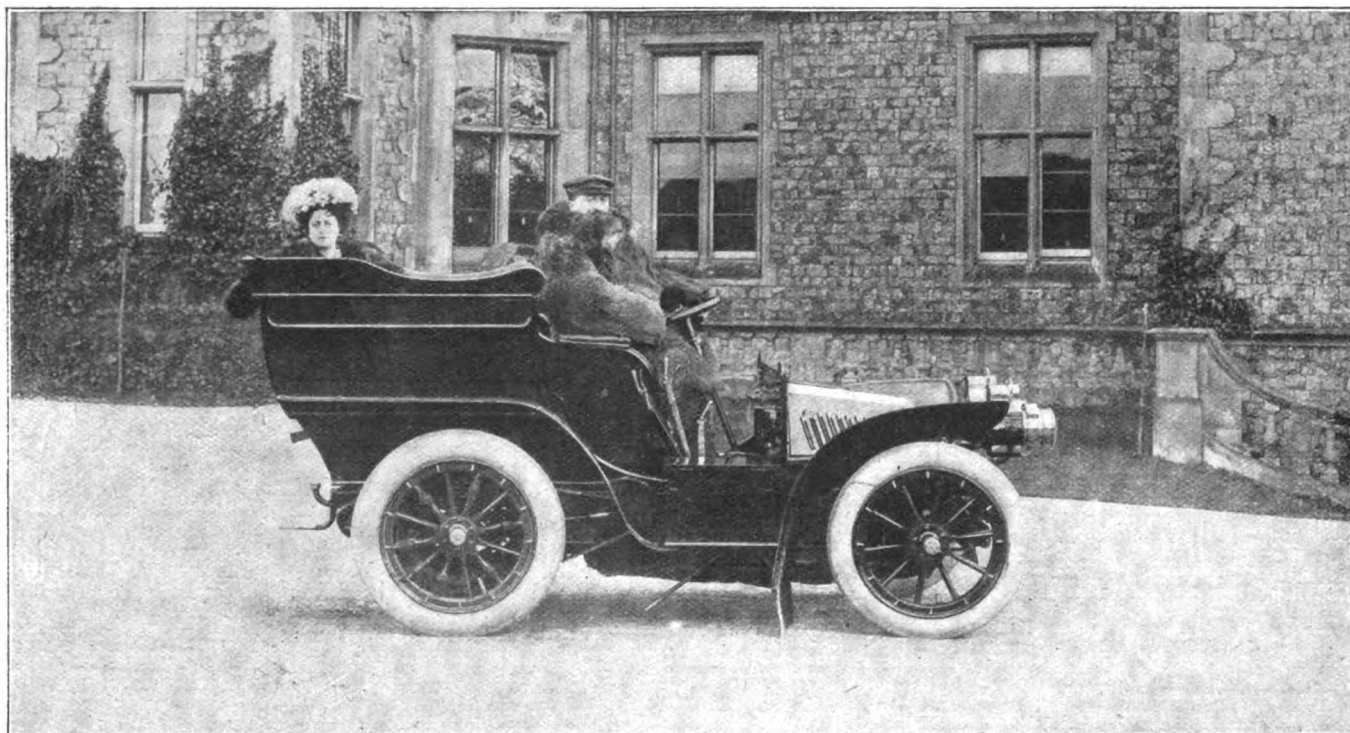
MR. D. M. WEIGEL is driving a 25-h.p. Clement light racing car in the Paris-Vienna race, instead of his Panhard, which he has sold.

THE Hon. Arthur Stanley, M.P., and Captain Lee, M.P., are touring in Ireland on a motor-car. The other evening they arrived at Galway, from whence they intend to go through Connemara, and on to Roscommon.

DR. A. H. COOK, of Rosslyn Hill, Hampstead, was summoned last week for keeping a motor-carriage without a licence authorising him to do so. The Bench being assured that the offence was not intentional, imposed a fine of five shillings and costs.

A REPORT says that at the meeting of the Wakefield Chamber of Agriculture a resolution was passed expressing the opinion that horses drawing vehicles should have the right of the road, and that the speed of the cars should be left in the hands of the local authorities. Why not pass a resolution that only members of the Wakefield Chamber of Agriculture should have the right to walk in Yorkshire?

MESSRS. STANLEY BROTHERS, of Newton, Mass., who, it will be remembered, were the originators of the steam car now known as the Locomobile, have devised a new steam vehicle. The engine



MR. AND MRS. H. V. HOLDEN ON ONE OF THEIR MORS CARS.

THE Buckinghamshire Chamber of Agriculture is urging the County Council to make new regulations with regard to the speed of motor-cars.

UNDER the direction of Mr. C. McAdams, of West Hartlepool, a trial of the consumption of motor-vehicles has just taken place between Manchester and Seaton Carew, and from thence to Morecambe.

MR. E. T. HOLBROW, of the Earlsfield Motor and Engineering Works, Earlsfield, S.W., is now keeping a stock of Pratt's motor-spirit. He is also well equipped to undertake repairs to motor-cars of all kinds.

THE Stockton Chamber of Commerce has adopted a resolution in favour of the strict enforcement of the present regulations with regard to motor-cars, and urging that twelve miles per hour should be the maximum speed.

THE latest addition to the ranks of motorists is Sir William George Pearce, Bart., the well-known shipbuilder and shipowner, who has just instructed the Daimler Motor Company to build two carriages for him. One of these is a standard 12-h.p. car, while the other is what is known as an "Estates" wagonette.

is hung horizontally under the body and transmits its power direct, by a gear, to the rear driving axle, doing away with the chain. All the parts are enclosed in a dust-proof case, which can readily be removed for inspection purposes. The engine itself is a radical departure from the familiar type. The cylinders have no projecting flanges; the slides run on steel balls, which, it is claimed, prevent all wear, lost motion, and loosening of the packing.

MOTORISTS intending to tour in Ireland may expect the natives to be more familiar with the automobile than was the good lady who met a well-known colonel when on his car, and when she arrived in Wexford told everyone she had met "a carriage from the other world with a horribly ugly demon driving it." In order to enjoy the beauties of the country some guide-book is desirable—a fact which has caused Messrs. A. and C. Black to include Ireland in their useful series of guides. Within 150 pages we have here a concise and well-arranged pocket companion which has the merit of accuracy, and is also written with literary skill. The maps of the various districts of the Emerald Isle are excellent.

CORRESPONDENCE.

POSSIBILITIES AT HARROGATE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—May I point out that Harrogate is a very delightful and well-patronised place for, say, six months during the year? At present there is no other conveyance running on the ground, hence it is a most favourable opportunity to introduce a motor-car. As to whether the undertaking is likely to prove a success, I would recommend any suitable motor-car company that would be disposed to make local inquiries ere long.—Yours faithfully,

S. B.

WANTED—A BUSINESS VEHICLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As a fair representative of a very large number of people who want to purchase automobiles just as soon as the makers of the new vehicle will give them such a conveyance as they want, I wish, through the *Journal*, to call the attention of manufacturers to the trade which they are neglecting. I have for more than twenty years been a salesman for a large wholesale grocery firm. In the performance of my duties I am forced to visit from fifty to sixty customers each day. Now I must do this in all kinds of weather, and through and over all kinds of streets and roads. That which would best enable me to do this is a motor-car, but when I seek to get one I find that the makers are turning out only a fair weather conveyance. They expect me to sit in an open car, unsheltered from the elements, to catch pneumonia and rheumatism while I attend to my daily rounds. What I want, and what hundreds of other men want, is a not-too-expensive, strongly-built motor-car, which will go the route, and which can be closed up so as to afford perfect protection for its user from the cold or the heat, to say nothing of rain or snow. Surely this is "a crying need," which is well worth the while of any motor-vehicle builder to especially cater for.—Yours truly,

TRAVELLER.

THE SPEED OF THE SERPOLLET CAR.

THE name of the Hon. C. S. Rolls having been introduced in connection with the Serpollet steam car into an advertisement, we have received communications from the Speedwell Motor and Engineering Company and also from Mr. Rolls, the purpose of which is served by the publication of the following:—

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The Speedwell and Gardner-Serpollet Companies have shown considerable alarm in consequence of an advertisement in which my name was unfortunately brought in.

As a matter of fact, the letter which has been advertised over my name was in reply to a request for some particulars of a record, and was never intended to be used as an advertisement or for publication in any form; and, as soon as its publication came to my notice, I immediately wrote to the advertisers with instructions to stop it, and received an apology from them. At the same time I wrote to both the Speedwell and Serpollet Companies explaining the facts, and received their thanks, although it was, they said, too late to stop the letters and advertisements which they had sent for publication.

Steam has a great advantage over petrol for certain purposes, owing to the horse-power it can exert for short periods, but I do not propose to open up a discussion as to the merits of each system. Suffice it to say that the advertisement in question had no authority from me, and that I am not (as has been suggested) interested financially in either the Mors or the Serpollet, although I have ordered cars of both makes.—Yours faithfully,

CHARLES S. ROLLS.

MOTOR-CYCLING RECORDS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to the account in this week's *Motor-Car Journal* of the records made at the Crystal Palace on motor-bicycles, none of these times can be considered as motor-cycle records, as they do not approach the times made by me on my motor-tricycle at Canning Town on October 31st, 1900, when the times up to five miles read as follows:—One mile, 1 min. 23½ sec.; two miles, 2 min. 49½ sec.; three miles, 4 min. 13½ sec.; four miles, 5 min. 37½ sec.; five miles, 7 min. 1½ sec.—Yours faithfully,

CHARLES JARROTT.

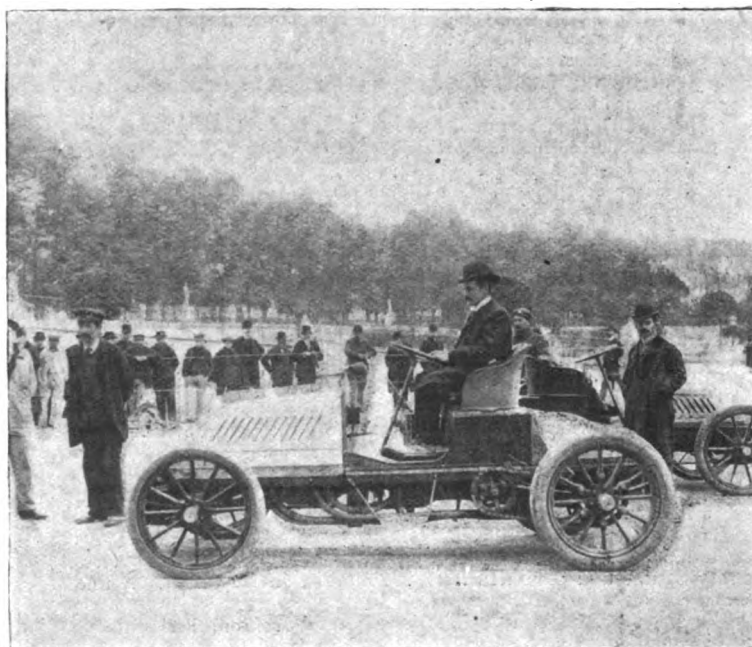
THE Begbie Manufacturing Company inform us that they have taken up the sole English agency for the Leblond batteries. These are of the hermetically-sealed liquid type. They are made up in sets of four elements, each having a capacity of 15 amperes at 1.6 volts for motor-cycles and voiturettes, and 20 amperes at 1.6 volts for cars of from 6 to 20 h.p. It is claimed that they are capable of sparking a motor for a minimum distance of 10,000 kilometres (about 6,200 miles).

FURIOUS DRIVING CASES.

AT Marlborough Street Police court (London), L. Pacana, Pulteney Chambers, Little Pulteney Street, W., was summoned for furiously driving a motor-car on the public highway. Constable Rose, 382 D, said that on the 7th May he saw the defendant driving a motor-car at a rapid pace along Portland Place. When near Weymouth Street it knocked down a man named Ashton, who was crossing the road, and he had to be taken to the Middlesex Hospital. Mr. Drake, in defence, said the car was only travelling at a speed of about seven miles an hour. The horn was blown, and Mr. Harvey Du Cros, the owner of the car, shouted and yelled to Ashton to get out of the way. The car was pulled up immediately, but owing to the road being muddy at the time the driver might not have been able to stop it quite as quickly as usual. Mr. Kennedy said he had come to the conclusion that the driver of the car was going too fast and that he ought to have got out of the way or stopped. He would be fined £5, with 2s. costs.

R. H. Cox, Manor Cottage, Old Windsor, has been fined £2, including costs, by a Windsor magistrate, on a charge of having furiously driven a motor-car.

BEFORE Sheriff Davidson, at Hamilton, J. H. Anderson, Dalsersf, was charged with culpable homicide, or furious and reckless driving, by having, on 2nd May, driven a motor-car down Machans Brae, Larkhall, in a reckless manner. The allegation is that he failed to stop on the approach of a wagonette, the horses yoked to which became unmanageable, and the occupants were thrown out. One of them, John Kemp, labourer, Dalsersf, was so severely injured that he died a few days afterwards. After emitting a declaration, he was liberated on £30 bail.



BARON DE CATERS ON HIS MORS RACER.

La France Automobile.

At the Bradford West Riding Police-court, Walter Booth, Clayton, and Arthur Wilson, Bramley, were summoned for furiously driving their motor-cars. The case for the police was that on May 17th the defendants were proceeding abreast down the Wakefield Road at Drighlington at a rate between twenty and thirty miles per hour. Booth, who was convicted of a similar offence a few weeks ago, was fined £5 and costs or one month's imprisonment, and Wilson £3 and costs or one month.

At the Guildford County Bench, A. Rackman, of London, was summoned for having driven a motor-car at a pace exceeding 12 miles an hour, near Ripley, on the 11th ult. Fined £5.

At the Bowness Petty Sessions, G. Gladwin Errington, of London, was charged with furiously driving a motor-car in Lake Road, Bowness, on the 21st ult. Mr. G. Gatey, jun., appeared for the defendant, who was not present. Police-constable Park said that about seven p.m. on the day named he was on duty near the Royal Hotel, and saw a motor-car come round the Liverpool Bank from the direction of the Kendal Road at a very furious rate. Witness put up his hand and called on the driver to stop. He applied the brake and nearly threw the machine over, opposite to Robinson's shop, a distance of about 45 yards from where he first saw him. Witness called to him again, and defendant went on in the direction of Windermere. Witness telephoned to Sergeant Kerr at Windermere that a motor-car had come through Bowness at a rapid rate. Shortly afterwards the car came down to Cragg Brow and stopped opposite the Post Office. There were three occupants in the car. Witness, in company with Sergeant Kerr, went on the following morning to the Ferry Hotel and identified

defendant and his two friends. Witness charged defendant with driving furiously on the previous night. He replied, "Do you say I was the driver?" Witness replied, "Yes, you were." Police-sergeant Kerr spoke to receiving a telephone message at Windermere from Police-constable Park. He saw the car in Victoria Street, and spoke to the driver, asking him for his card. The driver said he had not got a card. He then asked him for his name and address, and he gave the name of Tuffy Waugh, of Stockhouse, Settle, Yorkshire. On the morning following witness went to the Ferry Hotel, where he saw the driver whom he saw in Windermere and found that his name was Claud White. He told defendant so, and defendant replied, "Yes, that is my name." Witness asked him for his address, and he absolutely refused to give one. Mr. Gatey explained that White and Waugh arranged before White's departure that Waugh would "stand the racket," White having to go away on the following day to Paris. Errington, the man who had been summoned, never drove the car at all. The chairman said the impression that he had in his mind was that the three men arranged to shuffle their names about so as to evade the consequences of their act. After fifteen minutes' retirement, the Chairman, on behalf of the Bench, said that seeing that one of the party had come forward and said that White was the driver, they suggested that the case against Errington should be dismissed, and that a fresh information should be laid against White and that the witness Waugh should appear to prove that White was the offender. If there was any danger of White's not appearing, the police ought to issue a warrant for his apprehension.

CHARLES FROST and Collett Frost, of Plymouth Grove, Manchester, and John Stevenson, of Fallowfield, have been fined 1s. and costs at Stockport County Police Court for driving their automobiles at a greater speed than six miles an hour. The prosecutions were taken under a bye-law of the Cheshire County Council, and after the magistrates had given their decision, the defendants' solicitor asked them to state a case for appeal, as he contended the bye-law was invalid.

At Brentwood, W. Mapp Thompson, of Mitcham, was summoned for driving a motor-car at more than twelve miles an hour. Police-constables Pastfield and Nurse proved that defendant drove from Brentwood to Romford in twenty minutes. Defendant, who wrote that he could not attend, was fined £3, and costs 10s. 6d.

In Dingwall Sheriff Court, Sheriff Hay Shennan, after hearing evidence, has convicted Talbot Clifton, shooting tenant, Rhidroroch, Loch Broom, of driving a motor-car through Strathpeffer above the regulation rate of twelve miles on April 15th. The driver of the Strathpeffer train stated that he tried to gain on the car, but failed. Several witnesses said the accused was going faster than the train. A fine of £5 was imposed.

JOHN GOWAN, Rock Ferry, was summoned at Birkenhead for furiously driving a motor-car at Eastham on the 17th ult. The police evidence was that defendant drove his car at a speed of twenty-five miles an hour, the speed being reckoned by timing its passage over a measured half furlong. Defendant said he would not think of travelling twenty-five miles an hour; it would be suicidal. The magistrates said they would give defendant the benefit of the doubt and dismissed the case.

WILLIAM MACLASE, 31, Mount Street, Liverpool, was summoned at Birkenhead for furiously driving a motor-car, the police evidence being that he was travelling at twenty-eight miles an hour. Defendant emphatically denied the statement, and said the car was being tried for the first time and did not work as well as it might have done. The magistrates found the case proved, and fined defendant 5s. and costs.

THOMAS GEORGE HOXLRY, of Malpas, Cheshire, was charged at the Llandudno Police Court with driving at a furious pace a motor-car along Trinity Square and Clonmel Street, Llandudno, on May 20th. A fine of 5s. and costs was imposed.

At the Altrincham Petty Sessions, Frank Jackson, Peel Causeway, cycle manufacturer, was summoned for the alleged furious driving of a motor-tricycle at Rostherne on May 13th. Constable Scott stated that on the night in question he was in Knutsford Road, Rostherne, on the Knutsford side of the Bollin Bridge, when he saw the defendant furiously driving a motor-tricycle along the road in the direction of Altrincham. He would be travelling at thirty-five miles an hour. Witness put his hands up, called to the defendant to stop, and blew his whistle, but defendant went on and took no notice. Mr. Brown, solicitor for the defence, contended that this was a case of mistaken identity. Jackson never went out on an automobile that day. He called six witnesses, and the evidence, he submitted, went to show that it was quite clear the defendant could not have been on the road at the time. He asked that the county should be made to bear defendant's costs if the Bench believed the police had been mistaken. The Chairman said the justices believed this was a case of mistaken identity. The case would be dismissed, and they considered that the county must pay the advocate's fee and the whole of the expenses of defendant.

At Solihull, B. Gibberd, 46, Regent Street, Leamington, has been summoned for furiously driving a motor-car in the Kenilworth Road, Balsall, on the 19th ult. On Bank Holiday the defendant was seen by Sergeant Boulton and two other officers in charge of a motor-car on the road named. Its speed was timed for half a mile, and the police asserted that that distance was covered in 75 secs. The car was stopped by the police, and the pace, it was stated, worked out at twenty-four miles an hour. A fine of 20s. and costs, amounting in all to £1 17s. 6d., was imposed.

At Tonbridge Petty Sessions, Glanville Kenyon, of Bromley, Kent, was summoned for driving a motor-car at a rate exceeding twelve miles an hour at Hildenborough on May 17th last. Police-constable Wood spoke to seeing the motor-car at Hildenborough going in the direction of London.

He timed it for a distance of 325 yards, which was covered in 35 secs. Defendant said he knew the law, and he was not going at more than eleven miles an hour. The Bench imposed a fine of £1, and the costs, 13s.

JOHN WATTS, driver to the Earl of Warwick, has been fined £2 2s. including costs, for driving his car to the common danger in Warwick.

At the Highgate Petty Sessions on Wednesday, the 28th ult., Mr. T. G. Payne was summoned for driving down Muswell Hill Lane to the danger of life or limb. The mounted policemen swore that Mr. Payne was driving down the hill at a speed of twenty miles an hour. On cross-examination by Mr. Staplee Firth, the magistrates dismissed the case.

Two motorists—B. S. Ledger, of Staincross, near Barnsley, and E. L. Cooke, of York—have been fined for driving motor-cars on the highway at a greater speed than twelve miles an hour. A measured quarter-mile on the Dringhouses Road was the cause of their undoing.

W. B. AVERY, Birmingham, has been fined £5 and £1 18s. costs for driving a motor-car at an excessive speed near Ryde, Isle of Wight.

THE Hon. A. H. Baring, of Northington, pleaded guilty, at Basingstoke, to driving a motor-car at a greater speed than twelve miles an hour, viz., twenty miles an hour, at Preston Candover, on May 3rd. Police-constable Phillips said that at 6.35 p.m. on the date in question he was standing in his garden, when he saw a motor-car coming from the direction of Axford. He timed it from opposite the letter-box to his gate, which was just half a mile, and found it covered the distance in ninety seconds. The Chairman of the Bench said defendant had evidently broken the law, and must pay a fine of 40s., with 7s. costs.

At Bristol, Herbert Sharpe was summoned for furiously driving a motor-bicycle between Horfield and Filton on May 11th. Accused, who pleaded that he was not running beyond the speed allowed by the Act, was fined 20s. and costs, or fourteen days. In stating the decision of the Court, Captain Belfield said:—"You gentlemen who ride motor-bicycles think you can fly about the country as you please. In this instance the offence is aggravated by your withholding your name and address."

At the Dover County Sessions, last week, Cecil G. Cathey, of Ripple, was summoned for driving a motor-tricycle on April 17th at a speed greater than twelve miles an hour—the legal limit. The Bench inflicted a fine of £5 and 11s. 6d. costs.

At the Stroud Police Court, Thomas Guildford, of London Road, Stroud, was summoned for furiously riding a motor-cycle, to the danger of the public, on April 28th. Defendant was fined £1 and 10s. costs.

ROBERT CHARLES KNIGHTS, cycle agent, Chelmsford, has been fined £2 and 10s. costs for driving a motor-car at a greater speed than twelve miles an hour, at Newport, on May 14th.

A MOTOR-BATTERY INJUNCTION.

IN the Chancery Division, the plaintiffs in the action, De Dion-Bouton and Co. v. Brown Bros., have applied for an interim injunction to restrain the defendants from selling as De Dion-Bouton batteries for motors any not of the plaintiffs' manufacture. Mr. Hughes, K.C., for the plaintiffs, said affidavits filed by the representatives of Mann, Egerton, and Co., and the Sports Trading Co., of Coventry, showed that they applied to defendants in February and March for "one De Dion battery" and they received batteries which were not those made by the plaintiffs.

Mr. Younger read an affidavit filed by Mr. Brown, in which he said he had given strict injunctions to those in charge of their motor department that no parts not manufactured by the plaintiffs were to be sold by the name De Dion alone. Two batteries had been inadvertently sold under the name De Dion. It was open to anyone to manufacture and use parts and accessories of the De Dion type, and the defendants had sold and claimed to be entitled to sell parts not of the plaintiffs' manufacture under the name De Dion if they used in addition the words "pattern" or "imitation."

Mr. Justice Joyce thought the plaintiffs might be entitled to an injunction to restrain defendants from selling as and for the goods of the plaintiffs batteries or other goods not manufactured by the plaintiffs.

Mr. Hughes said he would be satisfied with such an order.

Mr. Younger was willing to give an undertaking in the terms of his lordship's suggestions, and the motion was ordered to stand till the trial, the costs to be costs in the action.

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COMMENTS.



THERE have been some interesting times in the Uckfield Petty Sessions Court recently, and more are promised when some adjourned cases against motorists come on for hearing. At St. Neots, too, a whole batch of motorists have been hauled before the Court, and fined with a uniformity that does credit to the fixed ideas of the magistrates there. Elsewhere in the present issue we publish a list of convictions against automobilists for furious driving, from which it will be seen that the police are unusually on the alert, and not only in Surrey and Huntingdonshire, but throughout the country generally, they seem to have made up their minds to catch as many motorists as they conveniently can. Whilst this long list of convictions, with only two or three dismissals to vary the monotony of the reading, is a tribute to the energy and misplaced enthusiasm of the police, it also reveals a celerity of movement on the part of motor-cars, which their drivers might wisely moderate in view of the renewed efforts of the County Councils and Chambers of Agriculture to thwart the progress of the automobile.

The Stoning of Motorists.

THE stoning of motorists by small children is becoming too familiar to be pleasant both in England and the United States. We are glad to see that Colonel Crompton is raising the question, so far as Kent and Surrey are concerned, and would suggest to provincial automobile clubs that they might usefully communicate with the police in their respective districts when such incidents are reported on their tours. In the United States the school children have become even more aggressive than at home, and, tired of being constantly hooted at and made the target of repeated bombardments of decaying vegetable matter, stones and other projectiles, American automobilists have made an appeal to the Board of Education to compel the school children to cease annoying them. This is believed to be the most effective way of reaching the mischievous boys, for the abuse of automobilists is declared to be so general that the arrest in a few isolated cases of the miscreants would not effect the reform desired or mitigate the nuisance.

The 100 Miles Trial.

IN the quarterly 100 miles trial of the Automobile Club only two cars took part, viz., a 8-h.p. Rochet-Schneider car and an Oldsmobile. The average cost of fuel per mile of the former was .77d. and of the latter .51d. Both vehicles attained speeds up to the legal limit. The Rochet-Schneider car was stopped accidentally on the return journey, but was restarted without any adjustment after a stoppage of half a minute. It travelled the one mile test, which includes Dashwood Hill, in 6 mins. 52 secs. The 4-h.p. Oldsmobile stopped five times, chiefly owing to minor matters. The fourth stop was occasioned by taking up water.

Then the driving clutch, which had previously been slipping, was tightened, with the result that the running of the car was greatly improved. The one mile, including Dashwood Hill, was traversed in 9 mins.

Automobiles and the Yeomanry.

A VISIT was paid by Mr. J. R. Marten, of Brighton, to the Sussex Yeomanry Camp at Horndean, near Lewes, on a 6½-h.p. car. He had three passengers, and on going down the north side of Falner Hill a picket signalled a stoppage. The picket then tried to coax his unwilling steed to pass the motor-car, but, ten minutes having been spent in a fruitless effort, the rider had to dismount and lead the animal while the motor-car passed by. Apparently, the education of the Yeomanry horses has been sadly neglected, for when Mr. Marten got within a hundred yards of the nearest horse in the camp the commanding officer sent word that motor-cars were not allowed within hearing distance, as they might cause a stampede among the horses. If the presence of a motor-car is to disorganise a yeomanry camp, the value of the automobile in warfare is increased wonderfully; and the enemy with the largest number of powerful motor-cars could easily cause consternation in the ranks of its opponents.

Military Automobiles.

AT length the Army authorities seem to have awakened to the utility of motor-vehicles for transport service for the Army. At the present time a number of drivers are being trained at Woolwich, which, we understand, may become the centre of the military automobile department of the country, and it is even suggested that the carriage department of the Arsenal there may become one source of supply. The waggons on which the drivers are now being practised are on the Thornycroft system, and they have been seen in various parts of the Metropolis during the last few weeks. The other day one of these military transport waggons was seen fully loaded with about sixteen soldiers in khaki, and attracted considerable attention as it careered through the streets of a quiet suburban neighbourhood, most of the spectators imagining it had something to do with the Coronation festivities.

Motor-Car Imports and Exports.

THE returns just issued relating to the British imports and exports of motor-cars and cycles during May last show a small falling-off in the imports and a slight gain in the exports. To deal first with the imports, no less than 394 cars and cycles were imported into this country last month, the value of the same being returned at £93,537. The value of the "parts thereof" is given as £10,838, so that we get a combined total of £104,375, as compared with £121,180 in April last. Some of these imports were only of a temporary character, being re-shipped to foreign destinations. Thus last month the re-shipments comprised twenty-one vehicles amounting in value to £6,351, and £459 of parts, bringing down the net imports in May to £97,565. During the first five months of the

urrent year imports of foreign automobiles and parts in Great Britain have reached a net total of £371,260, representing over 1,400 cars and cycles. As regards the exports of automobiles of home manufacture, the shipments during the past month amounted to thirty-two vehicles of a value of £14,296. Of parts the exports attained a value of £288, making a combined total for May of £14,584, as compared with £12,102 in April last. It is satisfactory to find that, so far as the year has gone, that is to say, during the five months ending with May, 123 British-built motor-cars and cycles have been exported, their value being roundly £44,000.

Removing.

THE possibilities and utilities of the motor-vehicle are well-nigh endless. Not only is it the cause of the persecuting instinct in the police, but also their help when conveying prisoners to the station. Madame Lockert, of Paris, has found a use for the motor-vehicle in the removal of her belongings from one part of the city to another, and the accompanying



illustration depicts the scene as presented on the occasion of one of the automobile's trips between her late and present home.

The Show Question.

A REPLY has been forwarded to the Automobile Club by Messrs. Cordingley and Co., relating to the termination of the agreement, which, seeing that the original letter has been published in "Notes and Notices," will probably appear in the official organ of the Club. Here we will only say that it drew attention to the fact that arrangements for a definite period were entered into under the impression that they would be adhered to.

Of Mutual Benefit.

THIS week the matter has gone a step further by a letter being issued by the Automobile Mutual Protection Association, Limited, in which reference is made to an arrangement come to "with the object of preventing a multiplicity of exhibitions, entailing, as they do, such a heavy tax on those concerned in the industry, and also with a view to obtaining some pecuniary advantage to its members out of the annual Exhibition." An agreement has been entered into with the promoter of the Agricultural Hall Exhibition by which he will subscribe annually a large sum of money to the Association, to be used for the purposes of furthering the cause of automobilism and protecting the members of the Association who are engaged in the motor-car trade.

Motor-Buses at Eastbourne.

IN the Eastbourne Corporation Bill which has been before a Committee of the House of Commons was a clause relating to the establishment of a service of motor-omnibuses, and this was, after some discussion, duly approved. Alderman Strange, the Mayor of Eastbourne, said the general opinion of the people of Eastbourne was in favour of motor-buses being provided by the Corporation. There was a strong feeling against a tramway being made in the borough, but the desire for the provision of cheap locomotion for the ordinary ratepayer had to be met. Eight or ten motor-omnibuses would be sufficient to give the idea a trial. Mr. J. K. Bridges, electrical engineer to the Corporation, said his opinion was that the automobile had come to stay, and that it could be fairly adapted to public services for the requirements of the public. Omnibuses could be provided to accommodate fourteen passengers, and the cost would be about £588 each. They would weigh about two tons, and the cost of running would be 4½d. per mile. He estimated that it would cost £4,800 for the Corporation to supply eight motor-omnibuses, whereas to lay down a tramway and establish a tramway undertaking would involve a capital expenditure of something like £35,000.

The Oldest Automobile Association.

WITH reference to the article in our issue of the 31st May on the work of the Liverpool Self-Propelled Traffic Association, we have received some interesting letters, in which it is pointed out that seven months prior to the formal inauguration of that Association a circular was issued by the Self-Propelled Traffic Association of London, the Council of which included the Rt. Hon. G. Shaw Lefevre, Sir A. K. Rollit, Professor Vernon Boys, and others. That, of course, is quite correct; but as the London Association practically ceased to exist in the autumn of 1898, it may be regarded as correct to say that the Liverpool Association—now the local centre of the A.C.G.B.I.—is the oldest automobile association remaining in existence.

Motor Cycling at Cambridge.

THE advent of the motor-bicycle, though incontestably demonstrated by the present state of the trade in such machines, has hardly been so evident on the road as might have been expected. Doubtless this is owing to the unseasonable weather which has been prevalent; for, without admitting that the cycle is solely a fair-weather machine, the frowns of Jove exercise a more repressive influence on its rider than on his brother of the car. A recent run through Cambridge, however, on one of the few fine days with which we have been favoured, afforded a satisfactory proof of the position which the two-wheeled vehicle is assuming in that abode of learning. Of cars there were a few visible, including De Dions, Locomobiles, and a "Mabley," proceeding under conditions in which its light weight must have been of distinct advantage to the driver; but motor-bicycles were absolutely ubiquitous. A stay of a few hours in the town afforded us a view of nearly all the popular makes, many of them in considerable numbers, while a visit to the "King" Motor Co. elicited some information as to the large trade being done in their particular specialities. Automobile education cannot be better commenced than on a motor-cycle, and, once begun, seldom ends there. Our observations made it sufficiently clear that if the rising generation is not amply supplied with its rudiments the fault does not lie with one at least of the older universities.

The Power of Motors.

THE whole question of motor power is one which has been treated in an unfortunate manner from its commencement, and even the ill-named unit by which it is commonly measured has proved a fertile source of misconception. It is easy, of course, to fix a calculated output for a given size and type of

motor, and allow no engine to leave the workshop unless it reaches this standard in a workshop test; and provided the standard is high enough to ensure the best of workmanship and adjustment, this is, perhaps, the most legitimate use of the definition. But "horse-power," according to this, does not provide the information which the average purchaser desires; in the first place, his engine will seldom work up to its workshop standard, if high, or may improve with use, if low, and also, whereas he would like to be able to roughly estimate the qualities of his car by a horse-power weight ratio, the omission of the question of transmission efficiency makes this impossible. Secondly, the extent to which the construction of the engine permits the normal speed to be exceeded will cause wide differences in the actual performance of engines having equal b.h.p. according to this test at the normal speed. The practice on the Continent of listing engines at anything from 10 to 42 per cent. below their actual maximum power has led to hopeless confusion, increased by the few makers who state the actual average power as nearly as possible or, following cycle-motor practice, list them at something rather more than any driver will ever get out of them. It is difficult to suggest a remedy, unless it were that now that most motors are fairly well-designed cylinder capacity should be quoted for comparison; but the real question that the inquirer about horse-power wishes answered is best solved by races—even short-distance ones, if the results of them are sufficiently numerous.

France and Germany Copy England.

In the present issue we publish some particulars, with detailed illustrations, of the latest productions of France and Germany, viz., the new Centaure motor of Messrs. Panhard and Levassor, and the Mercedes car of the Cannstatt Daimler Company. It has frequently been stated that English motor-car builders showed no initiative in their designs, but it would seem that at last this country has devised some points which the leading firms on the Continent recognise as being of sufficient merit to incorporate in their latest productions. This is particularly noticeable in the Centaure motor, in which we find three-port, inlet valves, the cam-shaft enclosed in an oil-containing casing and a water jacket of light metal, all of which have been prominent features of the Napier motor for a long time past. At present Messrs. Panhard are using copper, while in the Napier aluminium is employed, so that at the present time the English firm is still a little ahead as regards weight. In the transmission gear the builders of the Napier car also claim to be still leading, as they continue to use the ball-bearing thrust blocks and roller bearings that they have employed for a long period for taking the very heavy strains, and in the latest Mercedes car, described on another page, ball-bearing thrust blocks are fitted throughout, the same as in the Napier. Continental builders of motor-cars, by reason of the restrictive legislation in this country, had a valuable start over British designers, but in many directions there are evidences that rapid progress is being made, and that the time is not far distant when Great Britain will take a leading position in the motor-car industry.

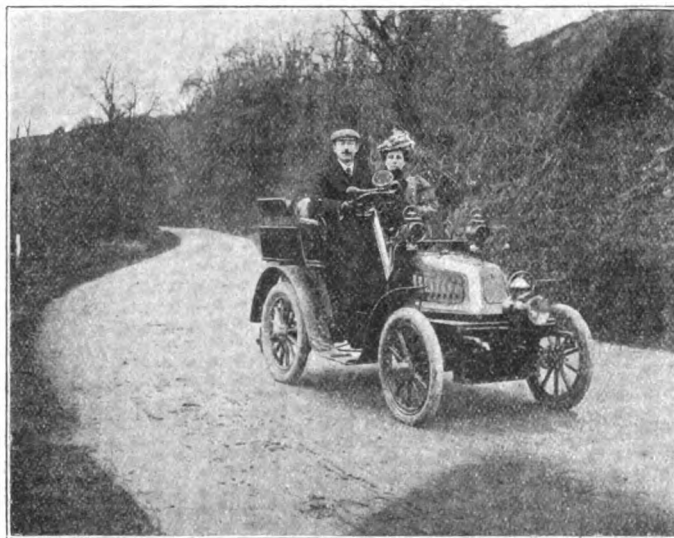
A Clean Slate Policy.

THE evil pre-eminence of Surrey, with Essex as a close competitor, make one almost hesitate to allude to police persecution in other localities; but "the force" at High Wycombe have perhaps not always shown that Christian forbearance that might be expected of them. Things may be different now; for a paragraph in a daily contemporary reports that the police in that popular venue of non-stop trials have been provided with dusters in order to wipe out the scribbings of children on hoardings and walls. Those districts that find time hang heavy on the hands of their guardians of law and order may well substitute this employment for the amateur surveying, chronometry, and hedge-burrowing hitherto in favour, while as the hard-working constable will be obviously unable to see what passes behind his back, no violence will be done to his conscience. And, perhaps,

when the juvenile literary efforts are exhausted, he can begin—with the same weapon—to attack the "dust problem." Anyhow, in keeping the walls clean, the police will be better employed than in harassing motorists. This new departure is almost as good as a clean slate.

Motor-Cars for the Colonies.

IN consequence of the drought, the coach service in the interior of Queensland has been suspended—a fact that should lead the colonists to consider the advantage of establishing a motor-car service which can rise superior to climatic considerations. In the newer countries the motor-car will play an important part, making accessible those sections of the district not yet supplied with roads, and also feeding the light railways which have been established in all our leading colonies.



MR. C. T. CUTLER ON HIS DARRACQ CAR.

Motor-Cycles on Railways.

A YOUNG motor-cyclist of our acquaintance went for a trip as far as Kingston the other day. Everything went well till the end of the journey, when the machine absolutely refused to return. Although near a railway station, the motorist had to leave his motor-tricycle at a local establishment instead of taking it home by rail. This little incident emphasises the suggestion of the *Field*, that a ruling on the subject of the carriage and storage of motor-cycles by railways would be welcome. Under their regulations concerning the conveyance of dangerous goods the companies have the power to refuse to accept a motor-cycle with petrol in the tank. The regulations are, of course, judicious in the ordinary way, but the petrol in the tank and the carburettor of a motor-cycle is safe enough. For his own purposes the motorist sees to that point. If the railway companies refuse to accept motor-cycles unless the petrol is first emptied from the tank, the motorist is confronted with a very awkward position, for he may be landed at a place where he is unable to procure a fresh supply, and the effect of his railway journey will be to leave him stranded. The restrictions concerning transit by train apply equally to the cloak-rooms. The matter ought to be put on a plain footing, and we hope the various organisations interested will take it up.

Magistrates and Motors.

SURREY magistrates are being condemned in almost every newspaper of any standing in this country, and the *St. James's Gazette* says: "These legal pundits seem to be so bent on excluding motor-cars of all descriptions from the Surrey roads if they can, that when a gentleman was brought

before them on a charge of driving at illegal speed they forgot or ignored the elementary principles of the law which it is their duty to administer. A man accused of driving an automobile at eighteen miles an hour instead of twelve is no less entitled to 'the benefit of the doubt,' if doubt exists as to the facts, than if he were charged with arson or murder. When country gentlemen administer justice in this fashion it defeats its own ends. For when it is found that nothing is to be gained by obeying the law, and that the sworn testimony of gentlemen out for pleasure or business is contemptuously brushed aside whenever it conflicts with the views of a policeman eager to show some result of his lonely vigilance on a country road, it will naturally be argued that as a fine will be imposed in any case on the motorist who falls in with one of these sentries, he may as well get his money's worth by going twenty miles an hour and taking his chance of capture as by restricting himself to twelve. It is bad enough that the legitimate use of these vehicles should be hampered by vexatious legal restrictions; but it is really intolerable that any law whatever should be administered with the reckless disregard of evidence that seems to have marked this decision of the Guildford magistrates."

The Charity Fetes.

TO-DAY (Saturday) is the last of the battles of flowers at the Earl's Court Exhibition in aid of the French charities in London. For Friday, the 13th, a grand automobile battle of flowers was announced, and we have been informed of the following entries:—Mrs. Copland, 8-h.p. De Dion; Mrs. Arthur Collins, 7-h.p. Panhard; Madame Jules de Meray, 14-h.p. Gobron-Brillie; Miss H. Dicks, 10-h.p. Panhard; Miss Gutmann, Weston steam car; Messrs. Roland Browne, Lanchester; A. Burgess, 12-h.p. M.M.C.; Charles Cordingley, 12-h.p. M.M.C.; C. G. Campbell, 7-h.p. Panhard; Cecil Edge, 16-h.p. Napier; R. M. Ford, 10-h.p. Decauville; C. Friswell, 5-h.p. Peugeot; Max Hecht, electric landau; Charles Jarrott, 16-h.p. Panhard; F. Keith Jones, 8-h.p. Hurst and Lloyd car; L. Byam Jones, 8-h.p. car; F. W. Peckham, 4½-h.p. Oldsmobile; P. Richardson, 18-h.p. Daimler; J. H. Smith, Locomobile; and J. W. Stocks, 8-h.p. De Dion. Princess Henry of Battenberg was announced to preside over the fete and distribute the prizes in the Royal Pavilion. Several banners, including those offered by the Lord Mayor of London and the Mayor of Cannes, were to be awarded.

The Aeronautical Institute and Club.

At the last meeting of the Aeronautical Institute and Club, Mr. Frederick Walker read a paper on "The Screw Propeller and Aerocurve in Theory and Practice." The author some twenty years ago pointed out the adaptation of screw propellers for high velocities in air traction, showing that with a constant velocity the fluid molecules successively driven aside by the propeller experience the same displacements and receive the same velocities at different instants of motion, and meet the same resistance. He illustrated graphically the ratios of pitch, diameter, velocity and power of propellers, and the method of constructing the curves, and explained the vortical condition due to the use of too many blades, or too great a surface area of blade generally. He further showed the relative values of the theoretical pressure and dynamical pressure, and that the ordinary thrust computation is not a correct definition of the actual power of the propeller. The author then showed how the axial line of the propeller should be set as an angle of incidence to the normal horizontal, and at a point equal to the length of pitch upon it; a line from the periphery cutting the point forms the "set off" for superimposed aerocurves or wings, to receive lifted power from the displaced volume of air, their correct positions and areas for maximum effect being thus determined. He proceeded to state that on the calmest day there was no such atmospheric state as perfect quiescence, an undulatory motion at a low rate of velocity always existing, and in a strong wind the direction of the current was

never directly in a straight plane, but undulatory in character, and in order to utilise this phenomena the aerocurve was preferable to the aeroplane. He then graphically described the construction of a true aerocurve by adopting as a surface a cissoid curve. Mr. P. L. Senecal afterwards made some experiments with several working models, the machines flying about the hall, the purpose of Mr. Senecal's experiments being to prove that a flying machine could be steered by means of a movable weight.

Motor-Cars for the Holiday Season.

THE running of motor-cars through the streets of Worksop is a traffic which has grown to such an extent in the first half of this year, that practically there are quite as many motor-cars seen in a day as there are cabs, and it is quite probable that when the real holiday-making begins they will be seen and heard day and night along the way which leads to the best scenery of the Dukeries. In thus helping people to learn more of the scenery and landscape of their native country, the motor-car is having a great educational influence. From the seat of the motor-car it is possible to take a broad survey of the country such as is impossible from a railway train, where the view is necessarily "cribb'd, cabin'd, and confin'd."

THE Bexhill Motor Company have been appointed agents for the Argyll cars in the Hastings and Bexhill districts.

It is interesting to note that Mr. John Gubbins, owner of Ard Patrick, the winner of the Derby, is the owner of a motor-car.

AN application for a licence for motor-cars to ply for fares between Portishead and Clevedon has been referred to the Road Committee of Portishead Urban District Council.

IN our issue of the 31st ult. it was stated that the consumption of petrol of the Wolseley 10-h.p. car in the recent Dashwood Hill trials was three gallons; this should, of course, have been 3 gallons.

It may interest our readers to know that great progress is being made with the extension of the Automobile Club's track at Bexhill, and that it is expected to be quite ready for the August Bank Holiday race meeting.

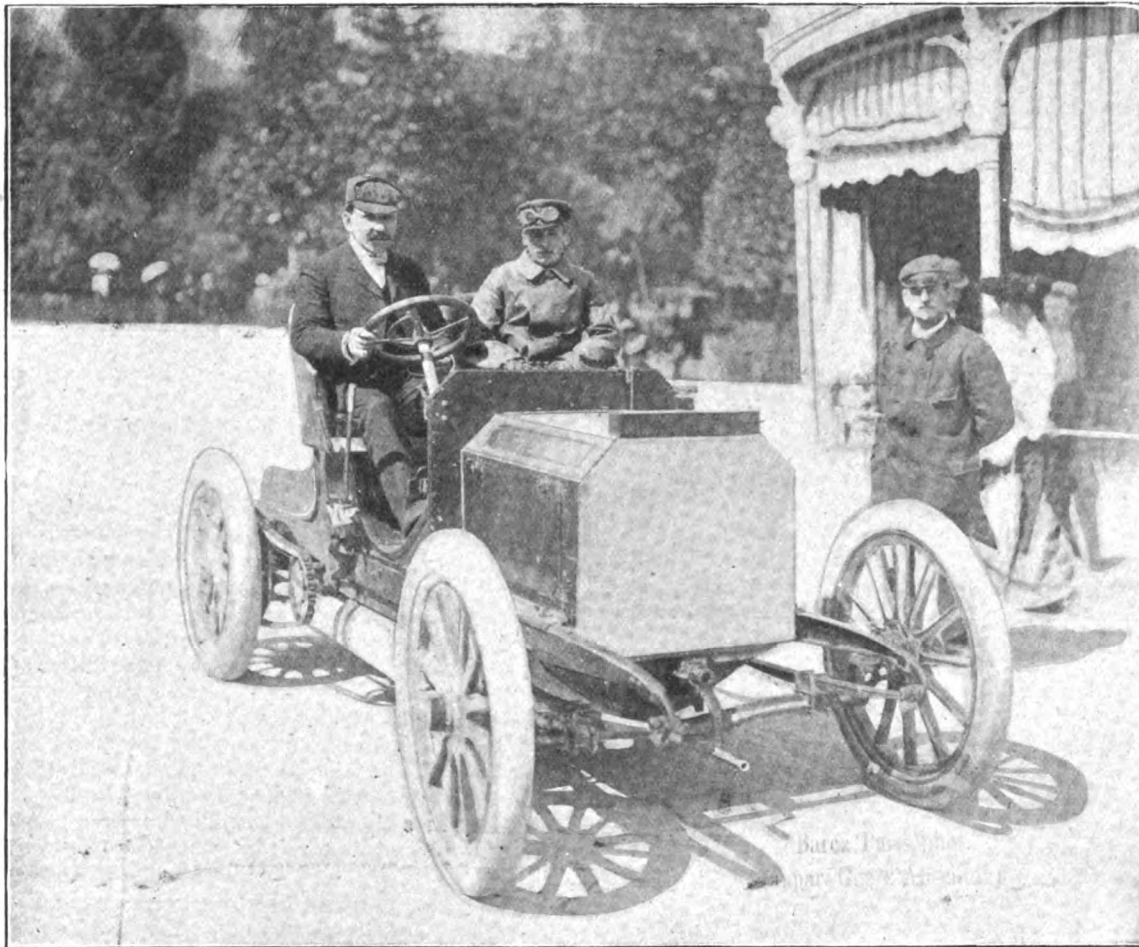
AS we go to press we learn that the Wolseley Tool and Motor-Car Company have entered three cars for the speed section of the Paris-Vienna race. A definite challenge has also been sent by the A.C.G.B.I. to the A.C.F. for the Gordon Bennett Cup.

THE North-East Lancashire Automobile Club has been formed at Blackburn with Sir Henry Horaby, Bart., M.P., as president and Mr. Geo. D. Walmsley as hon. sec. The club is holding its first run to-day (Saturday) to Clitheroe.

ONE day last week we had a short run as far as the Crystal Palace in company with Mr. J. J. Mann, on one of the latest types of Georges Richard 10-h.p. cars, and were much struck with the quiet and easy running of the vehicle. The various levers, including that controlling the change-gear, are grouped around the steering column, enabling the driver to perform all the necessary movements with ease. The car tackled the hills in the neighbourhood of the Palace at a good rate, and on the level showed itself capable of a speed well above the present regulation limit.

THE Automobile Club of America has made good its threats to its members and its promises to legislators, both state and local, during the recent speed law agitation, to punish all violations of the law within its ranks. The governors of the Club after a hearing have suspended Dr. J. Grant Lyman for six months and Mr. Kenneth A. Skinner for three months, and admonished Mr. E. B. Gallaher. The charge was gross violation of the legal speed limits in the recent Long Island run. The facts were, of course, undisputed. Dr. Lyman and Mr. Gallaher appeared in person and Mr. Skinner wrote a letter to the Board. Mr. Gallaher's defence was that he had exceeded the limit fixed by the judges by only three minutes.

The Mercedes 40-h.p. Car.



M. E. STEAD, THE WINNER OF THE NICE-LA TURBIE HILL CLIMB, ON HIS 40-H.P. MERCEDES.

[*La France Automobile.*]

IN our issue of March 15th last we were able to give some early particulars of the new 40-h.p. Mercedes-Simplex car, which has recently attracted so much attention. The vehicle comprises so many novel features that space may usefully be devoted to a further reference thereto. To deal first with the motor, two views of this are given in Figs. 2 and 5. As will be seen, it is of the vertical four-cylinder type, the new departure being that the admission valves, as well as the exhaust valves, are mechanically actuated. The inlet valves are all on one side of the motor, and the exhaust on the other, so that two cam shafts are required, these being operated by spur gearing from the crankshaft. The cylinders are each 118 mm. diameter, the stroke of the pistons being 150 mm. The inlet valve stems project vertically downwards over the camshaft, and are lifted by the same method as that usually employed to actuate exhaust valves when no cut-out governor is used. The exhaust side of the engine is shown in Fig. 2. The exhaust valves themselves are of the same diameter as the admission valves, but have conical seatings, and the lift in both cases is 8 mm. A single exhaust pipe, F, is used. A spur wheel, N, on the middle of the camshaft drives the pinion O, on the magneto-shaft, and also the water-circulating pump, P. A valve is fitted in the exhaust pipe just before it reaches the silencer, which can be opened by a lever on the dashboard, and allow the exhaust to pass directly into the atmosphere for racing purposes. The silencer, of which a drawing is given in Fig 4, is 27 in. long and 7½ in. diameter. The exhaust pipe projects

into it, the end being plugged and the pipe perforated. A baffle plate, Q, divides the silencer up into two compartments, a long pipe, R, extending from the apparatus to the rear of the car. Ignition is effected by means of a Simms-Bosch magneto, M, with wiping contact in the cylinder head on the admission valveside. A single float chamber and jet supplies the explosive mixture for all four cylinders. The vaporiser, which is provided with a throttle valve consisting of a sliding sleeve, operated by the governor, consists of a horizontal tube, into which the spraying nozzle projects vertically. This tube is surrounded by a rectangular box, into which hot air from a casing round the exhaust pipe is conveyed. Cold air from the other end of the horizontal tube passes through the cylindrical sleeve which forms the throttle valve, and dilutes the mixture as it passes to the admission pipe. The governor itself is carried in the spur wheel on the camshaft which operates the inlet valves, and a small lever is provided on the steering wheel in place of the usual foot "accelerator." The cooler, which is fixed vertically in front of the motor bonnet, is of the marine condenser type. It consists of a tank pierced by a large number of small square tubes grouped closely together, so that the space between them is exceedingly small. A large centrifugal pump, Q, driven at a moderate speed off the magneto-shaft, circulates the water, while a fly-wheel fan draws the air through the tube. The bonnet, which is fitted between the dashboard and the cooler, has no openings, except the inspection doors, and there is a sheet of aluminium, which passes under the engine and is secured to the frame on each side, so that all the

air which is drawn by the fan must pass through the cooler. The engine shown in Fig. 2 is fitted with a separate fan, but in the standard motor the fly-wheel is of large diameter and has its arms so shaped as to act as a fan to induce a powerful

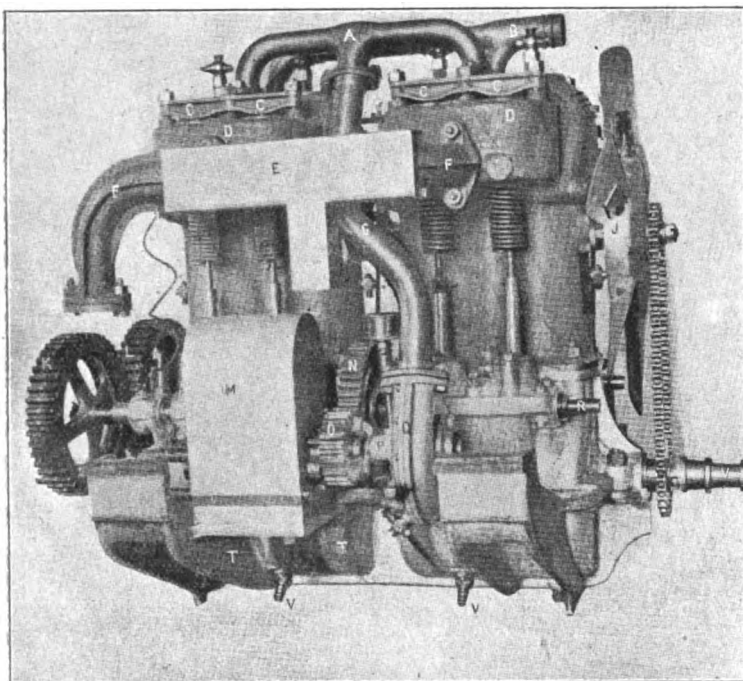


FIG. 2.—VIEW OF MERCEDES MOTOR. EXHAUST VALVE SIDE.

- | | |
|--------------------------------------|------------------------------------|
| A. Water Inlet Pipe. | G. Water Circulating Pipe. |
| B. Water Outlet Pipe. | M. Magneto. |
| C. Clamps securing Exhaust Valves. | N.O. Pinions operating Magneto. |
| D. Exhaust Valve Boxes. | PQ. Water Circulating Pump. |
| E. Hot Air receiver for Carburettor. | R. End of Exhaust Valve Cam Shaft. |
| F. Exhaust Pipe. | |

current of air through the cooler and motor bonnet. This arrangement has necessitated a change in the form of clutch used. A diagram of the new method is given in Fig. 3. It

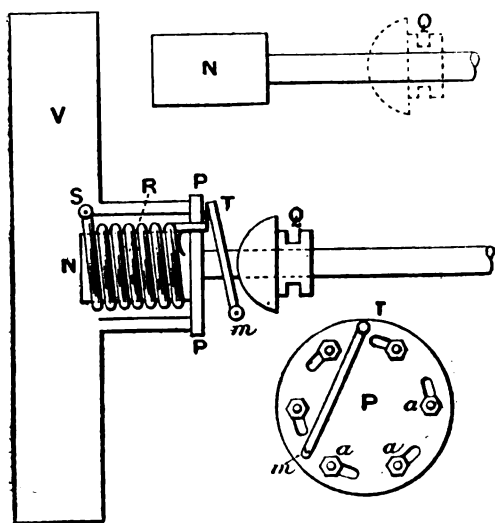


FIG. 3.—DETAILS OF THE MERCEDES CLUTCH.

will be seen that the new clutch is extremely small, and is fitted inside the boss of the fly-wheel. It consists of a spiral spring, R, one end of which is fastened at S to the fly-

wheel, while the other is connected on the disc, P, to a small lever T. When this small lever is operated, the spring is tightened on to a small cylindrical drum, which is connected to the first shaft of the change-speed gear, giving, it is claimed, sufficient frictional grip to drive the car. This movement of the lever which tightens the spring is effected by a sliding cam, Q, of special form, which, when pushed forward by a spring, engages with it and puts the clutch into operation. Passing to the change-speed gear, the first noticeable feature is the adoption of an arrangement permitting the gear to be changed without applying the foot to the clutch pedal, this being effected by a device which automatically holds the clutch out of gear when the change-gear wheels are not fully in mesh. Four speeds forward and a reverse motion are provided, the power being

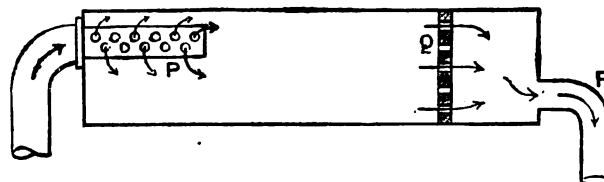


FIG. 4.—THE MERCEDES SILENCER.

transmitted from the change-gear box by bevel gear to the differential shaft, and thence by two chains to the two rear wheels. All the bearings except those in the motor are of the ball type. Ample brake power is provided, there being expanding toggle brakes inside the chain sprockets, operated by a hand lever, an ordinary double-acting band brake on the counter-shaft, and a third band brake on the forward end of the second shaft of the speed gear. These two latter are operated by pedals, and are water-cooled, the water being automatically turned on when the brakes are applied. The petrol is carried in two large tanks below the frame at the rear. Exhaust pressure is used to force the petrol from the tank to the carburettor. The wheel-base of the car is 8 ft. by 4 ft. 9 in. The axles are of weldless steel tube, with the ends brazed and pegged. The steering pivots of the front wheels are inside the hubs, which

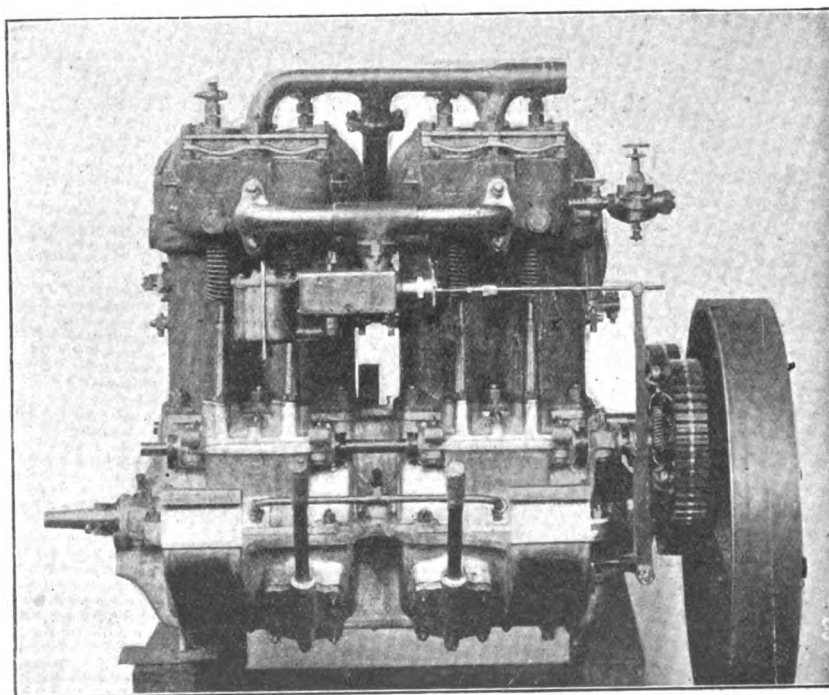


FIG. 5.—VIEW OF MERCEDES MOTOR. INLET VALVE SIDE.

are of large diameter. All four road-wheels run on ball bearings. The car, notwithstanding its high power, weighs complete just under a metrical ton.

A COOL DAY IN JUNE.



TRADITION asserts that June is the month of the [Sun, when gentle zephyrs make pleasant the country and sultry the streets of the town. Poets have sung of its warming breezes, and philosophers enjoyed the way in which it has driven fires from the hearthstone. But the June of the Coronation year is not a traditional June; it is

rather reminiscent of the winter, and only needs a yellow mistiness to anticipate the delights of next November. When Mr. Hewetson determined upon a self-imposed task of driving a motor-car—one of the popular Benz type—a hundred miles for fifty consecutive days the month of May was still with us, and doubtless he had visions of delightful trips to the seaside; of refreshing jaunts into Bedfordshire lanes, away from the sultriness of our London pavements; and of seeking new health and pleasures in most genial weather. He certainly deserved some such compensations, for his exploit was not intended merely to demonstrate that the car he has popularised in this country is one that can run with the perennial freshness of "Charley's Aunt": but he hoped to help the Hospital Fund by offering the identical vehicle to the highest bidder at the end of the fifty days' wanderings, and handing the proceeds to the Committee that is administering that Collection for Charity.

But, alas! June has excelled March for fickleness, and the first day of the run was about the worst day of the month, so far. At 9 a.m. on Monday last Mr. Hewetson intended to start from the Carlton Hotel, Pall Mall, W., go to Brighton, and return in good time, having completed just over a hundred miles. On each of the fifty days Mr. Hewetson, who proposes to drive himself on each occasion, will have a different companion, who will act as Observer, to tell the world should the car behave in any way other than that expected of a modern, comfortable, and reliable automobile. But although the Observer will be changed each day, the car will be the same. On the first day "Lollius" was the duly accredited Observer on the car, while Mrs. Bazalgette—whose triumph in the 1,000 Miles Trial showed her to be an enthusiast—was on her little $3\frac{1}{2}$ -h.p. car, intending to follow in our wake, driving the whole of the way. Near by was Mr. J. C. Nixon, mounted on a trusty motor-bicycle of the Hewetson type, a machine characterised by simplicity and "go"—of which latter quality more anon. The weather, too, was there—and such weather! Even pedestrians had donned their overcoats, and carriage folk peered from behind closed windows. The sky was in a furious mood, and the rumblings overhead foretold of deluges somewhere. We were unanimous in the wish that the Brighton road would be free, or, should the rain come along, the police of Surrey would be as anxious to arrest its violence as they are to catch unwary motorists.

And so, shortly after nine, we left the group of people who had assembled to witness the start of the Five Thousand Miles, and were soon passing between the wooden walls of Clubland. Rounding Marlborough House, or rather the stand that is being erected there, we got into the Park and scurried along into the open country, making good running all the way to Reigate. Down Reigate Hill we swept under the great arch by which stood a policeman—fit emblem of the pleasant county of Surrey.

The wet that we had anticipated had not come our way so far, and although it had threatened and the clouds hung heavily we were cheerful—as who would not be, going steadily and reliably on a car that is intended to go practically continuously for seven weeks? In pleasant conversation the way to Crawley and Handcross passed quickly enough, Mr. Hewetson emphasising the fact that his car is not a racer, but a comfortable touring one for ordinary country purposes. He believes in the Benz car, which has carried him many thousands of miles, and which he knew a couple of years before the passing of the Emancipation

Act of 1896. Prior to that he had had a car in use, and with the help of a lad was able to carry out the legal requirement that a light locomotive should be preceded by a red flag—when the representative of the law was about. Near Handcross Mr. Nixon was waiting, having left us some time before at Reigate. On his motor-bicycle he had been making great spurts, and down Handcross Hill he travelled in a style that showed absolute control of his machine. Through Hickstead and on to our destination we maintained an uniformity of running that was remarkable. Mr. Hewetson had expected to get to the Hotel Metropole at one o'clock; we got on to the Parade a few minutes before that time; a brother Benz—the third we had seen on the way—coming along King's Road at the same time. Within half an hour Mrs. Bazalgette arrived, having driven all the way, and added another fifty to her already long motor mileage.

THE RETURN.

Having lunched at the Metropole, outside of which two or three motor-cars were resting, and having quaffed of the sea breezes that constitute the invigorating joys of Dr. Brighton, we began to think of town again. But petrol had to be taken on board, and so we called at Messrs. Hedges and Butler's place in the King's Road, only to learn that, not there, but next door was the necessary flow of spirits to be obtained. The mistake was pardonable—motorists regard both places as of necessary and pleasant resort. But although "next door" is the headquarters of the Brighton and Sussex Motor-Car Co., no petrol was there. It is stored at the company's repairing shop in Gloucester Road, and thither we journeyed—two cars and a bike. Of good capacity are the works, while it was evident that the facilities for overhauling cars are of equally good order. But our trusty Benz needed no adjustments—only the vitality that comes from petrol, and having taken its stated dose, the car was soon out of Brighton, and again on the high road from the sea. By the side of Preston Park we passed a party of excursionists enjoying one of the pleasant motor-car trips that are provided for the delight and exhilaration of visitors, while a little ahead we overtook one of the Thornycroft steam vehicles belonging to the Rock Brewery Co.—with a load that would have proved inviting to some of the drivers in the "Circuit du Nord," if not wholly appetising to the vehicles themselves.

The road from Brighton to London has been so often described, and so much enjoyed, that it need now only be said that another non-stop run was made on the return. Avoiding Reigate, we came through Redhill, Merstham, and then to Purley, meeting the electric cars at Croydon. Tram-lines are one of the worst abominations that motorists have to endure, but those on these roads are not nearly so bad as when, to the ordinary lines for horse-drawn trams, are added the elevations that accompany the transformation from the old system to that of electric traction. These we experienced at Balham and Clapham, where time had to be spent in negotiating the roads—roads that motorists would do well to avoid for a few weeks. Over Battersea Bridge and along Ebury Street we went, reaching Marble Arch at seven o'clock, having been three and a half hours on the way—a comfortable journey so far as the running of the car was concerned, although with a maximum temperature for the day in London of 52 (17 degrees below the average maximum temperature for June during the last thirty years), it was a time for rugs and furs and other winter raiment.

Thus the first day's run was finished—in itself not perhaps a great exploit, but when the trip is repeated every day for fifty days, it should prove anew the reliability of the motor-car, and add another testimony to the value of the Benz.

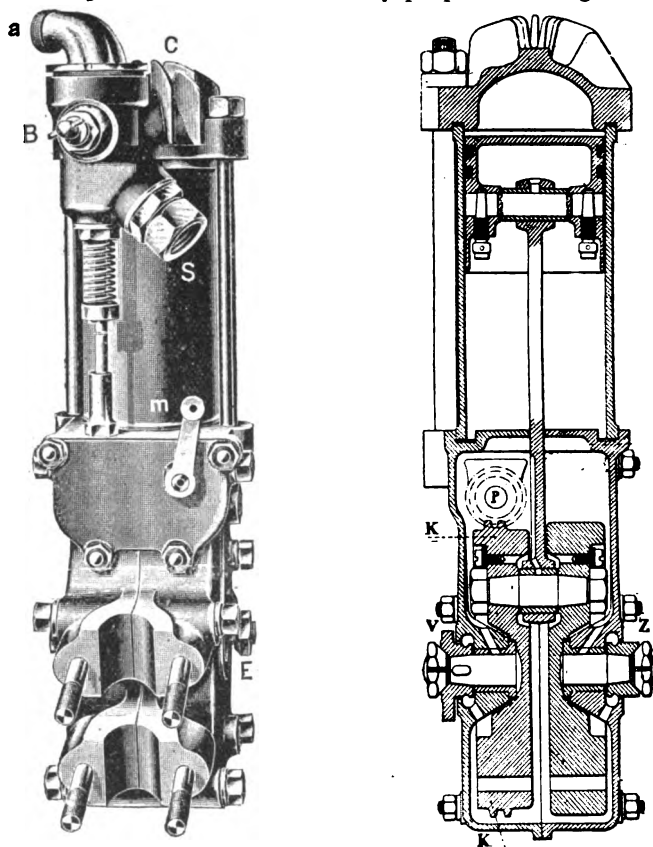
LOLLIUS.

COUNT HENRI DE LA VAULX and Count Castillon de St. Victor are contemplating a European tour in the air. They propose to travel about for four or five weeks in a balloon over the Continent, remaining up aloft every day from five in the morning till the afternoon, and then alighting whithersoever fate and the winds may happen to have blown them.

THE CARE OF MOTOR-CARS.

IT has taken years for the most intelligent of manufacturers to find out definitely what constitute the requirements of a practical motor-car. As was the case before the bicycle became a serviceable means of transportation, many thousands of pounds have had to be expended ere it was possible to detect certain errors of construction that could not be foreseen. It has been a slow and very expensive undertaking to learn how to build a practical motor; to find out what type of frame, brake, and body were best adapted for travelling over public highways; to discover the best means of applying mechanical motor power to vehicles designed for the transportation of merchandise; and to reduce the cost of manufacture and maintenance to a point that could reasonably hope to compete with horse traction.

The day of experimentation has not yet passed in motor-car construction—nor will it entirely cease until mechanical ingenuity has been exhausted. But the motor-car of to-day is no longer a pure experiment or a toy. It has come to stay. It must, in time, supersede the horse for many purposes in large cities;



FIGS. 1 AND 2.—GENERAL VIEW AND SECTIONAL ELEVATION OF DE DION BICYCLE MOTOR. (See opposite page.)

and, as a pleasure vehicle, a motor-car must sooner or later find a place in all well-equipped private stables. The public, however, will first have to be educated to certain important facts relating to automobiles, concerning which they seem as yet to be somewhat in the dark. Many intelligent people seem to be extremely thoughtless in their views regarding the capabilities of motor cars, and grossly ignorant as to what attention any first-class vehicle demands. They seem to hope and expect that human ingenuity will in time devise a piece of mechanism that will run perfectly at all times and under all conditions. They think, apparently, that it should never need any particular care or attention; that it should never get out of order; that bolts should never work loose, or any of the parts require adjustment; and that all it should need is the ordinary care given to-day to a carriage without an engine, viz., washing and greasing of the axles. Certainly, no one has a right to expect that an uneducated coachman can become a capable mechanic without special training; that all he has to do

is to sound the horn, work the steering apparatus, put on the brake occasionally, and go along for miles uphill and down for days or months without delays, repairs, or annoyances either to him or the owner.

Any engine that is running at a speed of from 250 to 2,500 revolutions per minute can do more damage to itself (when out of adjustment) in a very short time than an inexperienced owner imagines. The absence of a few drops of oil in some important bearing may stop the best engine made, and cause expensive repairs. A loose nut in some important part of an engine may (if allowed to remain loose) rack it badly, and possibly break some important part. Such accidents are possible in every railway locomotive, or in any other type of perfected engine, whenever the engineer grows careless or is incompetent.

Almost every day some prospective purchaser of a motor-car says: "I think I will wait until a perfected car is made—such, for example, as a locomotive." Did the reader ever stop to think, when he sees a locomotive quietly waiting in a station to start upon a long journey with its load, that two of the most skilful class of mechanics have perhaps been for hours engaged in carefully cleaning every part, oiling its many bearings, tightening all loose nuts, watching with extremecare to see that no part is out of adjustment before the start, and making a careful inspection to ascertain if the steam apparatus is in perfect working order? Does the average man or woman appreciate that the same skilful mechanics are also at work upon certain parts of the superb mechanism even while the locomotive is running? Does the public properly weigh the fact that a locomotive always runs upon a smooth rail, with only moderate grades to overcome, and with no unexpected obstructions to meet?

Granting, for the sake of argument, that the locomotive is as nearly a perfected machine as it is possible to make, or for human ingenuity to devise, what would a modern locomotive do if required to propel itself and its load over a rough public highway, with steep grades to frequently overcome, with mud occasionally packed all over many of its mechanical parts (as may be the case with a motor-car), and with unexpected obstructions or difficulties to encounter, such as holes in the road, wet and slippery clay, stones, etc.? How long would a locomotive last, even under the favourable conditions given to it on railways, if it were not frequently put in the repair shop? Is it not irrational to ask of a motor-car builder that he produce an engine which can do more than any locomotive could possibly perform under similar conditions, and to condemn it because it occasionally rebels at abuse and mismanagement? Many of the automobile engines of the higher grades are to-day practically perfected. They will do their allotted work day in and out, if properly handled and cared for. They require, like all fine machines, occasional repairs; but the percentage of necessary repairs to those which are absolutely unnecessary under proper management and care is extremely small. The use of the motor-car as a touring or pleasure vehicle must of necessity be confined to those who have some means; and who can, moreover, afford to pay well for the exhilaration and delight that such a vehicle can alone afford. Yet the expense of purchase and maintenance of a motor-car need not to-day greatly exceed that of a first-class driving outfit, provided that the owner or the mechanic employed is capable of protecting the vehicle from unnecessary wear and tear, and of running it economically. An expert can always get more out of any high-class car in speed, hill-climbing and economy of power than a novice. It takes some education and a large experience to run a motor-vehicle with satisfaction and economy. Unfortunately, many of the accidents that happen to automobilists, and the thousand lesser annoyances, are often attributed to every cause but the real one. This condition of things cannot last for ever. It is sure to continue, however, until the general public begins to realise that an engine must be mastered before it is run to the best advantage; and to learn by experience that every owner or his coachman cannot become a skilful motor-car driver in a day or a week.

A SAFETY hat-pin for the use of motorists has been introduced by Messrs. Thompson Bros.

THE DE DION-BOUTON BICYCLE MOTOR.

TWO or three months ago we were able to give early notification of the fact that Messrs. De Dion, Bouton and Company, of Puteaux, Paris, were busy at work on the production of a small petrol motor suitable for use on motor-bicycles. We have already (see issue May 24th) given two general views of the new engine, and are now able to present our readers

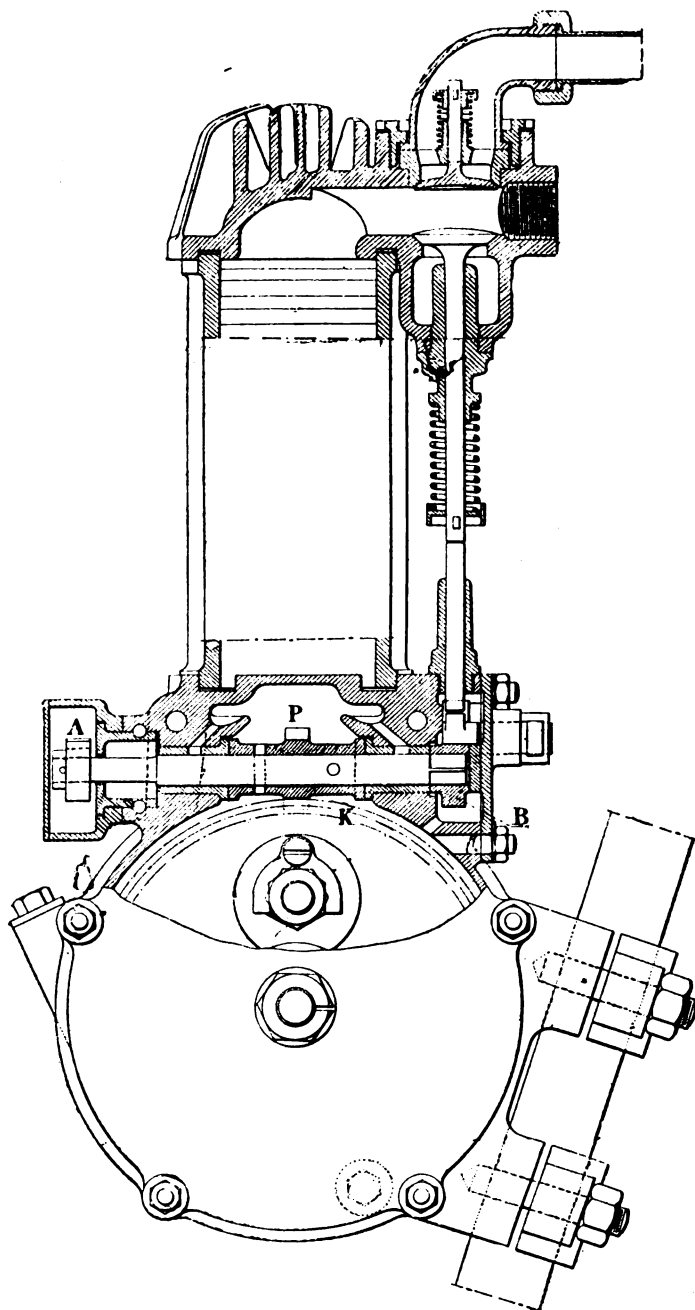


FIG. 3.—SECTION OF DE DION BICYCLE MOTOR.

with some drawings which clearly show the novel features which have been incorporated in the latest production of the Puteaux factory. In the first place it will be noticed that the width of the engine has been reduced to the smallest possible limit, the width of the crank case being only 14 centimetres or $5\frac{1}{2}$ in. To do this it has been necessary to adopt quite a new method of operating the exhaust valve. The half-speed shaft and the crank shaft are no longer parallel, as in the usual type of De Dion engine, but at right angles. Glancing at the sectional

view (Fig. 2), for which we are indebted to *La Locomotion*, it will be seen that one of the flywheels is made to serve as a pinion, having formed on its periphery a long circular thread K which meshes with a worm wheel P on the half-speed shaft. This method of controlling the exhaust valve has also permitted the re-arrangement of the ignition gear, so that beyond the driving pulley there is nothing on the two faces of the crank case.

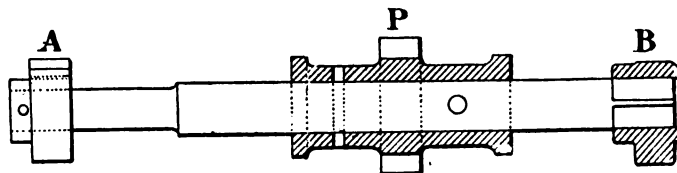


FIG. 4.—THE EXHAUST-VALVE AND IGNITION CAM SHAFT.

It will also be noticed that the cylinder is not fitted with the usual radiating ribs, but is simply a plain tube; the head is, however, ribbed, and is held in position by two long rods extending vertically from the crank case. The inlet and exhaust valves are placed one above the other as usual, with the sparking plug in between. The dome which holds the inlet valve and admission pipe in position in the older engines has been replaced by a special threaded nut enabling the pipe to be fixed at any angle. The exhaust valve is actuated by a pivoted hammer which is lifted by the cam B (Fig. 4) on one of the ends of the half-speed shaft. A special arrangement of exhaust valve lifter and compression release is fitted, which we are unable to describe at the moment. At the opposite end of the half-speed shaft is mounted the ignition cam A. Contrary to the usual De Dion practice, the base plate M (Fig. 5) of the commutator is of metal. The platinum screw

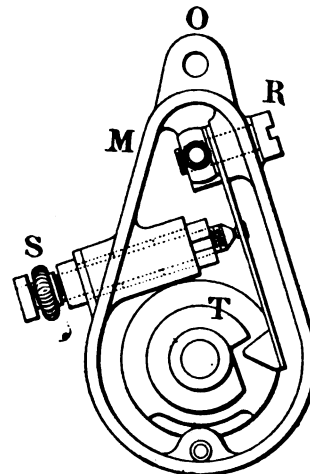


FIG. 5.—THE COMMUTATOR.

S is insulated in order that the current it conveys shall only pass away to the wire attached to the terminal R when the trembler touches the end of the screw. The cylinder has a diameter of 62 mm. (roundly $2\frac{5}{16}$ in.), the stroke being 70 mm. ($2\frac{3}{4}$ in.). The speed ranges from 1,500 to 2,500 revolutions per min., $1\frac{1}{4}$ h.p. being developed at the normal rate. Heavy flywheels are fitted, the weight of the engine being 22 lbs. The reputation of the De Dion firm for small petrol motors is bound to bring the new bicycle motor into prominence at no distant date.

THE Irish Automobile Club will hold a run from Dublin to Johnstown to-day (Saturday).

ACCORDING to a telegram from Rome, King Victor Emmanuel was on Monday morning driving a motor-car downhill at full speed in the environs of the capital, when the car struck the wall of a convent. The automobile was damaged, but the King was fortunately uninjured.

CONTINENTAL NOTES.

By "AUTOMAN."

TOWARDS the end of last week Dijon was the scene of an Automobile Congress, organised under the auspices of the Automobile Club Bourguignon. The meetings took place in the theatre, and in addition to the attendance of all those interested in motor-cars in the neighbourhood, a large contingent of automobilists attended from Paris, coming either by train from the Gare de Lyon or by road on their various motor-cars. The Congress was opened by M. Durnet, a member of the Automobile Club Bourguignon. The first question raised was the all-absorbing one of the existing state of the law with regard to automobiles and speed limits, and on this subject M. G. Dulaurence de la Barre, barrister of the Court of Appeal in Paris, read a paper, describing the history of legislation in France on this subject.

ONE very striking part of his argument, and one which will surely interest English automobilists, was the account that he gave of a case of excessive zeal on the part of the police in Paris. A man in the employ of the Paris Tramway Company was summoned for driving too quickly, and the police who issued the summons gave evidence of the distance over which he had travelled and the time occupied in travelling the distance, calculated by stop watches. The Tramway Company demanded that the distance should be re-measured, and the watches should be examined by an expert. The Tribunal allowed this to be done, and it was found that the distance measured 360 metres instead of 475, and that the watches were incapable of giving an exact result. The man was, of course, acquitted, and it was suggested in excuse for the police that, in order to keep their situations or obtain advancement, they are obliged to get as many summonses in as possible, and the new law against an excess of speed gives them an easy way of obtaining glory.

AFTER a long discussion it was decided to adopt the following proposals:—(1) That the limit of speed in the open country shall be suppressed, and that other measures shall be taken instead; (2) that strong measures shall be applied to those who, having been the cause of an accident, try to avoid the responsibility of it by flight.

THE next question discussed formed the subject of a report by M. Henri Cottureau, and referred to insurance against fire and accidents, premiums, and guarantees. M. Cottureau showed how the automobile has passed through the difficulties and dangers of its earlier stages, and yet suffers from a tardy recognition by the insurance companies of the fact that it is no longer a dangerous instrument when in the hands of any person ordinarily careful. The old ignition-tubes, of course, were the greatest source of danger, and caused many cars to be burnt. No one will forget that the father of the French automobile trade—M. Levassor—lost his life owing to the injuries he received from an accident of this character. M. Cottureau gave five reasons why the motor-car of to-day is much safer. They were the following:—(1) Lowering the centre of gravity, rendering it almost impossible to turn the car over; (2) gearing down of the steering-gear so as to ensure maximum safety; (3) brakes on the wheels in addition to brakes on the shafting; (4) the adoption of electrical ignition; (5) the adoption of pulverising carburettors, instead of surface carburettors, the former making its gas only as it is required.

COMING to the details of fire insurance, M. Cottureau pointed out that a motor-car of the value of £400 cost £6 a year for fire premium. This would mean that one car out of every hundred is burnt up every year, which, of course, is an absurdity. It is right to add, however, that this 15 per cent. premium is only charged on a car that is in the hands of a customer, while 3 per cent. is considered the amount of risk if the car is in the hands of the maker. There seems to be no reason for this difference. M. Cottureau goes on to propose in a very sensible manner

that insurance on automobiles should be divided into two categories—namely, that charged on the frame; and secondly, that charged on the carriage work. It is evident that in case of fire the carriage work suffers to a much greater extent than the frame, and, as a matter of fact, the damage done generally is exclusively to the carriage-work. M. Cottureau made the following recommendations:—(1) That fire premiums should be established on a more equitable basis, in proportion to the actual risk, and they should not in any case exceed the premiums applied to manufacturers of automobiles and to garages; (2) that the fire insurance companies should study and propose a system of depreciation of premiums in proportion to the depreciation in the value of the car; (3) that the premium for accident insurance for cars not exceeding nineteen miles an hour should be reduced to the tariff which is applied to the driver, and that above this speed the increased tariff should be based on the speed of the car, instead of its horse-power; (4) that the insurance company should be requested to come to an agreement in order that complete policies covering all the risks of fire, accident, theft, and repair should be possible, and that the clauses rendering the insurance null and void in case of exceeding the legal limit of speed should be withdrawn, and lastly that the policies should be terminable annually without an indemnity; (5) that a commission on the subject of insurance should be established amongst the affiliated clubs to work with the A.C.F. in the direction indicated above, and that in case of non-success insurance companies should be organised amongst the French clubs to work on a mutual basis. The Congress continued on Friday and Saturday, and terminated with a battle of flowers on Sunday, in which both horse-drawn and mechanically-propelled vehicles took part.

THE Paris-Vienna motor-car race will, in all probability, occupy four days instead of three. The following are the probable stages:—Thursday, June 26th, Champigny to Belfort, 253 miles; Belfort to Basle neutralised. Friday, June 27th, Basle to Bregenz. Saturday, June 28th, Bregenz to Salzburg, 229 miles. Sunday, June 29th, Salzburg to Vienna, 217 miles.

It is most unfortunate that there have been so many doubts and difficulties about the possibility of the Paris-Vienna race, for many of the manufacturers had discontinued efforts to produce the big racers in time, and now that the authorisation is granted and the date fixed, nobody seems to be quite ready. They are all working night and day to pick up the lost time, but from what I can see, many of the competing cars will have been finished not many days before the race will begin.

THE Paris-Bordeaux race is still being discussed in the press and promoted by the A.C.F. and M. Journu. It will be remembered the latter was very active during the early spring in obtaining the consent of the mayors and municipal authorities along the route. There is no doubt that the Circuit du Nord was not the success that it was hoped it would be, on account of the unpreparedness of the manufacturers, the bad state of the roads, and the truly awful weather. Paris-Vienna will not give such a good opportunity of a test as Paris-Bordeaux, and it is still hoped that the Government will permit the Paris-Bordeaux to be held after the Paris-Vienna is over. A comparison could be made on this road of the relative merits of alcohol and petrol, which would be most useful.

I SPOKE last week about the use of petroleum for laying the dust, and I find that it is not only in Nice that this system is going to be tried; a trial is also being made near Paris, on the Champigny road, under the auspices of M. Dreyfus, a road engineer. The Touring Club of France is also making some trials and testing the capabilities in this direction of heavy Californian petroleum and French shale oil.

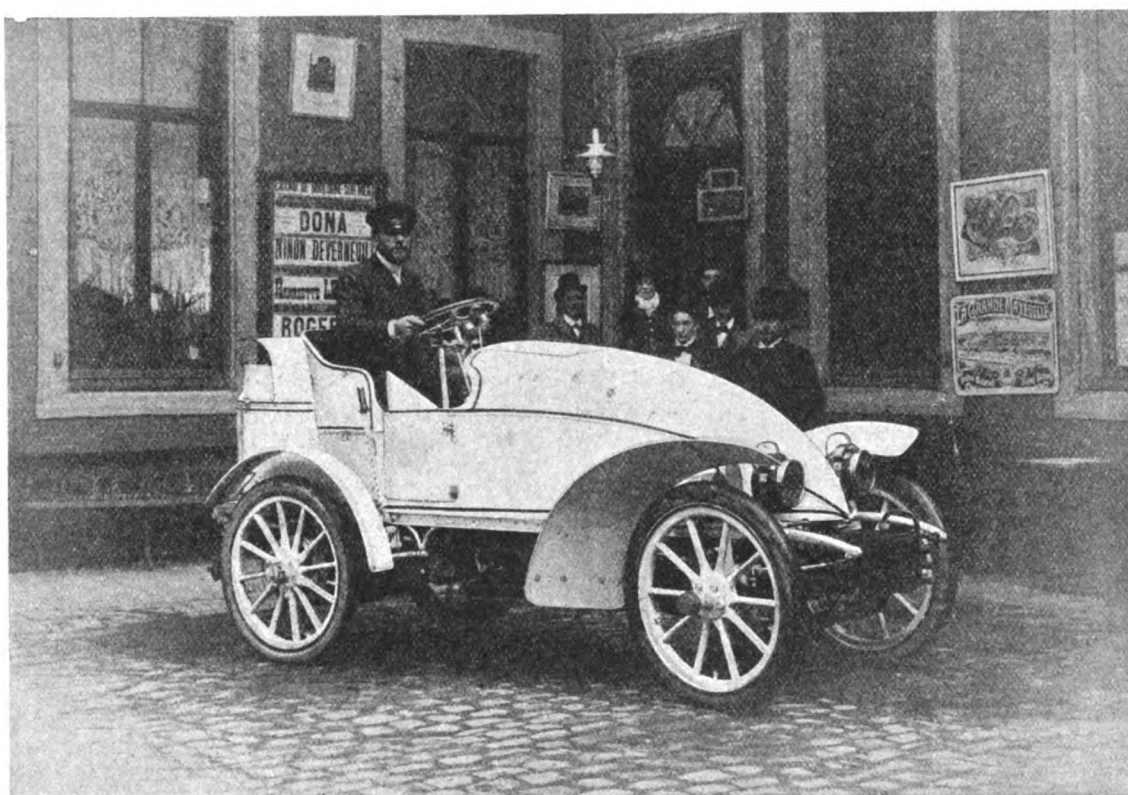
At the general meeting of the A.C.F., the Baron de Zuylen in the chair, the financial situation was laid before the members. The following are the receipts and expenditure of the year 1901:

—The Club has received £9,500, and spent £8,600. The Société d'Encouragement has received £19,000 and has spent £18,500. These figures will give some idea of the gigantic proportions of this institution, which is still increasing in importance day by day. ■

LAST week I gave an account of the hill-climbing trial which took place on the Citadel Hill, Namur. On the Monday morning the weather was gloriously fine, the sky cloudless, and the sun shining brightly. The large crowds gathered on the road which skirts the river Meuse between Lives and Brumagne, and it was on this level road that the kilometre contest took place. There was a special interest in the contest, as it was foreseen on Sunday that it would be a duel between Mr. H. P. Dechamps and Mr. Roland of the Gobron-Brillié Company, who divided the honours of the hill-climbing contest. Unfortunately, the Paris-Vienna model of the 40-h.p. Pipe car was not ready, and could not, therefore, compete. The honours of the day went to M. Deschamps, who did the kilometre in 48 3-5 seconds, Mr. Roland securing

are to be repeated on a larger scale this year. The military authorities intend attaching an automobile "corps" to each division of the army during the summer manoeuvres, whose special duties will consist in acting as scouts and carrying dispatches. The automobile has been found to be of the greatest utility in the mountainous districts, where communication between the various forces is an impossibility on horseback.

ROYALTY has its preference for motor-cars, and the rivalry of the different makers has an open field in this direction. King Edward as yet has clung to his first love, the Daimler, whilst the King of the Belgians prefers Panhard and Levassor to a Belgian maker. He is now trying a Mors for a change. The King of Italy prefers Panhard. The Emperor of Germany, like King Edward, goes in for encouraging home industries, and buys his car at Cannstatt. The Russian royalty go in for steam, and send their orders to M. Leon Serpollet, who has already supplied eleven cars to the Russian Court.



M. SERPOLLET ON THE GARDNER-SERPOLLET RACER WHICH MADE THE FASTEST TIME AT BEXHILL.

(L'Avenir de l'Automobile.)

the second place. The following were the winners of the different classes:—(1) Heavy cars.—Dechamps, 48 3-5 seconds; (2) Coppee, on Germain, 50 seconds; (3) Watcamp, on Germain, 52 2-5 seconds. Light cars.—(1) Roland, on Gobron-Nagant, 48 4-5 seconds; (2) Dechamps, 49 seconds; (3) Mathieu, 1 min. 30 sec. Voiturettes.—Kuhling, on a Vivinus, 1 min. 5 sec. Tricycles.—Joostens, on a Korn, 53 seconds.

ON Tuesday a banquet was held under the presidency of Baron Pierre de Crawhez, President of the Automobile Club of Namur. Altogether the meeting was a great success, and it is likely to become an annual and classical event, as both the roads for the hill-climbing and kilometre contest are very suitable for competitions.

THE automobile experiments of the Swiss military authorities during the manoeuvres of 1901, although made on bad roads and during bad weather, were successful to such an extent that they

SOME special developments are taking place in connection with the Lohner-Porsche combination electric-petrol car, of which an illustrated description has already been given in the *Journal*, and which attracted considerable attention at the recent Nice meeting. I learn from Vienna that Commandant Krebs, of the Panhard and Levassor Company, has lately been in that city, as a result of which the well-known Panhard Company has acquired the rights in the Lohner-Porsche system, using the Centaure motor, for France, England and Italy.

THE Nottingham Automobile Club will join the Harrogate Coronation meet at Harrogate.

AFTER examination by a sub-committee of the Lincolnshire Automobile Club, the road at Grimsthorpe has been declared unsuitable for a speed trial.

THE Central and Associated Chambers of Agriculture have adopted a resolution in favour of all motor-cars being compelled to carry distinctive numbers.

THE "NEW BOWDON" MOTOR BICYCLE.

THE accompanying illustration depicts the "New Bowdon" motor-bicycle, which has just been put on the market by Messrs. Henry Cragg and Sons, of Altrincham, Cheshire. From the picture it will be seen that the frame is of special design, adapted to suit the motor, instead of the engine being clipped on to the usual bicycle frame. The motor is a 2-h.p. Simms, fixed vertically, and clamped securely to the bottom tube, which is under the bottom bracket. The latter is 6 in. wide, and the motor is fitted between two D-section tubes, taken up from the ends of the bracket to a fork lug 16½ in. high from the bracket, the seat pillar tube being a continuation of the fork lug top. The motor is held at the top by a connection from the underpart of the fork lug referred to, and the crank chamber is well secured from behind to two arms projecting upwardly from a strong steel bridge,



strengthening the chain stays; this bridge also acts as mudguard and exhaust box holder. The engine is thus perfectly rigid. The rear wheel hub is also of special design, 7 in. wide, allowing plenty of room for the use of a 1-in. flat belt. The adjustment of the belt is effected from the back and the chain by means of an eccentric bracket. There are only two levers to manipulate—i.e., the exhaust valve lifter, and the advance spark lever. Every small detail has been well thought out, the standard frame being 24 in., built low, so that the machine can be easily mounted from the ground. A front rim brake is fitted, and this, used in conjunction with the exhaust valve lifter, enables the machine to be pulled up in a few yards. The ignition is on the Simms-Bosch magneto system. The tank, which is fitted to the top bar, above the engine, holds sufficient petrol for a journey of from eighty to a hundred miles. The wheels are 26 in. in diameter, fitted with Clincher 1½-in. tandem tyres. It may be added that the engine can be taken out in a very few minutes. The weight of the machine complete is about 90 lbs.

A CORRESPONDENT informs us that the toll over the river bridge at Sandwich is 2s. for a two-seated car.

M. SANTOS DUMONT has definitely abandoned his intention of making any ascents in England with his airship.

SIR VINCENT KENNETT-BARRINGTON, who has lately taken to ballooning, is an authority on many subjects, including floating hospitals and ambulance organisation. He is an alderman of the London County Council, where he is well able to serve the cause of automobilism.

A WEDDING couple at Coventry arranged to leave Leamington by the last train on the Great Western Railway for Bourne-mouth, but, owing to a delay in the wedding festivities, found themselves too late to catch a train at Coventry to convey them in time to Leamington. A motor-car was suggested, and after a few telephonic messages a "Rex" car was procured which conveyed them to Leamington just in time to catch the train.

1902 and 1903.

REMARKABLE was the attention given to the recent Automobile Show in London by the British press, and equally noteworthy was the attention bestowed on the event by the general newspapers of France and the United States. The automobile journals of America are still referring to the event, and the *Automobile Magazine* for June thus concludes its comments on the subject:—"Whether viewed as an aggregate of vehicles and accessories, as a spectacle, from the amount of business transacted, or from an attendance point of view, the same story has to be told, and not the least important feature of its success was the very great educative influence which it must have exercised. Altogether there were about 280 exhibitors, an increase of quite a hundred on last year, the number of cars shown being close on three hundred. All the usual shapes were on view, but none approached the *tonneau* in numbers, although the phaeton made a fairly good showing. While there was, of course, a very large preponderance, a gratifying preponderance indeed, of British built cars, American, Belgian, French, Italian and German cars were also shown in considerable numbers, the Americans being also conspicuous. A highly satisfactory feature of the show, from the British point of view, was the position taken by the home firms engaged in the automobile industry. There were distinct evidences of the great strides made by British makers, and it is no exaggeration to say that home-built cars compared favourably with the best foreign makes shown, while on the question of colour, as has already been said, their absence of gaudy tints commended them to the quieter tastes of British purchasers. Another satisfactory feature was the large addition to the number of British exhibitors. A large amount of business was transacted, and it has been estimated that sales to the amount of £4,000,000 were made during the week."

With regard to the 1903 Exhibition, to be held at the Agricultural Hall, London, next March, great interest is already being taken, and the publication of the list of exhibitors who have already taken space is a guarantee of the representative character of the next great display. Soon the difficulty of allocating the positions will be a considerable one, as spaces are being let in the order of priority of application; hence delay in inquiry may result in the discovery that specially desired positions have already been taken. We have no desire to unduly press the matter upon our readers, but we take this opportunity of urging upon those members of the trade who have not already booked the necessity of prompt decision.

AT Waterford Mr. W. F. Peare is able to store motor-cars and motor-cycles in a very conveniently arranged and accessible garage. Cars are stored at 5s. per week and washed for 2s., the charges for quads, tricycles, and bicycles descending in proportionate rate.

AMONG the cars taking part in the run from Manchester to Nantwich, reported last week, were the following:—4½-h.p. Empress, Mr. J. Higginson; 7-h.p. Daimler, Mr. G. Higginbotham; 9-h.p. Daimler, Mr. A. Laidlaw; 5-h.p. Wolseley, Mr. C. H. Stocks; 12-h.p. Daimler, Mr. Frederick Smith; 12-h.p. Belsize, Mr. J. Hoyle Smith (hon. secretary); 6-h.p. Argyll, Mr. J. W. Jones; 6-h.p. Daimler, Mr. V. O'Neill; 10-h.p. Wolseley, Mr. J. Whittaker; 5-h.p. Century Voiturette, Mr. W. E. Rowcliffe.

IN Kent are many delightful districts for the motorist, and with Deal as a centre there are pleasant tours to be undertaken in many directions, as can be seen from a little handbook published for the Corporation of the enterprising town. In the vicinity is Lord Northbourne's Betteshanger Park, Minster, and other charming places for short trips. Now that Surrey is proving so inhospitable to the motorist, those parts of Kent near the coast present a succession of scenery that should prove attractive to those who have not the time to spare to go further afield.

MECHANICAL FLIGHT UP-TO-DATE.*

BY SIDNEY H. HOLLANDS.

CHAPTER VIII. (Continued).—BIRDS. FLYING INSECTS AND WINGS.

DISCOURSING on the flight of the latter class of birds, Professor Pettigrew, author of "Animal Locomotion," says:—"The wings dart first in an upward and then in a downward direction, in such a manner that they make during the one stroke the current on which they rise and advance the next." It is clear that this is comparatively laborious work, and, in developing the winged variety of aviator, it is preferably the former—the sailing-flight system—we must take as our model, and seek to imitate. It is humanly certain that with that system only we shall effect mechanical flight with the minimum of motor power.

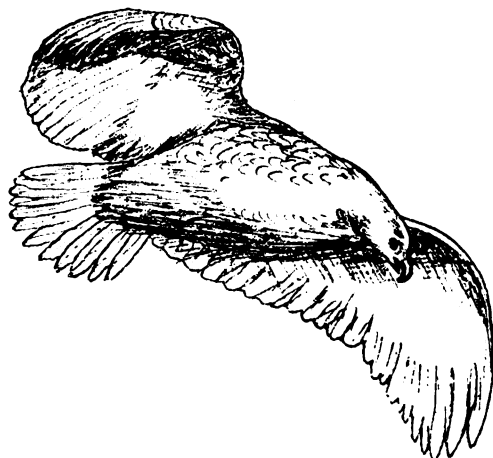


FIG. 3.—EAGLE (HOVERING).

Let me not be misunderstood in making this assertion. By no means do I condemn, nor even disparage, screw-propulsion systems of aviation, as I advocate both, and steam-flight has been actually achieved by the latter system; but I consider that the system

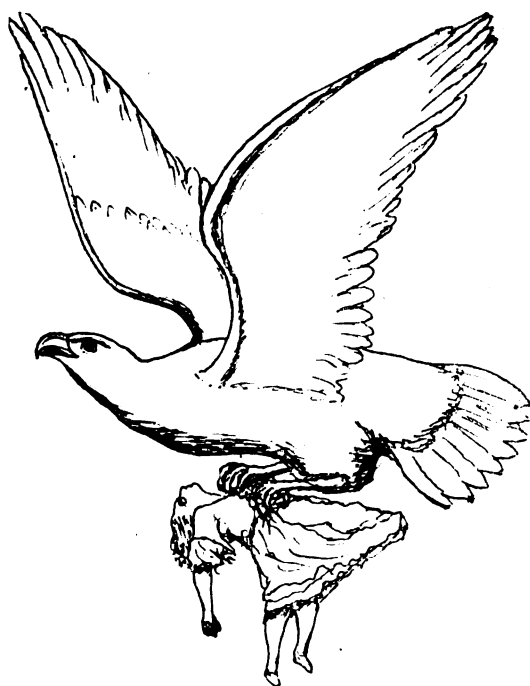


FIG. 4.—EAGLE CARRYING OFF CHILD (Authentic).

particularised we shall eventually find to be the most economical of power; and it will therefore, of course, give a greater reserve capacity of sustentation, or surplus weight-carrying power.

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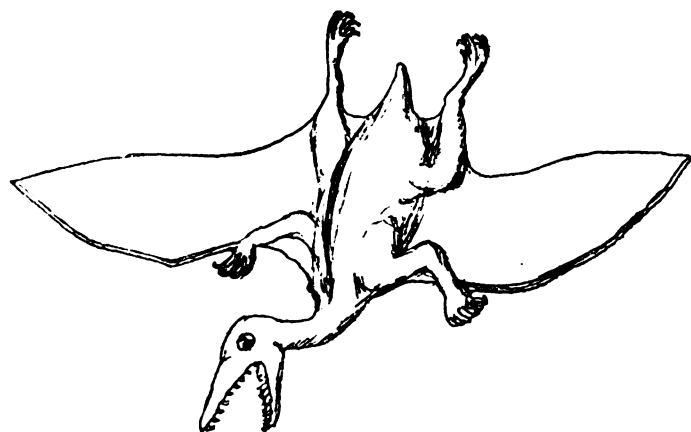
Having already treated of the "auxiliary forces," the extraneous natural aids to flight, in Chapter 4 ("Gravity and Passive Flight"), I will not deal further with them herein, but merely remark *en passant* that there is an intimate relation between that chapter and the present one; and that with a view to getting a comprehensive grasp of this branch of the subject, the reader might re-peruse it in association with this. It will be relevant to remark here that most birds have a surplus weight-lifting and sustaining power equal to half their own weight. Some have considerably more than that, notably the condor and the eagle (Fig. 3). The condor, the largest bird of flight in existence (having wing-feathers 26 in. long), has, I believe, been known to carry off the carcass of a sheep, which would probably be quite equal to its own weight; and there is at least one authentic instance of a large eagle carrying off a child (Fig. 4). The hypothetical "valvular action" of the natural wing, *i.e.*, the supposed opening of the feathers like so many valves on the upstroke of the wing, and closing on the downstroke, so as to be impermeable to air, is now an exploded theory, and rejected by all authorities. It was one of those plausible explanations of flight that are too readily accepted, and proportionately hard to eradicate. The bat, flying fox, etc., have no feathers (see Figs. 5 and 5a) but a



FIGS. 5 & 5a.—FLYING FOX.

continuous wing membrane, and yet fly; as also had the prehistoric giant pterodactyl (Fig. 6), the largest flying creature by far that ever existed, far exceeding the condor in size. The feather, and more particularly the pinion or wing-feather, is really one of the most admirable structures in Nature; and one might discourse at considerable length on that theme before exhausting it.

Strive as we may, we can never hope to produce an artificial equivalent to the natural feather as strong in proportion to its weight, and having all its other valuable properties. It is true that we are not constrained to a slavish imitation of the birds in

FIG. 6.—PRE-HISTORIC PTERODACTYL.
(Note the "Wing-Finger" Development.)

order to effect flight; to the adoption of artificial feathers at all; in proof of which mechanical flight has been achieved by three other distinct methods, in which feathers played no part. But, in view of probable very important developments in artificial soaring and sailing flight, it is more than likely that in order to effect this with the maximum of efficiency we shall find it expedient to adopt means of sustentation analogous to those of the most skilful birds of passive flight—*i.e.*, a system of semi-superposed sustaining surfaces. (The alliterativeness is accidental.)

(To be continued.)

THE NEW "CENTAURE" PETROL MOTOR.

ONE of the engines which attracted a large amount of attention at the recent Alcohol Exhibition in Paris was the new "Centaure" petroleum-spirit or alcohol motor of Messrs. Panhard and Levassor, of which a general view is given in Fig. 1. The main modifications, which

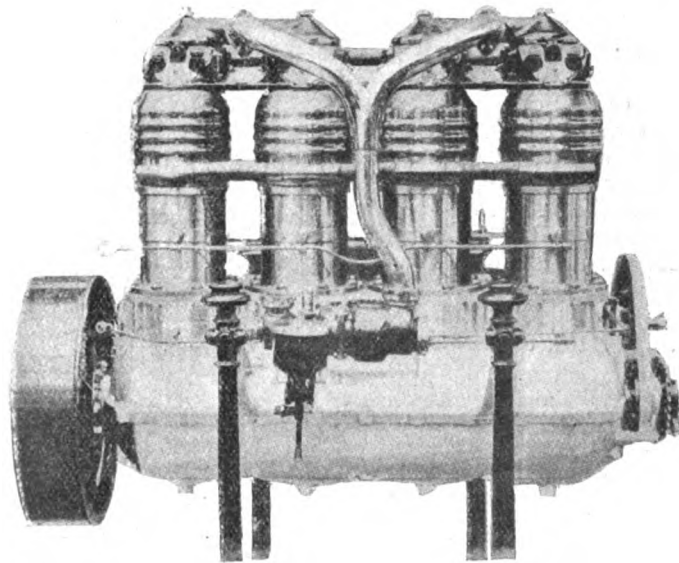


FIG. 1.—GENERAL VIEW OF NEW "CENTAURE" MOTOR.

have all been introduced with the object of reducing the weight, are:—Each cylinder is isolated, the outer wall of the water-jacket around the cylinder being of very thin metal, the water-jacketing of the cylinder head specially arranged,

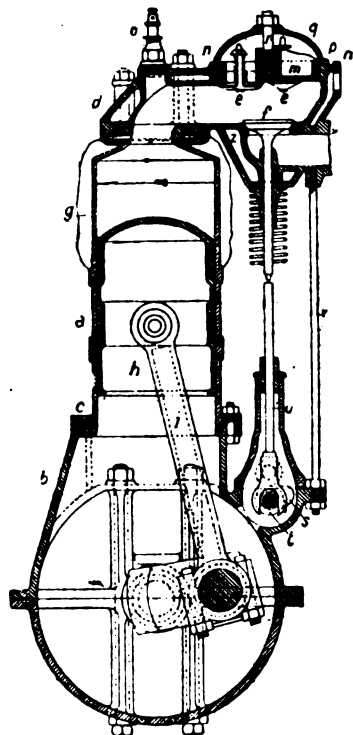
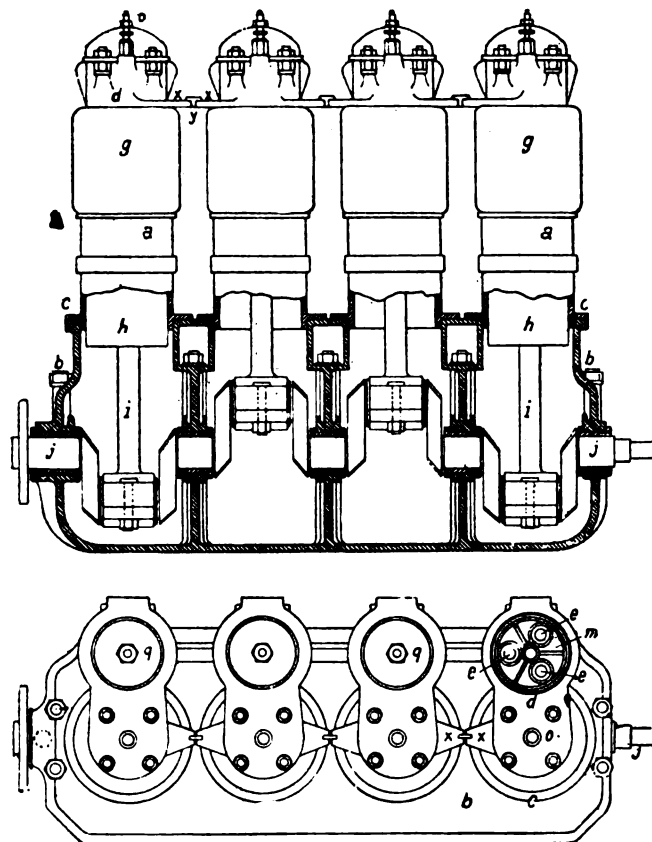


FIG. 2.—TRANSVERSE SECTION OF NEW "CENTAURE" MOTOR.

the adoption of triple induction valve in one seating, and the fitting of a crankshaft bearing between each crank. Fig. 2 is a transverse sectional elevation of the four-cylinder motor; Fig. 3 is a transverse vertical section through one of the cylinders, and Fig. 4 is a plan. As will be seen, each cylinder stands alone, and is bolted to the upper face of the crank chamber by the flanges c.

The cylinders are turned from a bar of forged iron; the upper end of the cylinder is domed and flanged to take the cylinder head *d*, in which are placed the induction and exhaust valves *e*, and the ignition plug. The upper portions of the cylinders are surrounded by a thin casing of copper *g*, rendered expansible under the action of heat by corrugations. The casings are soldered to the cylinders. The introduction of the inter-crank bearings to the crankshaft *j* permits the dimensions of the shaft to be reduced and consequently lightened. The cylinder head takes the form of an elbow tube cast with water-jacket. The cylinder and cylinder head are connected by a scraped joint and four studs and nuts. The exhaust valve *f* is single only, but the induction valve *e* is triple and is placed immediately over the exhaust valve. These nests of valves *e* are set in seatings formed in the disc *m*, which is screwed into the cylinder-head. The gas-tight joint is made by the beaded rim of the dome-shaped valve chamber cover *g*, which bears upon a compressible washer held in a suitable groove formed in the



FIGS. 3 & 4.—PART SECTIONAL ELEVATION AND PLAN OF NEW "CENTAURE" MOTOR.

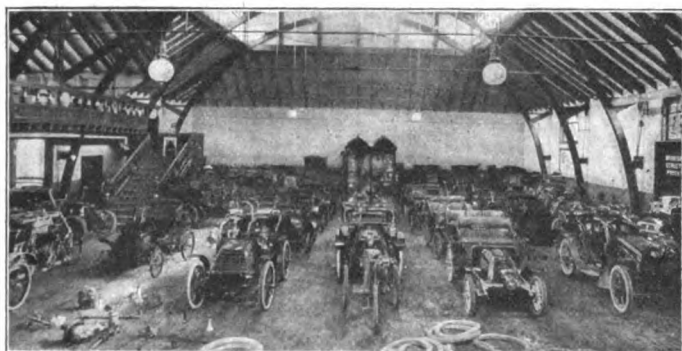
- | | |
|--------------------------------|---|
| <i>a</i> , cylinders | <i>i</i> , connecting rods |
| <i>b</i> , crank chamber | <i>j</i> , crankshaft |
| <i>c</i> , cylinder flanges | <i>m</i> , disc carrying inlet valves |
| <i>d</i> , cylinder heads | <i>n</i> , sparking plug |
| <i>e</i> , inlet valves | <i>x</i> , lugs connecting cylinder heads |
| <i>g</i> , copper water jacket | <i>y</i> , steel keys joining lugs <i>x</i> . |
| <i>h</i> , pistons | |

cylinder head. The cover *g* is secured in position by the central bolt *r*. The exhaust valve *f* is actuated by a cam *s* on the half-time shaft *t* through the exhaust lifting rod *u*. The cylinder head *d* is relieved of the thrust of the rod *u*, when actuated by the cam *s*, by means of the tension rod *v*. The cylinder heads are connected to each other by means of the lugs *x* cast thereon, and the keys *y*. This is done in order to disperse the diagonal thrust of any connecting rod under drive upon all four cylinders. The governor is adapted to act on a throttle in the inlet pipe. The four-cylinder motor is rated at 50-h.p., but at a speed of 950 revolutions per minute it develops 70-h.p. Its weight, including flywheel, is 308 kilograms (roughly, 6 cwt.), equal to 9.6 lbs. per horse power. We may add that the vehicle driven by M. Rene de Knyff in the recent Circuit du Nord was fitted with one of the new motors. Owing, however, to an accident to the clutch in the early part of the race, the car was unable to show its capabilities.

HERE AND THERE.



It is interesting to note that the progress of the automobile movement is not being confined to London or the South. In the North the motor-car is steadily becoming more and more in evidence, and some large depots have sprung into existence. Among these is that of the Bradford Motor Car Company, who some time ago took over the old drill-hall in Manningham Lane,



Bradford. Our illustration gives an idea of the extent of the building in which the company keep a large stock of motor-cars made by various makers, including the Pieper vehicles, for which they are the sole agents in this country. In addition to the show-room, the company have a well-equipped repair shop, in which repairs to all types of automobiles can be undertaken. Our second illustration gives a view of the repairing department, which is provided with inspection pits for four cars.

TO-DAY (Saturday) the Lincolnshire Automobile Club will hold a run to Skegness.

ON Sunday next the Motor Cycling Club will hold a run to Chiddingstone. Members will meet at the Town Hall, Rushey Green, Catford, at 11 a.m.

THE Automobile Club has decided to reduce the fee for the registration of motor-cycles under the Competition Rules of the Club from £1 1s. to 5s.

It is reported that the Daimler Motoren Gesellschaft, of Cannstatt, has arranged with the Gardner-Serpollet Company for the construction of Serpollet steam cars in Germany.

MESSRS. MULLINERS, of Northampton, have just completed a double *tonneau* body of special and handsome design. It has been fitted to a 16-h.p. Panhard for the Panhard and Levassor Company.

AN Australian stockbroker has recovered £250 damages against the Dunlop Tyre Company, of Melbourne, whose motor-car collided with his racehorse while it was being exercised on the road.

TO-DAY (Saturday) the Eastern Section of the Scottish Automobile Club will hold a hill-climbing competition at Glentude Hill (Paddy Slacks), about 4½ miles south of Innerleithen, on the St. Mary's Loch road. The cars will leave Edinburgh at 10 a.m. On Thursday afternoon next there will be a run from Edinburgh to the Queen Bay Hotel.

THE Chief Constable of Hastings hopes that motorists will moderate their speed when approaching the town.

KING ALPHONSO XIII. of Spain has, it is announced, ordered a 24-h.p. Panhard car.

NINE motor-car family parties are reported to have been arrested near Paris on suspicion of being the Humberts.

SEVERAL of the excursion agencies are arranging motor-car trips this season, one interesting series being in the Lake district.

INCLUDED in the programme of the Beeston Cricket Club annual sports, to be held at Beeston, Notts, to-day (Saturday) is a two-miles motor-bicycle handicap.

THE town authorities of Falmouth have issued a capital guide to their popular resort, and will supply copies free to intending visitors.

THE "Car Illustrated, Limited," is the title of a new company registered with a capital of £11,100 in 11,000 £1 shares and 100 £1 deferred shares.

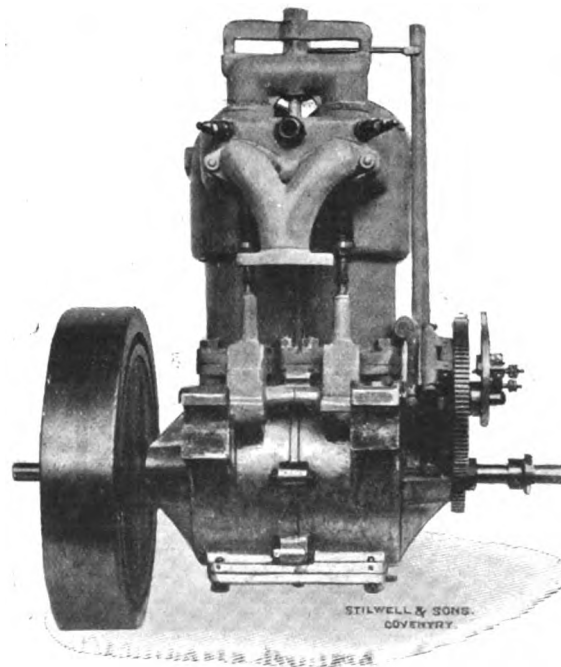
A MORS car is making daily trips between the Riviera Hotel at Maidenhead and the Savoy, Berkeley and Claridge's hotels in London.

THE Swift Motor Company, Limited, has been registered with a capital of £100 in £1 shares, to carry on the business of automobile builders.

AT the sports meeting to be held at Coventry to-day (Saturday) there will be a one-mile motor-bicycle contest (limited to motors not more than 2½ in. cylinder bore). The event is to be run off singly (timed), the two fastest to run off five miles together.

MESSRS. S. W. STRINGER, Limited, has been registered with a capital of £3,000 in £1 shares, to acquire the concern now carried on by Mr. S. Willis Stringer at 43, Effingham Street, and 44, Nottingham Street, Rotherham, and to develop the business in connection with automobiles.

THE accompanying illustration shows the double-cylinder petrol motor lately put on the market by the Forman Motor Company, of Coventry. The cylinder is 105 mm. diameter and the stroke of the piston 110 mm., the engine developing, at the normal speed, 10-h.p. The cylinder and combustion chamber are cast in one piece, a loose plate for the water joint being fitted.



on the top. All the valve gear is enclosed, while the governor is arranged to act on a throttle valve. The parts are all made on the interchangeable system and are so fitted as to be readily accessible. The Forman Company are also making an 8-h.p. double-cylinder engine and one of four cylinders developing 16-h.p.

MESSRS. BENNETT AND CARLISLE have been appointed sole agents for the Daimler motor-cars in the Manchester district.

THE Kingston Town Council have decided to adopt regulations similar to those of the London County Council with regard to the storing of carbide of calcium.

THE hackney carriage committee of the Scarborough Town Council have decided to renew the licence of the motor-cars plying in that town during the present year.

CONGRATULATIONS to the Hon. J. Scott Montagu, M.P., who was thirty-three years of age on Tuesday. As most motorists know, he is the eldest son of Baron Montagu of Beaulieu.

THE German Government has decided to start a system of motor-cars in German East Africa, thus supplementing the main railway which runs from east to west as far as Lake Tanganyika.

THE recently opened Imperial Motor Works at Lyndhurst are now in full working order. The proprietors have a 12-h.p. four-seated car which is in great demand for hire for trips in the New Forest and elsewhere in the lovely country round about Lyndhurst.

AT 151A, Regent Street, W., the Regent St. Garage, Limited, has storage accommodation for 150 cars, and vehicles can be taken in at any time, night or day, week-days or Sundays. Several well-known people are regularly using this well-appointed garage, amongst the patrons being Lady Londesborough, Earl Cairns, Captain Langrishe, and Captain Skeffington Smythe.

MR. JUSTICE DARLING never fails to indulge in legal witticism^s for the benefit of the junior Bar and the public when a motor-car case comes before him. In the case of the Mayor of Boston, reported in another column, he observed, "People who ride on motor-cars seem to be abnormally constituted." According to the report this statement was received with "laughter." Evidently it was intended to be humorous.

HEREWITH we give an illustration of a new tool which Messrs. John Child Meredith, Limited, are introducing for motorists and motor-car repairers. The tool is a combination of chisel, hammer, turn-screw, nail puller, gas pliers, wire cutter, tweezers, and barbed-wire cutter. The device, which is made of steel, forms a reliable and necessary im-



plement, which should find its way into the kit-box of every motorist.

MR. A. J. WILSON'S work on "Motor Cycles and How to Manage Them" has now reached a fifth edition, which has just been published by Messrs. Iliffe and Sons, Limited. In fact, the book has been entirely re-written. Within the 120 pages of which the work consists are many useful hints and much practical information, which cannot fail to be of value to the growing number of motor-bicyclists. The development of the two-wheeled machine has made the re-issue of the work necessary, and the fact that it had previously gone through four editions is proof of the regard in which Mr. Wilson's work is held. There are forty-four capital illustrations, and a good index facilitates reference.

IRELAND has now a road-book on the contour plan of Messrs. Gall and Inglis. It contains maps and plans, with accurate descriptions of all the principal roads in the Emerald Isle. Nearly every route thus dealt with is illustrated by a plan, which is in reality a miniature picture of the road, showing the rise and fall, the hills, villages, etc. Each plan is accompanied by a description of the condition of the road, its measurements, gradients, principal objects of interest by the way, and the places where there are hotels or inns. Altogether there are over 200 contour plans, and the road directions in them are so arranged that the route may be reversed without confusion. The routes chosen offer an infinite choice of roads, and a series of tours are given for the benefit of the intending traveller.

CORRESPONDENCE.

WARNING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—There is a finger-post on the Portsmouth road, coming over Hindhead, which points sharp to the right, "Haslemere 2 miles," but it is only a narrow farm road, has a very sudden descent, and has sharp turns. The finger-post should say "footpath only," or a danger board should be placed before the turn of the road.

Another dangerous hill is $1\frac{1}{2}$ miles out of Haslemere, before Witley, where there is a short sudden drop; coming down it recently I found it muddy, and the car skidded right round and crashed through the wooden palings into the bed of the stream, smashing the car up.—Yours truly,

L. J. PEWTRESS.

QUERY RE DE DION CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—A month or so ago I bought through a London agent an 8-h.p. De Dion tonneau. I have only taken it out a few times, having altogether travelled about 220 miles. The clutch now will not drive on the top speed. I have screwed up the brass collet as far as it will go. There is a little grip now, but the handle or lever is out of position; it is in gear with the slow speed when straight, instead of being free. What I want to know is, is there any arrangement by which the handle can be adjusted? I cannot find any myself; on the $4\frac{1}{2}$ -h.p. car the lever could be adjusted by the chain.—Yours truly,

WEAK CLUTCH.

MOTOR CARS FOR LADIES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am intending to purchase a motor-car, but, being only a weak woman with no male friend to advise me, and not knowing anything at all about automobiles, I write to ask if any of your lady readers will advise me as to the special points a lady should attend to in selecting a car.—Sincerely yours,

MOTORLESS.

MOTOR SERVANTS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I read with much interest the new and much to be desired departure which the Automobile Club are taking to supply a large and long-felt want, viz., competent motor-car servants. I should like, however, to make a suggestion, that the Automobile Club afford facilities for any man of practical mechanical knowledge, whether known to Club members or not, of becoming a car driver if he is desirous.—Sincerely yours,

HORACE MORING.

DIFFERENTIAL GEAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to your article on the "why and the wherefore of the differential gear," allow me to say that the only peculiarity of these differentials you describe (in Fig. 1 and Fig. 2, page 318, of your last issue) is that they allow of the motor power being transferred to the one driving-wheel which comes in contact with the least resisting effort in a turning movement of the vehicle.

The movement of one of the driving-wheels is conveyed from the motor, the other is conveyed through the steering, and that applies equally on a vehicle driven only by one single chain on one driving-wheel with a firm and undivided axle. In one particular the advantage is with the latter style, in that it would perhaps be called upon to exert most power on the wheel taking the greatest resistance.

To test the accuracy of this, place two jacks under the driving axle, jack up the wheels, take hold of one (either one will do), start the motor, and you will find very little effort in holding the one wheel while the motor is running. Now, has it (your differential) got a substantially equal turning effect on the two driving wheels under all conditions?

The fact is either wheel is just as likely to skid with your differential as it is with the wheel opposite the driving-wheel in the other case.—Yours, etc.,

MECHANIC.

QUERIES RE PETROL MOTORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have a two-cylinder petrol motor of my own design. I have used it for a year and a half and experienced no trouble until about three months ago, when it began to miss fire. It drives the car from one-half to three miles very nicely, and then begins to miss explosions for one-half to six or eight miles, afterwards running all right for awhile. I have tried everything I can think of to locate the cause, but so far without result. I shall be very grateful for any suggestions from other readers of the *Journal* as to the trouble.—Yours truly,

W. T. R.

MOTOR-BICYCLE EXPERIENCES.

TO THE EDITOR OF *The Motor-Car Journal*.

"SIR,—Some time ago I obtained a motor-bicycle, equipped with a nominal 2½-h.p. motor of French construction, and I am to-day convinced of the usefulness of the motor "bike" and that it is in many respects the handiest automobile a man can own. My machine is extremely powerful (probably somewhat overpowered), but I had become rather disgusted with the small motors which I had seen hung on ordinary bicycle frames, and I thought I would have a real one. There is a general impression that a motor-bicycle, being heavier than an ordinary machine, is difficult to balance. This is a mistaken idea. On the contrary, the weight of the motor, being rigid in the plane of the bicycle, assists in maintaining equilibrium, and acts, I fancy, much as does the weight of the rider when riding "hands off." When it comes to the matter of side slip, however, it is undeniable that some extra care is needed in operating a motor-bicycle on slippery roads. Especially is this true if the motor is placed far forward in the frame, so that much of its weight is taken from the rear wheel. Placing the motor well forward of the rider, on the other hand, renders less danger due to a fall, as he is unlikely to be caught under it. The ability possessed by the rider of a motor-bicycle to pick his road enables him to successfully meet very severe conditions and to travel almost anywhere, but something remains to be done towards perfecting these excellent little vehicles.

Apparently all manufacturers do not appreciate the necessity for the utmost care in the sparking arrangements, which cannot be any more safely slighted in the case of a bicycle than in that of the largest motor-car. In order to save a pound or two of weight, or for appearance's sake, the battery is often cut down far below the point of continuous, reliable spark production and frequently the character of the coil and the wiring show evidences of second-rate workmanship. Another point that receives too little attention is the matter of lubrication. Unless the motor shaft is fully provided with oil proof washers, the oil will work out along it and reach the driving pulley, which will spatter it over the rider's clothing. It will also work out along the secondary shaft and foul the contacts of the interrupter, thus preventing ignition. The oiling process must be made reasonably clean before the public will be satisfied.

I am in hopes that a practical form of spring-supported motor may be developed, and if this can be done without involving difficulties in power transmission (which I believe possible), it will take away the great objection to the motor-bicycle, i.e., the presence of a large dead load upon a rigid construction originally developed solely for the purpose of carrying a live load. With a spring-supported motor the stresses upon the fork and frame would be immensely reduced, the duty of the tyres would be lightened, and the wear and tear on the motor and on the rider would be decreased. The method of stopping the motor by the rotation of one of the handle-bar grips is almost ideal, but it would be a great convenience if the speed control could also be brought up to the handle-bar, so that all ordinary manoeuvres of the machine could be conducted without any sacrifice of steering control. Experience has convinced me that no petrol should be used in filling motor-bicycle tanks that has not been very carefully filtered and freed from dirt and water. The orifices in the small spraying carburettors are so minute that the least foreign matter in the petrol fills them up and gives immediate trouble.—Yours truly,

S. V. T.

THE AUTOMOBILE MUTUAL PROTECTION ASSOCIATION, LIMITED.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have pleasure in informing you that the Automobile Mutual Protection Association, Limited, in accordance with the policy adopted by the trade with the approval of the Automobile Club at a meeting of the trade held on the 11th June, 1901, has decided to give its support to the Automobile Show to be held at the Agricultural Hall on March 21st to March 28th, 1903, under the management of Mr. Charles Cordingley. The Automobile Mutual Protection Association, Limited, has entered into agreement with Mr. Cordingley by virtue of which a very considerable sum of money is guaranteed to the Association, for the benefit of the automobile industry. In addition to this, the agreement provides that a rebate of 15 per cent. on the rental of the space occupied will be allowed to all members of the Automobile Mutual Protection Association, Limited, exclusively.

By cordial co-operation with the Automobile Mutual Protection Association, Limited, the trade will be able to secure the desideratum of one show per annum, under management which has proved its competency by past successes, and at the same time a very considerable income will be secured to the Automobile Mutual Protection Association, Limited, to be expended in the interests of the trade. I take this opportunity of informing you that the Automobile Mutual Protection Association, Limited, is open to all who are interested in the industry, including private users, as well as to members of the trade.—Yours faithfully,

GEO. R. HELMORE, Secretary.

MESSRS. VAUGHAN AND BROWN, LIMITED, referring to "Traveller's" letter in our issue last week, call attention to their traveller's brougham, which has a capacity of 2 cwts. of soft goods.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	FINES.
Kensington ...	William Crouch, Kensington	14 m. p. h.	18s. and costs.
Shoreham ...	H. Strakosch, London	16 to 20 m. p. h.	£1 and costs.
Saffron Walden	Capt. C. A. Osborne, Rickling	above legal limit.	£1 and costs.
Birmingham ...	A. W. Millership, Birmingham	" "	Case dismissed.
Grantham ...	F. Griffith, Bromley, (Kent)	17 m. p. h.	20s.
Flaxton (York)	E. L. Cooke, York	excessive.	£2 and costs.
Lowestoft ...	S. Flemming	16 m. p. h.	£3.
Bath ...	A. E. Oakley, London	excessive.	£2.
Worthing ...	A. Wright, Brighton	20½ m. p. h.	£1.
Leicester ...	H. Belcher, Beeston	18 m. p. h.	10s.
Batley ...	R. J. Bateman, Shipley	25 m. p. h.	10s. and costs.
East Penwith (Cornwall)	R. Stewart, Glasgow	20 m. p. h.	5s. and costs.
Swansea ...	T. J. Evans, Swansea	16 m. p. h.	Dismissed.
St. Neots ...	E. B. Costin, Bayswater	Above legal limit.	£5
"	C. L. Schwina, Derby	" "	Adjourned..
"	J. H. Groves, Westminster	" "	£6
"	T. Sharp, Stockwell, S.W.	" "	£5
"	C. J. Teasdale, Plumstead	" "	£5
Leicester ..	J. Harper, Leicester	30 m. p. h.	11s.6d. and costs.
Bedford ...	E. J. Wrigley, Bedford	25 m. p. h.	Bound over..
Guildford ...	E. Durwood, Bayswater	Above legal limit.	Dismissed..
Uckfield (Sussex)	F. Belockh, Windsor	32 m. p. h.	£10 and costs.
"	W. Wilson, London	21 m. p. h.	£2 and costs.
"	A. F. Mulliner, Northampton.	23 m. p. h.	£3 and costs.
"	A. R. Thomas, London, E.C.	18 m. p. h.	£1.
"	F. Johns, Cricklewood	23 m. p. h.	7s. and costs.
"	B. C. Walton, Thornton Heath	Above legal limit.	£2 and costs.
"	M. Buckea, Chelsea	18 m. p. h.	£3 and costs.
"	W. J. Peall, Brixton	22½ m. p. h.	£2 and costs.
"	A. Wolff, Hampstead	25 m. p. h.	£3 and costs.
"	A. F. King, London	22½ m. p. h.	£5 and costs.
"	A. McCormack, Maida Vale, W.	36 m. p. h.	£5 and costs.
"	E. de Wilton, London, W.	29 m. p. h.	Dismissed..
"	G. Kenyon, London, E.C.	Excessive.	Dismissed..
"	Dr. J. Attlee, London, W.	21 m. p. h.	£1 and costs.

ON Wednesday several motorists were summoned at Hailsham for driving at a speed beyond the legal limit.

MEASURED distances were called in evidence in the cases of Capt. Osborne, Messrs. E. L. Cooke, A. Wright, E. Durwood, T. J. Evans, and others.

A SUMMONS against Lionel de Rothschild, of Trinity College, Cambridge, for furiously driving a motor-car, will be heard at the Saffron Walden Court next week.

IN the case at Lowestoft, S. Flemming is the driver of a motor-car belonging to Capt. the Hon. Walter Guinness, of the Suffolk Imperial Yeomanry. The defendant collided with a cab in the course of the trip, for which he was summoned.

AT Barrow, Ashworth Williams was charged with driving a motor cycle at a furious pace. The evidence of the constable was to the effect that the accused proceeded down one of the principal thoroughfares at a terrific pace, and the passers-by all stood up amazed, thinking the motorist "had gone off his mind." He was fined 10s. and costs, or fourteen days' imprisonment.

THE Leicester case reported on page 339 is interesting to those who were fined £3, £5, and more. The defendant was summoned for furiously driving a motor-cycle at Groby, on May 28th. Police-constable Harding said defendant was driving at a mad pace; thirty or forty miles per hour. Next day witness saw the machine, damaged and bloodstained; there had been an accident. Defendant said he was going fast, but not furiously. Going down Groby Hill, at eight or nine miles an hour, a dog jumped at the front wheel, and he fell off sideways, and was cut and bruised. The Bench said there was no doubt defendant was going at an unreasonable pace; they would not convict, but he would have to pay 11s. 6d. costs.

FOR "furiously driving a motor-car in Hyde Park, George Hewett, driver to the Earl of Shrewsbury, has been fined 40s. and costs at the Marlborough Street Police Court. In defence Mr. Staplee Firth urged that the constable was no judge of speed, for when cross-examined he had put the speed of the car first at twenty, then at twenty-five, and then at twenty-seven miles an hour. If anyone had been inconvenienced or placed in danger some evidence should be brought, but there was none. The magistrate, Mr. Kennedy, however, fined the defendant and refused to state a case or to grant stay of execution pending an appeal.

ALLEGED NEGLIGENT DRIVING.

At Gravesend County Court, before Judge Emden, Messrs. Williamson and Thompson, of High Street, Gravesend, sued W. H. Smith, of New Road, Gravesend, for £10, for injuries to a horse and loss of service, alleged to have resulted from the negligent driving of a motor-car by defendant's servant. Mr. Clinch having stated the case for the plaintiff, William Jiggins was called. He stated that he was in charge of a horse and trap on May 7th, and was driving up Burch Road. On turning the corner into London Road he saw defendant's car coming down the hill at a furious pace on the right-hand side of the road. When he came round the corner he swerved to come over to the left-hand side, and in so doing passed in front of the horse, just missing his head. He gave no sign of his approach on the trumpet. The horse began prancing about, and reared on its hind legs. In coming down the horse slipped and fell on to its knees, and witness was thrown out into the road. The horse's knees were cut, and its hindquarters were injured. Sidney Large, the driver of the car, was called in defence. He said on May 7th he was returning from Northfleet to Gravesend. The machine could not go more than twelve miles, and between eleven and twelve was his usual speed. The road from Rosherville Church sloped down in a slight incline to Gravesend. He was going at this time at ten miles an hour. He looked down Burch Road and saw a horse and cart driven by the first witness coming up at a walking pace. It was about thirty yards away. He was on his proper driving side, and never drove anywhere else. He passed Burch Road and stopped just below Pier Road to pick up a passenger. The conductor then made a communication to him about an accident. The distance between Burch Road and Pier Road was about 120 yards. He saw the horse on the ground about fifty yards from him. His Honour said it was most important that drivers of vehicles such as motor-cars should slacken speed in passing corners. There was no case of negligence, no case of excessive speed, and no case of collision, so judgment would be given for defendant with costs.

NO LICENCE.

At Whitway, Hants, the Rev. Charles De Haviland, rector of Cruzeaston, has been fined £5 at the instance of the Inland Revenue authorities for keeping a motor-car without a licence.

ALLEGED BREACH OF CONTRACT.

IN the King's Bench Division of the High Court of Justice an action has been brought by Mr. W. T. Symonds, Mayor of Boston, Lincolnshire, to recover damages from the British Automobile Syndicate, Limited, for alleged breach of warranty on the sale of a motor-car and breach of contract to supply a competent driver. Counsel for the plaintiff said the defendants sold to plaintiff a second-hand Daimler for £210. Plaintiff wrote asking them to procure a good man to teach him to drive and to drive him home to Boston. They got as far as Arlesley, in Herts, when the car got out of control, ran from side to side, persisted in keeping on the wrong side, charged a heap of stones, and broke up a bicycle. Continuing its mad career, it jumped a ditch, crashed through a hedge, and finally came to rest in a potato field. The villagers pulled it by main force to the railway-station. It was then sent to Coventry for repairs, which cost £60. It was subsequently discovered that the vagaries of the car were due to the slipping of the bolt on the steering apparatus, and plaintiff contended that in not discovering this the driver had exhibited the grossest incompetency. Mr. Harrison, K.C., for the defence, submitted that the machine was purchased after a trial, and there was no implied warranty. As regarded the driver, the defendants had exercised reasonable care in his selection, which was a purely voluntary act, and no guarantee was given as to his skill. Mr. Daniel Weigal, managing director of the defendant syndicate, said that Mr. Symonds called on him for the purpose of purchasing a second-hand Daimler motor-car. They went out in the car and put it to a severe test, and Mr. Symonds was exceedingly pleased with the machine. The car had cost over £400 when it was new. After Mr. Symonds bought the car he asked them to supply a good man from the Daimler Company to show him how to drive. Witness told Mr. Symonds it was impossible for him

to take a man from a competing firm, the Daimler Co., but that he had got Wheatland, who had been in the employ of Lord Willoughby de Eresby. It would have been impossible for the car to have gone to Arlesley without the nuts on the bolt attached to the steering gear. Mr. Symonds told him that the car had gone over the level crossing with a fearful bump, and he knew nothing until he found himself in the field. He made no claim against the defendants then. Witness told the plaintiff he had engaged the driver for a week, and he said that witness had better give him a sovereign and settle with him. Other witnesses were called to prove that the car was in a proper condition when handed over to the plaintiff, and also to speak as to the dangerous nature of the level crossing at which the accident occurred, and in consequence of which the defendants alleged that the bolt fell out of the steering gear.

His Lordship having summed up the case to the jury, they found that the accident occurred through the negligence of the driver, who was the servant of the defendants. They further found that the car was not delivered in a complete and fit state, and assessed the damages at £58 8s. 9d. Judgment was entered for the plaintiff for that amount.

CHARGE DISMISSED.

OSWALD EDWARD LORD has surrendered to his bail and pleaded guilty at the Central Criminal Court to a charge of occasioning bodily harm to H. Mejlack. Mr. H. E. Jenkins prosecuted, and Mr. Mathews appeared for the accused. The occurrence took place in Regent Street on the 15th April, and has been previously reported in the *Journal*. The accused was driving a motor-car which seemed to have run into a jeweller's shop, doing great damage. In the recoil the machine knocked down the prosecutor, who was severely injured. It was said that the roads having been watered, caused the motor to "skid." The Common Serjeant said drivers of motor-cars must understand the dangers they ran by driving their machines in a reckless or careless manner. He bound the accused over in the sum of £20 to come up for sentence, adding that if the accused had been convicted before he should certainly have sent him to gaol.

THE MOTOR MANUFACTURING COMPANY, LIMITED.

AN extraordinary general meeting of the above-named will be held at Winchester House (room 25), Old Broad Street, E.C., on Tuesday next, at 3 o'clock, for the purpose of considering, and, if thought fit, of passing the subjoined resolution:—That the liquidator of the company be authorised to divide among the contributories, in specie or kind, the whole of the 252,966 shares in the Motor Manufacturing Company, Limited (registered in 1902), which are to be allotted under the agreement of April 14th, 1902, which agreement was approved at an extraordinary general meeting of the first above-named company, held on May 1st, 1902, upon the footing that any member who does not claim his proportion within fourteen days after the posting to him of a notice in regard thereto shall be deemed to elect to have his proportion sold and the net proceeds of sale (if any) paid to him, and with full power to the liquidator, if he finds it impracticable to sell, to procure the allotment thereof to any person who may be willing to take the same."

THE police have measured a mile on the road between Ilkley and Burley, whereon to estimate the speed of motorists.

MR. WALTER JACKSON, of Bradford, has been unanimously elected to the Committee of the Yorkshire Automobile Club, which is having a run to-day (Saturday), to Ripon.

THE next Bexhill meeting of the Automobile Club will be held on August 4th. August 9th has been suggested as the most suitable date for the trials at Welbeck.

MR. HARRISON BENN, a vice-president of the Yorkshire Automobile Club, has invited the members to visit him at Holcombe Hall, Dawlish, Devonshire, in August.

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THE Motor-Car Journal.

VOL. IV.]

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COMMENTS.



parade is being arranged, and doubtless the motor-car will be *en evidence* in many other processions in connection with the festivities.

IN view of the prominence that automobiles are likely to play in the local processions and other festivities which are being arranged in connection with the Coronation, we shall be glad to hear from readers whose cars are taking part therein, and also to receive intimation of the use to which motor-cars are being placed in association with the celebrations in town and country. At Coventry a cyclists' and motorists' fancy dress and illuminated

In South Africa.

At the time of his death two motor-cars were on their way to Mr. Cecil Rhodes, who recognised the important part that automobiles were capable of playing in the development of South Africa. In the case of Durban and its outskirts, the excellent railway and tramway services partly account for the fact that so far very few motor-cars and motor-cycles have been introduced; but these factors do not exist elsewhere. Viewed in the aggregate, it is said that the importation of motor-cars for private use is never likely to become considerable in Natal. The case, however, is different with regard to vehicles for the transport of goods. The considerable distance separating Port Natal from the city is insufficiently served by the railway facilities; as a consequence, the animal traction resorted to might be advantageously replaced by motor-waggons. For 10 to 14-h.p. petrol cars, carrying loads of 2, 2½, or 3 tons, and not exceeding a gross weight of 3½ tons, there should be a considerable opening. The local regulations governing vehicles in force require the motor to be noiseless, and the escape of steam or smoke must be very small. Belt driving gear, it is considered, is unsuitable, the climate of Durban being extremely damp. A point to be insisted upon as indispensable is that the mechanism must be simple, in order to render repairs as easy as possible, and that the roads being very dusty, all the working parts should be protected against the ingress of dust.

Motor-Cycle Races.

In connection with the annual hill-climbing competition of the Catford Cycling Club motor-cycle contests will be introduced. The meet will take place on Westerham Hill, Kent, on July 5th, commencing at 4 p.m. The motor-bicycle competitions will be run in two categories, Class I. being open to motor-bicycles not exceeding 1½-h.p., with motors not greater than 60 mm. bore and 70 mm. stroke approximately. The gold medal in this class will be presented by the proprietor of *The Motor-Car Journal*. Class II. is open to motor-bicycles of more than 1½-h.p. and not exceeding 2½-h.p., the motors not

being greater than 79 mm. bore and 79 mm. stroke approximately. Entries for the events should be sent to Mr. E. G. Southcott, of Crofton House, Crofton Park, S.E., before the 28th inst.

The Battle of Flowers.

THE automobile battle of flowers in connection with the French Charity Fetes at Earl's Court took place on Monday afternoon, having been postponed from the previous Friday on account of the rain. The French Ambassador, M. Cambon, handed the banners to the successful competitors. The first prize, presented by the Lord Mayor, was awarded to Mr. S. F. Edge, whose car was decorated with Gothic arches of pæonies, jonquils, and marguerites. Mr. F. W. Peckham and Miss Vera Edwardine gained the second prize, a banner given by the *Graphic*, with a small canopied car artistically trimmed in yellow muslin, flowers, and foliage. The *Gentlewoman's* banner was won by Mr. C. Jarrott, and the banner presented by the Hon. J. Scott-Montagu, by Mrs. Edge, who steered her own vehicle throughout. It is a pity that the weather proved so intolerable towards this interesting event.

To Advertisers.

IN consequence of the Coronation taking place next week we shall go to Press earlier than usual, and all advertisements intended for our issue of the 28th should reach the publishers by Monday morning next (the 16th inst.) in order to secure insertion. This notice applies to small prepaid advertisements as well as to displayed announcements.

The Motor Mower.

MUCH has been said and written as to the value of motor-vehicles in taking people to and from the crowded towns, but the work of the motor in assisting the developing of Garden Cities when they are actually formed has not been so prominently brought forward. At the last Automobile Show at the Agricultural Hall there was on view a motor-mower (described and illustrated on page 175 of the *Journal*), which so strongly appealed to Mr. George Cadbury, jun., who is an engineer, that he had it sent to Bournville, near Birmingham. It is now at work cutting a twelve-acre field in Messrs. Cadbury's model village in a day and a half. Previously the same work used to take a whole week to get through. In view of the difficulty of getting labour in many rural districts, the introduction of a motor-mower is calculated to be a factor in increasing the chances of a revival of agricultural prosperity.

An Afternoon's Trip.

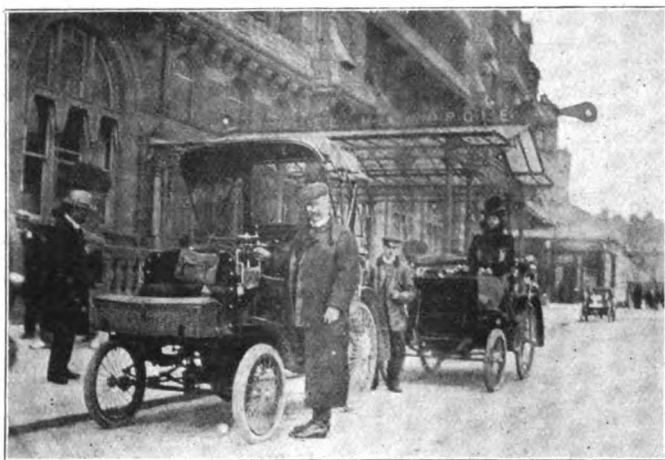
THE other afternoon we had an enjoyable run on a Weston steam car to Hampstead, Hendon, and other suburbs in the north of London. Starting from Mortimer Street, W., and making our way by St. John's Wood, we got into Finchley, making a good pace, Mr. A. E. Cohen negotiating the car through traffic

with the skill of the expert driver. Up Netherall Gardens the car went with an easy conscience, and to the evident surprise of many of the ladies, who found the descent of the pathway a somewhat difficult matter. Then we ran about the streets in the locality, up one incline and down another, demonstrating that steam can prove as efficient a source of power for a light locomotive as for the heavier engines on the railway track. At the Spaniards at Hampstead we filled the boiler in double quick time with the Weston water-lift, illustrated in these columns on Feb. 8th, and having taken tea, made a non-stop run back to the City, refreshed by a couple of hours' enjoyment of the purer atmosphere of the northern heights.

Five Thousand Miles in Fifty Days.

We pitied Mr. Hewetson on Friday and Saturday last, when his long pilgrimage had to be continued through wind and wet that would have deterred anyone but a motorist from his self-imposed task.

Herewith we give a photograph showing his arrival at Brighton on the first day's run, described in last week's *Journal*. Some of the succeeding days' trips will be made



MR. H. HEWETSON AND MRS. BAZALGETTE ARRIVE AT BRIGHTON.

to Odiham and back, the route being through Richmond Park, over Kingston Bridge, Staines, Egham, Virginia Water, and Bagshot, returning *via* Farnham, Guildford, and along the Ripley road to London. At Odiham Mr. Hewetson will make the George Hotel his headquarters, and testifies to the "sweet reasonableness" of the attitude of the proprietor, Mr. Harris, towards automobilists. On the mornings of Thursday and Friday next, owing to the stoppage of the traffic in connection with the Coronation, it will be impossible to start from the Carlton Hotel as usual.

Motor Fire Engines.

ONE of the results of the terrible fire in the City has been to cause local authorities to give more earnest attention to the necessity for motor fire-engines. Already Eccles and Worcester have practically demonstrated the utility of superseding horse traction in this connection, and now we see that the Leyland Urban Council is ascertaining the cost of a motor fire engine. In the course of the discussion one councillor pointed out that the purchase of a motor fire-engine meant the laying up of a certain amount of dead capital, whereas if horses were used there would only be the cost of occasional hire. Of course this is an argument that will appeal strongly to the ratepayers in widely-scattered districts, but it does not arise so strongly in the case of densely-populated districts, where the frequency of fires should lead local authorities to adopt the most modern methods.

The Yorkshire Club.

THE run of the Yorkshire Automobile Club, on Saturday, was, considering the recent rainy weather, well attended. It had been intended to go from Leeds to Ripon, but when the party got to Harrogate tea was suggested, and the charms of the meal, combined with the threatening weather, caused the members to linger until it was decided to return home. Amongst others, the following members took part in the run:—Mr. R. Kirk (16-h.p. Panhard), Mr. and Mrs. Burrows (De Dion), Mr. H. Hey and friends (De Dion), Mr. A. W. and E. Dougill (8-h.p. car), and Mr. and Mrs. Forth (quad). Messrs. Benbough, L. Hey, Calvert, Berry, and D. Hey were on motor-tricycles.

On the Bookstalls.

AMID the multitude of newspapers now on the bookstalls the *Motor-Car Journal* occupies a popular place, and in reply to several correspondents the manager of the publishing department wishes to state that the *Journal* can be obtained on all the railway bookstalls controlled by Messrs. W. H. Smith and Son and by Messrs. Willing and Son, as well as from booksellers and newsagents throughout the country. He will be pleased to hear from any interested reader who has a difficulty in procuring the *Journal*, together with the name of the nearest newsagent or railway bookstall.

Automobile Touring in Algeria.

For a long time Algeria has been a very popular touring ground for French, Italian and Belgian motorists. Each year the country is invaded by an increasingly large party, and now that an Algerian Automobile Club has been formed, the motor-car is likely to become as common a sight as the natives' old beast of burden, the camel. Among the motorists who have done the most to bring the claims of Algeria as an automobile and touring centre to the front are the brothers Pierre and Jean De Crawhez, two gentlemen well known in Belgian motoring circles, who for several years past have paid an annual visit to that country. The illustrations, which, by the courtesy of *La Belgique Automobile*, we are able to publish on page 355 of the present issue, show the brothers De Crawhez accompanied by M. Schulten, at Biskra, on the occasion of their last tour. As will be seen, their car—a Pipe, built in Belgium—created considerable interest among the natives, who, however, have nowadays apparently no fear of the mechanically-propelled vehicle.

Activity at Liverpool.

ARRANGEMENTS have been made to provide members of the Liverpool Self-Propelled Traffic with a reading, writing, and smoke room at the Exchange Station Hotel, Liverpool, Room No. 16 being exclusively reserved to members of the Association. In this room a special general meeting of members will be held at 2 p.m. on Thursday, the 3rd prox., to adopt the report of the council, to which Messrs. Max Muspratt and T. Thornycroft Vernon have just been elected, to pass accounts and to transact any other business that may arise. On the 10th prox., in connection with the visit of the Society of Chemical Industry to Liverpool, a run will be held to Widnes and Prescott, and owners of motor-cars are invited to place seats at the disposal of visitors.

North-East Lancashire A.C.

ON Saturday the North-East Lancashire Automobile Club, which has its headquarters at Blackburn, held its first run, and as the weather proved favourable a capital time was spent, the members taking part including Mrs. Thompson (Mabley), Dr. Stephenson (Progress), Mr. A. Hitchon (Daimler), Mr. F. Hodgkinson, Mr. F. Marwood (Marshall), Mr. T. Eastham (Argyle), Mr. G. D. Walmsley, the hon. secretary (New Orleans),

Dr. Gornall (Progress), Mr. William Birtwistle (Daimler), Dr. Bannister (Dexter-tricycle), Mr. R. M. Bottomley (Argyll), Mr. A. Birtwistle (Daimler), Mr. W. M. Cunningham (The Midland), and Mr. E. A. Riley (De Dion). Mr. M'Neil, of the Manchester Automobile Club, also attended the run on his Cottereau car. Starting from the Town Hall, Blackburn, the cars had a successful run to Clitheroe, only one stopping *en route*, the delay in that case being owing to the clutch slipping—an incident easily rectified. News of the meet had apparently travelled to all the places on the line of progress, and the villagers turned out in scores to welcome the motorists as they sped by. At Starkie's Hotel, Clitheroe, the members had an enjoyable tea, during the progress of which a message from the *Motor-Car Journal* was read, the kindly wishes expressed being heartily reciprocated.

Going to School in New Style.

In connection with this run we hear of a little incident which further illustrates the value of the motor-car in getting across country. Mr. Walmsley's son attends Sedburgh College, which is some sixty miles away from Blackburn, and he had to be at the school very early on Monday morning. He was desirous of attending the first Club run, but could not have done this and attended at the school to time had it not been for the motor-car, as there is no train service to Sedburgh on Sundays. Thanks, however, to the car he was able not only to attend the first run of the Club of which his father is hon. secretary, but also to be at school within the time limited, as Mr. Walmsley took him on Sunday and made the return journey the same day.

Motor-Cars for Military Purposes.

Although the appearance of the Duke of Connaught in a motor-car has hitherto been infrequent, he has lately developed quite an interest in automobilism, and during the Coronation period will use a 9-h.p. Napier car in inspecting the various bodies of troops spread over a large area. His Royal Highness is in charge of this department, and made his first visit of inspection by automobile on Tuesday, when he drove through Richmond Park to Hampton Court Palace, accompanied by General Trotter, to inspect the Indian troops quartered there. The War Office have also just had delivery of a similar car to that supplied to the Duke of Connaught.

Ungentlemanly Motorists.

MR. CHARLES G. EDWARDS, of Wicklesham, Faringdon, calls attention to the antics of some motorists travelling in his locality, which call for censure from all interested in the advance of automobilism. The riders appear to have rushed along narrow and winding roads without regard to the feelings of anyone. They were travelling from Oxford to Bath, and so great was their pace that a superintendent, a sergeant, and two men of the county police awaited their return in the village of Shrivenham. On the approach of the motor-car, again at full speed, the police, who were drawn up across the road, called upon the occupants to stop. They dashed on, however, nearly running over one policeman, and, of course, scattering the crowd in all directions. Missing the proper turn they raced round a corner at right angles and down a road only 18 ft. wide. They then made a detour back to Faringdon, and covered nine miles of very narrow and winding roads in fifteen minutes. In their progress the motorists are said to have run through a flock of sheep. Passing a horse standing quietly with a trap at a house they blew their horn at it, and set it off at a gallop. The cart was finally upset, the horse cut to pieces; yet they never stopped to assist the unfortunate owner. A tyre of the car punctured, and whilst the engineer was repairing it the motorists amused themselves—we publish it on the authority of Mr. Edwards—by tearing down 70 yards of railings, piling them up as obstacles on the road, and assaulting cyclists and others who had to pass. Once more *en route*, they hustled two cyclists into a ditch, after striking at them for some

distance along the road. These and other "regrettable incidents" occurred during the journey; yet the offenders could not have been identified had there not been a telegraph office at Shrivenham, from which a message was sent to Oxford.

Motorists are Sportsmen.

THIS, of course, is a rare and peculiar case. We cannot understand such conduct, and it certainly calls for the severest condemnation. Just as the Automobile Club recently called for an apology from a member who transgressed the regulations at one of its functions, so we hope it will make inquiry into the case mentioned in the foregoing paragraph, so that our opponents may be made to realise that motorists, as a body, give no countenance to such unseemly conduct. And we trust that the public will recognise that an isolated case of this kind does not mean that motorists cannot be gentlemanly, for no body of men are so sportsmanlike and so fair in their dealings with other users of the road; hence the regret with which they will read the communication from Mr. Edwards—a communication to which we give the publicity of our columns in the hope that it will prove a warning to any who are inclined to show no consideration for the feelings of others.



THREE HORSELESS CARRIAGES NEAR ROUEN.

An Attack on a Motorist.

BUT whilst motorists are charged with running amuck in this fashion—and it is the first time we have heard of such an occasion—they are often subjected to insult, abuse, and, indeed, assault. Stone-throwing by boys is only a mild form of outrage compared to an incident which happened near Ripley, in Surrey, on Sunday, when Mr. Campbell Muir was driving the 40-h.p. Mercedes car on which he recently took Mr. A. J. Balfour up Dashwood Hill in record time. A group of men were lounging at one corner of the road, and struck Mr. Muir on the face with a heavy stick. Mr. Muir was nearly stunned and his face badly cut. A police officer was found shortly afterwards, and we hope to be able to record the appearance of the assailant in the local police court.

The Automobile Show, 1903.

THIS event, which will take place at the Agricultural Hall, Islington, in March next year, is already attracting considerable attention, and the number of exhibitors who have definitely and authoritatively engaged space is rapidly approaching three figures. There will evidently be a very comprehensive display in the Gallery and minor halls, as well as in the main building.

Public Motor Services.

THE provision of public motor services is being made in many towns, not only by private enterprise, but also by the municipality. Without entering upon the controversial subject of the limits of municipal enterprise, we wish well to any local movements likely to advance automobilism. Among the towns where the matter has lately been mooted is that of Newport, Mon., where Councillor Cordey has been asking if the electricity and trams committee could not provide motor-cars for Stow Hill. If a decent motor-car service, he said, either of steam or electricity, could be arranged, it would probably save the £24,000 which the laying of the electric tramways up the hill had been estimated to cost for some years to come. Perhaps the necessity of obtaining statutory powers may prevent further consideration of the matter in that Welsh borough, but the fact that the suggestion was made is evidence of the attention now being given the subject in many quarters.

An American 100-mile Endurance Run.

SUCCESS crowned the execution of the details of the 100-mile endurance run held on the 30th ult. by the Automobile Club of America, weather conditions favouring a pleasant day's jaunt through a spring-decked landscape. Instead of graded awards, a blue ribbon class alone was established, with a 100 per cent. performance as the standard for qualification. A course through Westchester into Connecticut along the shore of Long Island Sound was selected. It began at the Club House, near Central Park, and ran through the Westchester and Connecticut Sound shore towns to Southport, 50 miles distant, where it ended. The return route was over the same course. There were hills, not steep ones as a rule, but continuous, that had to be climbed going and coming. The strictest speed limits conforming with the legal restrictions of the states and towns through which the run was to pass were established. The recent suspension of two of the members of the A.C.A. for offences in this direction showed, remarks the *Motor Age*, that the governors' warnings actually meant something. The contestants arrived at all the controls and at the finish close together, and those that reached any point in the lead did so more from an ability to calculate speed more closely than from the possession of any greater supply of that commodity in their vehicles. The cars were sent away as quickly as possible, a few together at the start, and at no greater interval than 15 seconds later. In a quarter of an hour the entire caravan of fifty-five was under way. The first vehicle arrived at the finish a few seconds after the time limit of 6 hours and 4 minutes had expired. From that time on for an hour the cars returned in an almost unbroken procession. The rules of the contest were, briefly: petrol cars were required to go the whole journey without a stop, while steam and electrics were permitted to stop at one-third and two-thirds of the journey for supplies and lubrication. There were seventy-five entries and fifty-five starters, made up of forty petrol, fourteen steam, and one electric carriage. Twenty-six, or nearly 50 per cent. of the starters, obtained blue ribbons. Of these ten were driven by steam and sixteen by petrol. Of the petrol cars entered twenty-seven were of American and thirteen of foreign construction, ten of the former and six of the latter scoring 100 per cent.

Motor-Cars at Hemel Hempstead.

THANKS to the enterprise of the Hemel Hempstead Motor Car Company, the residents of that part of the country are provided with a capital motor-car service. This runs from the High Street, Hemel Hempstead, to Boxmoor station, meeting the trains and adding much to the convenience of people in both places. The company lets cars out on hire for business and pleasure purposes, the usual charge being 5s. per hour. Vehicles are also sent out at short notice to Watford, Rickmansworth, Tring, Aylesbury, St. Albans, Harpenden, and other places in West Herts.

Observers.

THE art of observation is not easily acquired. In fact, observers are born, not made, and the men who accompany motorists when engaged on trial trips and competitions are as various as the scenery through which they travel. For the observer on such an occasion is an autocrat. He must be competent, quick to perceive and absolutely impartial, never allowing the good fellowship that frequently comes when riding together to warp his judgment or colour his reports. Such men are not always easy to find, but upon their discovery depends the success as well as the value of the trials organised from time to time by automobile authorities.

No thieves to catch or worry
Behind the hedge they keep,
While sundry fights on distant heights
Leave wives and babes to weep.

Cheers for these legal pillars
Out of the way—unseen;
For there they wait, from morn till late,
With watches, sly and mean.

Scatter your old-world notions
And banish the policemen's need,
For their only ways in these latter days
Are to slacken the motor's speed.

A DECAUVILLE car did a non-stop run from London to Alnwick, a distance of 312 miles, on Thursday of last week.

THE Hove Town Council has sanctioned licenses to the drivers of two motor-cars to ply for hire in the town.

AN exhibition will be held at Delhi in January next, at which makers of automobiles will be invited to be represented.

THE Manchester Wheelers will include a motor-cycle race in connection with their annual hill climb on July 5th. The event will be limited to motor-cycles up to 3½-h.p.

LADY CHARLES BERESFORD has ordered an electric carriage from the City and Suburban Electric Carriage Company.

AN auction sale of motor-cars will be held at the City Garage, on Tuesday, the 1st prox., at 2 p.m.

MR. WINSTON CHURCHILL, the American novelist, is enthusiastic over motoring, and has driven from Berlin to Paris on his car.

THE Austrian Automobile Club has decided to organise an international exhibition, to be held in Vienna in March next.

ARRANGEMENTS are reported to be in hand for a series of mile contests at Deauville, France, in about a month.

A DEPOT for the supply of motor spirit and petrol, and for the repair of motor-cars, has been started by the Watford Engineering Works at the lower end of Watford, near Bushey Station.

THE Spanish Ministry of War has instructed the Comandancia de Ingenieros at Mahon to make some experiments with motor-cars, and, as a first step, have authorised the purchase of a 6½-h.p. Darracq tonneau.

BARON HENRI DE ROTHSCHILD has just accomplished a notable journey in his motor-car. Starting from Cannstatt, two miles from Stuttgart, at half-past four o'clock in the morning, he arrived at Paris at half-past ten in the evening of the same day, having covered a distance of 465 miles.

ENGLAND will make a fairly good showing in the Paris-Vienna race. Mr. S. F. Edge will drive a new 40-h.p. Napier; Mr. Mark Mayhew probably a Panhard; the Hon. O. S. Rolls a Mors; Mr. C. Jarrott a 40-h.p. Panhard; Mr. D. M. Weigel, a Clement; while the three Wolseley cars will be handled respectively by Messrs. H. Austin, Montagu Grahame White, and Calnan.

SCOTTISH RUNS AND TRIALS.

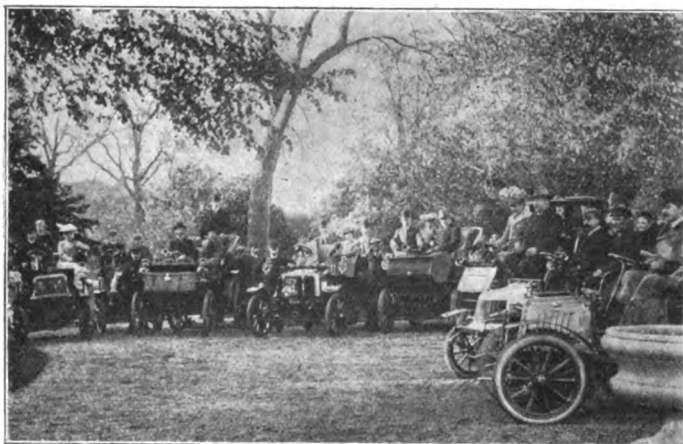


THE Scottish Automobile Club is a very active organisation, and its Eastern Section has arranged a very interesting series of trials and runs for the present season. During the autumn speed contests are contemplated; on Thursday of this week there was an afternoon run from Edinburgh to the Queen's Bay Hotel for tea; on the 8th prox. there will be a joint run of the whole Club to the Bridge of Allan, and on the 12th prox. Dr. Blair has invited the members of the Eastern Section to afternoon tea at Jedburgh.

A few days ago the Western section of the Club had a run to

Professor Dawson Turner, M.D., on his 10-h.p. Delahaye, having Mr. Norman D. Macdonald, chairman of the Scottish Automobile Club, as his passenger. Then followed Mr. James Hunter's 11-h.p. Daimler, Mr. Sleight's 8-h.p. Peugeot, Mr. John Macdonald's 7-h.p. Daimler, Mr. Croall on Mr. Macmillan's 8-h.p. Panhard, and Mr. Ballantine on his 6-h.p. Daimler. A Rossleigh Daimler dogcart carried a full complement of guests, followed by that firm's Argyll car, also filled. Mr. John Love drove his 5-h.p. M. M. C. dogcart. In our photograph of the scene at Mr. Wilson's house that gentleman and Mrs. Wilson are seen on the right of the picture; Professor Turner is on the car under the tree, with Mr. Norman D. Macdonald standing behind.

But the most important recent event in connection with the Club was the hill-climbing competition at Glenlude Hill, at



AT MR. JOHN WILSON'S HOUSE.



MR. J. H. PATERSON FINISHING HIS CLIMB.



SCENE ON GLENLUDE HILL AT THE START.

Ladybank, Girvan, a distance of fifty-four miles from Glasgow, where the members were welcomed by Mr. W. Weir, who had driven over from Glasgow a day before on a new 10-h.p. Wolseley. Among those who took part in the trip were Messrs. J. Adam, D. L. Auchinvole, H. M. Napier, A. Govan, W. Kingsbury, R. Watson, J. R. Nisbet, Steen, W. Weir, J. R. Richmond, and R. J. Smith.

The Eastern Section of the Club has also recently had a pleasant run, the occasion being to visit Mr. John Wilson, a member of the general council of the S.A.C., at his house a few miles south of Edinburgh. Between fifty and sixty members and friends made the journey. Mr. John Wilson led the procession from St. Andrew Square, Edinburgh, on his 10-h.p. Peugeot brougham, followed by



THE LORD JUSTICE CLERK CLIMBING THE HILL.

Paddy Slacks, near Innerleithen, on Saturday last. A start was made from Edinburgh early in the morning. Owing to his official duties in the Second Division of the Court of Session, the Right Hon. Sir J.-H. A. Macdonald, K.C.B., Lord Justice Clerk, one of the judges, was unable to act in the whole of the competition, but his lordship was as early on the scene as possible, driving straight from his residence on a Delahaye practically without a stop. His son, Mr. Norman D. Macdonald, had left town at an early hour to make the preliminary arrangements, in which he was assisted by Mr. Andrew Wilson, C.E.

The measured mile on the Glenlude Hill has an average rise of one in twenty-one, and half-way up there is a nasty corner where the gradient is about one in thirteen. The scenery all

round was very fine, being, in fact, somewhat like the Highlands in miniature. At the foot of the hill the official flag of the S.A.C. (the Royal Standard of Scotland) was flying, and there a goodly company assembled to watch the progress of events, those present including Professor Dawson Turner (Delahaye), Mr. John Macdonald (Daimler dogcart), Mr. J. H. Irons (Daimler phaeton), Dr. Blair, Jedburgh (Benz), Mr. T. M. Newton (secretary S.A.C.) (Daimler waggonette), Mr. John Wilson (Peugeot landaulette), Mr. J. W. Hunter (Daimler), Mr. L. J. Clark (Delahaye), Mr. Sleigh (Argyll), Mrs. Sleigh (Waverley), Mr. Ian Macdonald (Oldsmobile), Mr. Macmillan (Panhard), Mr. W. Hunter (Gobron Brillie), Mr. Govan (Argyll voiturette), Mr. Lee (Progress car) Mr. Sanderson (Benz), Mr. Theim (motor-tricycle), and Mr. Moore (motor-bicycle).

Each of the fourteen cars entered had to mount the measured mile twice, carrying its full complement of passengers, including an official observer. The competing vehicles were divided into two classes, viz., those with one cylinder and those with two cylinders, the results being as follows:—Two-cylinder Cars: 1, J. H. Paterson, Aberdeen, Peugeot double phaeton, 8-h.p., four seats, 3 min. 10 sec.; 2, J. W. Hunter, Edinburgh, Daimler, 10-h.p., four seats, 3 min. 20 sec.; 3, W. Hunter, Edinburgh, Gobron Brillie, 10-h.p., four seats, 4 min. 25 sec. One-cylinder Cars: 1, Alexander Govan, Glasgow, Argyll voiturette, 8-h.p., two seats, 2 min. 39 sec.; 2, W. L. Sleigh, Edinburgh, Argyll, 8-h.p., four seats, 5 min. 12 secs.; 3, do. Waverley, 8-h.p., four seats, 5 min. 27 sec.

Unfortunately the Oldsmobile could not take part in the contest owing to a dog getting under the wheels while running through Innerleithen, and causing one of them to buckle—the only mishap of the day. At the top of the hill Mr. Irons officiated as judge, and Mr. John Macdonald as timekeeper; while at the foot the same duties were discharged by Mr. R. J. Smith and Mr. T. M. Newton. Mr. Norman Macdonald superintended the arrangements generally. Luncheon was partaken of on the hill *al fresco* before the competition began, and a halt was called for tea at Peebles on the road home. One of the cars returned to Edinburgh within the hour from Peebles, in spite of the fact that the many hills had to be descended very slowly, as only one brake was working. Mr. J. H. Paterson's car, which came out so well in the hill-climbing competition, had travelled by road all the way from Aberdeen with a load of passengers, and Mr. R. J. Smith, C.A., the secretary of the Western Section of the S.A.C., left late in the afternoon on an Argyll car for Troon—a distance of about eighty-five miles. Our Scottish friends are to be congratulated on having given such a demonstration of the reliability of the modern motor-car.

It is reported that arrangements are in hand to hold an automobile fete at Dieppe in the latter half of July.

THE "Prince of Wales" Hotel, Harrogate, will be the headquarters of the provincial automobile clubs dining there on Friday next.

MESSRS. FLEMING, BIRKBY AND GOODALL, LIMITED, the makers of Teon belting, largely used in connection with belt-driven cars, have issued a handy little map of London, showing the Coronation procession routes.

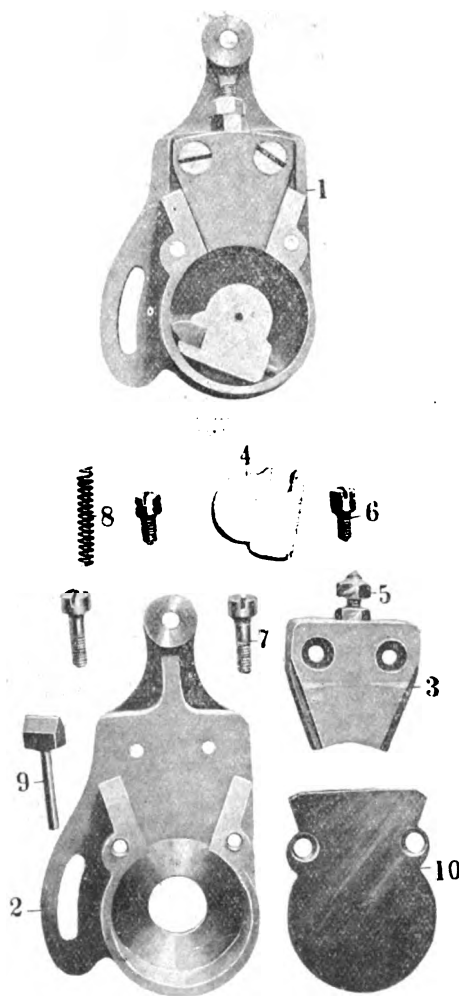
THE London County Council has just sealed a contract with Messrs. Merryweather and Sons for the supply of six new steam fire-engines for the Metropolitan Fire Brigade. Each of these will be of the double-cylinder vertical type, with expansion gear and oil burning arrangements of the latest pattern.

THE first statutory meeting of the Motor Cycling Club was held in London last week at headquarters, The White Horse, Long Acre. An interesting summary, prospective and retrospective, was given by the chairman, who stated that the membership list was steadily increasing. It was announced that in the first week of July a fuel consumption trial is to be held on the Crystal Palace track, open to all motorists. The entries will be restricted to twenty-five, divided into classes. A members' handicap will also be run off on the same evening. At the end of July a hill-climbing contest will be run off on Tilburstowe Hill.

THE ROSSELLI-CASTELLAZZI MAKE AND BREAK DEVICE FOR PETROL MOTORS.

—:o:—

AN interesting exhibit at the Automobile Show at present being held in Turin, Italy, is the make and break device invented by Signors Rosselli and Castellazzi, and of which illustrations are given herewith. The Fig. 1 shows the complete apparatus, with the cover removed, while Figs. 2 to 10 illustrate the details. The half-speed shaft terminates within the make and break box as usual, and carries on its end a piece of bronze (4), in which is set the steel hammer, (9), the face of which is held in contact with the inner periphery of the box by means of the spring (8). The box is made up partly of metal and partly by the vulcanised fibre block (shown separately at 3). In the latter is a steel pin, its inner face being flush with that of the



fibre block, and its upper end forming a terminal. The action of the device will easily be seen, the make and break of the electrical circuit taking place when the spring hammer (9) comes in contact with, and leaves the insulated steel piece in the fibre block (3). One of the novel features of the device is that it works in oil, the box within which the hammer rotates being filled with thick grease. The cover (10) of the box is made of transparent celluloid, so that the hammer can be inspected without it being necessary to remove the cover. The apparatus is easily taken to pieces, and no platinum being used, any renewals can be made at a low cost. Ing. Emanuel di A. Rosselli, of Turin, the maker of the device, informs us that ere putting it on the market he has given it an extended trial, and that he has obtained excellent results with it on motors running up to a speed of 2,000 revolutions per minute.

A MOTOR-CAR TURNTABLE.

IN the cramped confines of the usual private motor-car stable one of the greatest difficulties encountered is the turning of the vehicle. It must be backed in or backed out, and neither process is an agreeable one. The average motorist finds it the lesser of the two evils to run the vehicle out by hand, turn it around and head it in the desired direction. How one automobilist grappled with the problem and solved it in an entirely satisfactory as well as surprisingly simple way is best told in his own words. "I have thought that the readers of the *Motor World* would be interested in an improvement for an automobile stable," writes Dr. M. A. Carman, of New York.

"In building a house for my steam car I adopted a device suggested by a friend, viz., a turntable, and now find it a great convenience. There should be one in every automobile stable, as it saves room, enables one to drive right on the turntable, and, after alighting, reverse the car by grasping the springs at either end and pushing it round a half turn. Then the car can be backed to any part of the stable, ready for a straightaway start.

"The dimensions of the table are as follows: Diameter 9 ft. 6 in., made of two thicknesses of $1\frac{1}{4}$ in. matched spruce, laid one across the other, thoroughly nailed together; depth of pit for table, $3\frac{1}{2}$ in.; a floor of $1\frac{1}{4}$ in. matched spruce is laid in the bottom of this pit; the floor beams for this were dropped $4\frac{1}{4}$ in. below the others of the regular floor. Have half an inch space around the table for play in turning. Sixteen large ball bearing castors, let into the bottom of the table $13\frac{1}{2}$ ins. from the outer edge, were used. These run on an iron track 3 in. wide, $\frac{1}{2}$ in. thick, laid on the floor of the pit. I made a centre pin with a steel ball $1\frac{1}{4}$ in. in diameter, set in two plates of Babbitt metal $\frac{1}{2}$ in. thick, run on two steel washers 4 ins. in diameter. Three holes were bored for the metal to get a grip on the washers, and then holes for screws. All the castors were packed in grease, covered with leather except where a small hole lets the ball protrude, and tacked all around, thus preventing rust and giving constant lubrication. The car, with water and petrol, weighs about 1,300 pounds, and for a heavier vehicle I think the table should be made of three thicknesses of $1\frac{1}{4}$ in. spruce with castors set every 15 ins. Behind the turntable under the floor I had a pit dug 3 ft. by 4 ft. and 4 ft. deep, with a trap door; thus there is no more lying on the back to get at the working parts of the motor. The cost of the table complete was £7."

A PUBLIC service of motor-cars has lately been started between Cricklewood and the Marble Arch by the Harrison Dudden Motor Transit Company. The cars run every twenty minutes, and do the journey in half the time occupied by the horse-drawn omnibuses.

In the report for 1901 of the Comptroller-General of Patents, Designs, and Trade-marks, it is stated that the titles of the applications for patents lodged last year show a considerable activity in connection with motor-cars, especially as regards vehicles propelled by oil motors. The experimental trials of airships and submarine boats also led to a number of applications for patents relating to these subjects.

AN instrument of more than passing interest was used for the first time in the American Automobile Club's non-stop endurance contest on the 30th ult. It is called a tachometer, and was fitted to a Haynes-Apperson car, the object being to enable the driver to gauge his speed during the progress of the contest. The feature of the device is that it furnishes direct sight-reading of speed at all times. One portion of it is attached to one of the front wheels, and seems to be in the nature of a governor, which exerts a pressure on the liquid contained in a bulb in direct proportion to the number of revolutions of the wheel. This pressure is communicated through rubber tubes to a fixed glass tube with a graduated scale, attached to the dashboard, and the speed is registered by the liquid rising in the tube exactly as mercury or alcohol rises in a thermometer. The instrument will not be ready for the market for some time.

THE WILSON AND PILCHER INLET VALVE FOR PETROL MOTORS.

AMONG the detail improvements in petrol motors, lately introduced by Messrs. Wilson and Pilcher, is one in connection with the inlet valves. In the new valve, illustrated herewith, it will be seen that the upper part of the stem is screwed to take a flanged circular nut, this nut being retained in position by a small circular steel pin passing through holes drilled in the nut and valve stem to accommodate it. The returning spring is retained in position by the overhanging flange of the nut, and the steel pin is retained in its place by the surrounding spring. By the new arrangement the spring is held much more securely and effectively by the threaded nut (which

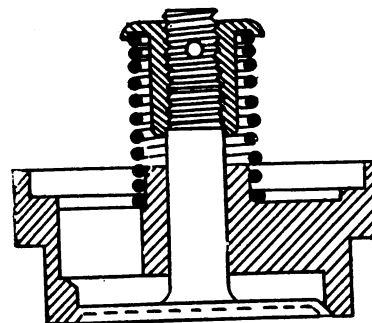


FIG. 1.—SECTIONAL ELEVATION.

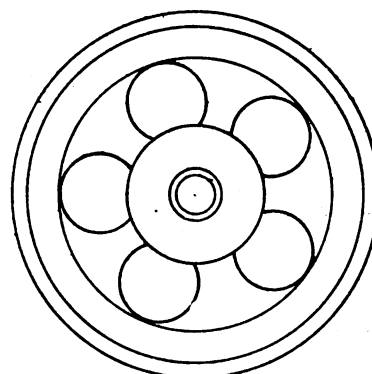


FIG. 2.—PLAN.

extends well down the valve stem) than by the usual cotter. The spring can also be renewed with great ease, as, by holding down the spring by the fingers, the pin, being only just a fit, will drop out without trouble. The locking arrangement employed maintains the full strength of the valve stem, and prevents all chance of the head of the valve becoming unscrewed. All sizes of valves, with the new locking arrangement, are, we understand, being made.

THE Lambeth Borough Council has decided to hire a motor-van for a month. The charge will be £10 per week, including fuel and driver's wages. Should the Council decide at the end of the month to take over the motor-van (the price of which is £700), the charge for hire will be reduced to £5 per week.

THE charge that motorists are callous to the feelings of others is not generally true, and an incident which occurred the other day at Sudbury may be regarded as characteristic of motorists. An old gentleman was crossing the road when he was knocked down by a motor-car, owned and driven by Mr. Roger H. Fuller, of Surbiton. Mr. Fuller immediately brought his car to a standstill, and subsequently went for Dr. Wansbrough Jones. After the injuries had been temporarily dressed, the patient was removed to Harrow Cottage Hospital, and is now progressing satisfactorily.

CONTINENTAL NOTES.

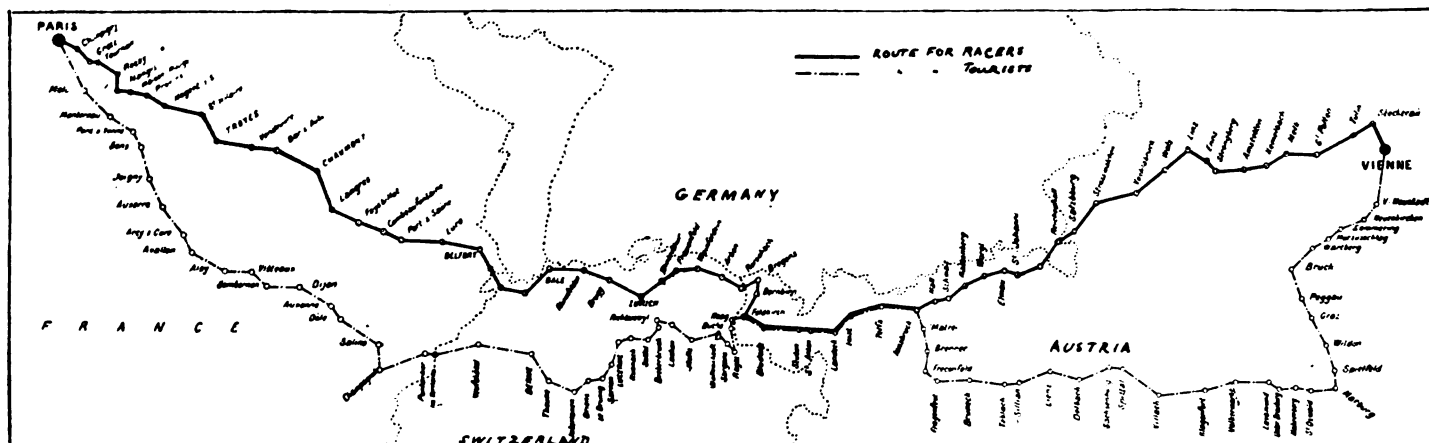
BY "AUTOMAN."

I GAVE last week a *résumé* of certain interesting questions discussed at the Automobile Congress at Dijon on the opening day. Several matters dealt with during the later part of the Congress were also of interest. M. Pierrol, the Vice-President of the Touring Club of France, read a report on the security of the roads, and a very animated discussion followed. M. Pierrol made the mistake of being too prejudiced in favour of the new form of locomotion, and his report would have led anyone to believe that it was necessary to sacrifice everybody and everything on the altar of automobilism and give up the roads entirely to this traffic. In the subsequent discussion, however, automobilists were most moderate in their views, and heartily condemned any attempt to go too far. In the end it was decided to recommend to the authorities the better carrying-out of the laws which already exist in connection with the use of the roads, and particularly to enforce penalties for those in charge of horse-drawn vehicles in the following cases:—(1) In case there should be no reins, or that the reins should not be in the hands of the driver; (2) In case of the drivers being intoxicated or asleep; (3) In case of carter's who are not at the head of the shaft horse; (4) In case of leaving a horse-drawn vehicle unattended on the public way; (5) In case of there only being one driver for two or more vehicles.

to avoid any trouble in future. The system seems to work satisfactorily in Switzerland, and it is very noticeable that it seems to produce the required result without any undue friction.

ON the last day of the Congress Count Chasseloup-Loubat read an interesting paper devoted to the question of the calculation of the horse-power of explosion engines, and this in connection with the taxation of motor-cars. The question which the Count specially brought before the Congress for discussion was whether the horse-power taxed should be calculated as from the fly-wheel of the motor or as from the road wheels, and it was pointed out by the Count that it would be much more reasonable to base the taxation on the horse-power developed by the motor, for in this case encouragement would be given to the constructor who obtained the best result, whereas in the method at present adopted, out of two cars giving off five horse-power on the road wheels, one may be taxed for a 12-h.p. engine and the other for a 7-h.p.

WITH regard to the measurement of the horse-power of explosion engines, the Count pointed out that cylinder measurements are absolutely fictitious for the following reasons:—(1) More or less speed can be got out of similar engines according to the weight of the valves, or the springs which work the valves, by varying the length of the piston, and by varying the cooling surface of the explosion chamber; (2) by varying the compres-



ROUTE MAP OF THE PARIS-VIENNA RACE.

[La France Automobile.]

It was also decided to recommend that flocks of sheep or cattle travelling by night should be preceded by a danger signal in the shape of a lamp or bell, and that no grazing should be allowed at the edge of the roads. These latter recommendations are most reasonable, for it is of frequent occurrence that an automobile travelling at night finds itself suddenly and without the slightest warning in collision either with stray cattle or with flocks being driven to market. The writer can sympathise with this from experience, as he remembers on a dark night in the pouring rain, whilst returning from the Southsea run last year on a twelve-horse car, just after leaving Virginia Water, finding himself quite unexpectedly in the middle of a troop of horned cattle, with a big bullock with its horns dangerously near the radiator.

THE Congress agreed to recommend that the local authorities in charge of the roads should be sworn in and authorised, in case of infraction of the law by users of the road, to exact summary penalties, as is the custom in Switzerland, in which country the proceedings are as follows:—Should any user of the road drive to the public danger the authorities in charge of the road stop him, argue the matter out with him there and then, fine him, collect the money, and give him a receipt, and should he endeavour to escape they signal on to the next village, where steps are immediately taken to oblige him to stop, and the fine is doubled. This method saves much loss of time and reduces the cost considerably, and at least the offender knows exactly what is his offence and how

sion; (3) by varying the carburation; (4) by varying the rapidity with which the exhaust gases are got rid of; (5) by more or less expansion; (6) by more or less rapid cooling of the cylinder; (7) by varying the ignition; and (8) by varying the weight of the fly-wheel.

THE Count went on to deal with the question of nominal horse-power, and divided automobile manufacturers into two classes, namely, those who give their motors a nominal horse-power which is greatly exceeded by the actual brake horse-power, and, secondly, those who call their motor of a horse-power which it cannot really develop. Needless to say that the first class of manufacturer is the good one, and that the practice of over-estimating the horse-power is one which cannot be too greatly condemned.

THERE will be a motor-car exhibition in Leipzig from the 18th to the 27th of October next. This is a repetition of the exhibition of last year, which seems destined to become an annual event. It will be held in the Leipzig Crystal Palace, which has a superficial area of some 7,000 square yards. Already Messrs. Panhard and Levassor, the Locomobile Company of America, and other important firms have booked space.

THERE has been a great deal of talk with regard to the proposed purchase by the Cannstatt Daimler Works of the patent

rights of the Gardner-Serpollet steam motor-car. Certain it is that Mr. Maybach has had a run on the "Easter egg," and is quite naturally very much struck with its capabilities, and particularly seeing that M. Leon Serpollet himself acted as Jehu, Mr. Maybach may be sure to have had an experience quite conclusive. I am, however, in a position to state that no understanding has been come to between the two firms.

THE entries for the Paris-Vienna motor-car race are closed. The last entry, No. 205, was put in by Baron Henri Rothschild, otherwise known as Dr. Pascal, who had the eccentric wish to be the very last. He waited, therefore, until the clock was on the point of striking six on Sunday night last before giving in his entry. Amongst the entries I notice with satisfaction six English cars. Nothing will teach English manufacturers what to make in order to secure an export trade in motor-cars so well as competition in the public international events on the Continent, where all classes of French makers are represented, and the English maker who is open-minded enough to take a lesson and profit by it will find his business increased thereby in surprising proportions.

IN the racing section of the Paris-Vienna trial the start will be made on Thursday, the 26th inst., from Champigny, and the first day's race will end at Belfort, a total distance of 407 kilometres, or a little over 253 miles.

BELFORT is on the frontier between France and Germany, and from thence, on Friday morning, the racing cars will start for a day's promenade at the legal limit of speed to Bregenz. They will first proceed to the town of Delle, where they will cross the frontier from France into Switzerland; the second section will be from Delle to Malettes-Delemont; the third section, Delemont to Basle; fourth section, Basle to Bruck; fifth section, Bruck to Zurich; sixth section, Zurich to Winterthur; seventh section, Winterthur to Sainte-Gall; eighth section, Sainte-Gall to Bregenz, which is a little over four miles on the Austrian side of the frontier. The reason of the division of this part of the route into sections is on account of the refusal of the Swiss authorities to grant permission for racing, and in order to prevent the competing cars from either racing along the Swiss roads or executing repairs during the day it has been arranged that a certain fixed time shall be allowed for each section, and any time beyond this will be added to the time total of the race from Paris to Vienna. The sections are about twenty miles in length.

ON Saturday the racing will be resumed from Bregenz to Salzburg, and on Sunday the race will be completed from Salzburg to Vienna.

THE tourist section of about fifty cars started on Thursday last, June 19th, along the following route:—Paris to Auxerre; Friday, June 20th, Auxerre to Dijon; Saturday, June 21st, Dijon to Neuchatel (Switzerland); Sunday, June 22nd, Neuchatel to Interlaken; Monday, June 23rd, Interlaken to Ragatz; Tuesday, June 24th, from Ragatz to Sargans, and thence across the Austrian frontier to Innsbruck; on Wednesday, June 25th, from Innsbruck to Toblach; on Thursday, June 26th, from Toblach to Klanganfurt; on Friday, June 27th, from Klanganfurt to Graz; and then from Graz to Vienna.

THE longest day's run is about 126 miles, and the shortest about 62 miles. It is an ideal voyage. Switzerland and the Tyrol by the route which has been chosen will be a revelation to those who make the journey for the first time.

NEEDLESS to say that at all the great automobile works everything is now subordinated to the preparations for the great event. At Ivry, at Panhard and Levassor's works, there is a continual *va et vient* of racing-cars out on their trials. Whilst I was there I had an opportunity of examining a new Centaure engine, which is going to test its capabilities for the first time in public

competition. At the Rue de Theatre I was informed that nine of the new Mors cars would be put on the road, and that everything was ready to repeat last year's successes.

SERPOLLET has just entered his eighth car, and it is with pleasure that I give the first illustration that has appeared of the new form of car, which has a bonnet in front, making it look like a Mercedes. Underneath the bonnet is a large reservoir for the supply of water. At Georges Richard's works M. Brasier showed me the new four-cylinder 49-h.p. motor with which he intends to compete with his late employer. The new car will be called the Richard-Brasier, and three classes of these cars will compete in the speed section. The Mercedes cars have been withdrawn from the race, but it is understood that several private owners will compete, although it is distinctly given out by the Canstatt



M. SERPOLLET'S NEW 12-H.P. STEAM RACING CAR.

firm that they have nothing to do with these cars and their performance. Charron, Girardot, and Voigt have one of their new racers on the roads, and profess to be more than satisfied with its achievements. Peugeot, Darracq, Renault, Clement are all making great efforts, and altogether the race will be the most interesting event that has ever taken place since the advent of the new industry.

FOR the first time in the course of his motor-car experience King Leopold of Belgium had to interrupt his journey between Ostend and Roubaix the other day owing to a breakdown. His car was conveyed to the station by a number of farmers.

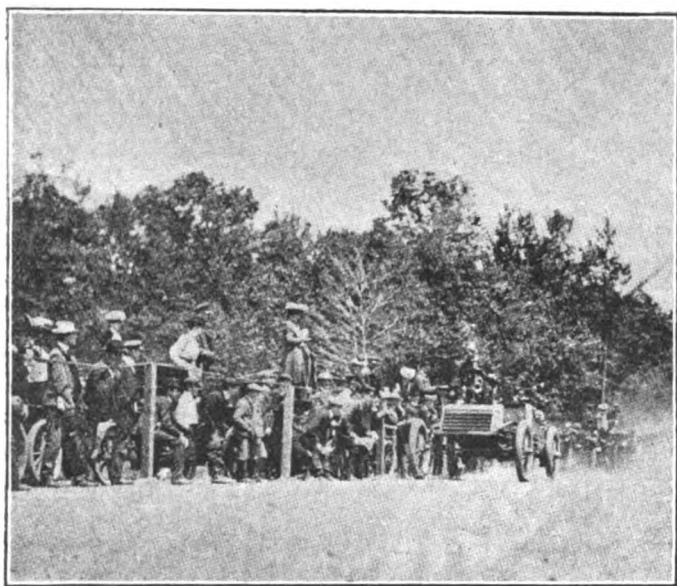
REFERRING to my note last week on Royalty and its preferences, I learn that the King of the Belgians has lately placed an order for a 20-h.p. Germain car.

THE Mid-European Motor-Car Club is organising a tour from Berlin to Hamburg. A start will be made from the capital on July 4th, each party taking its own route. A general meeting of the tourists and a flower fete will be held in Hamburg on July 6th. On the 7th the tour will be continued to Kiel; on the 8th to Lubeck; on the 9th to Schwerin, Berlin being again reached on July 10th. Altogether the tour extends to about 420 miles.

GOSSIPY guides to various places are as numerous as motor-cars on Brighton Front. One of the best series is that published by Messrs. C. Arthur Pearson, Limited, and among the volumes is a capital book devoted to South Devon, Torquay, Dartmouth, Paignton, Totnes, etc. This contains many excellent illustrations, and the chapter on Paignton is particularly good. To that town Mr. Paris Singer has been a notable benefactor, and his gifts to the parish church are rightly recognised. Motorists are probably more interested in guide books than any other section of the community, and they will regard this new Mentor to South Devon with considerable interest.

SPEED TRIALS IN AMERICA.

UNDER the auspices of the Automobile Club of America, mile and kilometre record trials were held on Saturday, May 31st, over a course on Staten Island, but were brought to a premature close by a deplorable accident, which resulted in the death of two men and the serious injury of a number of others, all of whom were spectators. Thirty-nine vehicles were entered, but only sixteen went over the course. At 11.4 the first car left the rendezvous of vehicles, and in less than a minute it crossed the starting line. At intervals of two to five minutes the vehicles made their starts, the rule being that no car should start until the preceding contestant had completed his dash. By 12.8 all the different starters, except the Baker electric, had made their runs, and most of them lined up to compete in the kilometre trials. The Baker Motor Vehicle Company's 7-h.p. special electric racer left the post at 12.52. This machine was built on the lines of a submarine boat, but for the flat bottom. It was supported on suspension wheels which were covered with oil-cloth, giving the wheels the appearance of solid discs. The casing of the vehicle was made of arched strips, covered with a light covering of wood, so light, indeed, as to appear almost like canvas. At either end of the frame, at points corresponding with the axles, the covering was slotted



PERCY OWEN MAKING A NEW CAR RECORD ON A WINTON.

to allow for the axles, so that the cover ran down to within a few inches of the ground. The batteries were located fore and aft, so arranged, apparently, that the weight was directly over the axles. In the centre of the car were two seats, arranged tandem fashion, somewhat resembling canoe seats. The riders were close together, one sitting with his legs around the other's back. Both wore shoulder-straps, and were practically part and parcel of the vehicle. The man in front—Mr. Baker—attended to the steering. The rear rider, Mr. Denzer, attended to the application of power. Three nests of Gould batteries containing forty cells were used. The motor was behind the riders. Wheel steering was employed; the weight of the complete machine being 3,200 pounds. A small turret with windows enabled the motorist to see the road. This mysterious machine reached the starting line while going at a comparatively slow rate of speed, but soon after it was all but flying. Not far from the finishing line there was a comparatively sharp turn in the road which caused all the machines to slew. It was at this point that the accident occurred. One report has it that the wheels of the Baker gave way, another has it that a tyre burst. It is, however, considered that the real cause was, a lack of positiveness of connection between the steering lever and the front road wheels caused the steering to shift as the front wheels rose and

fell, due to the high speed and the inequalities of the road surface, and that finally, as the car track gave an extra turn to these steering wheels, it is assumed they met the ground again at a tangent, the momentum of the car causing them to be crushed upon their sidewise impact with the surface, and their direction turning the vehicle into the spectators at the left of the road. Whatever the source of the trouble, the control of the vehicle was lost, and in an instant it dashed into the crowd, doing the damage above-mentioned. The driver and his mechanic, who were strapped in, were not seriously injured, though the vehicle was wrecked. The police ordered the contests to be discontinued, and ambulances were summoned at once.

The accident was of course the subject of inquiry by a coroner's jury, the result, however, being a complete exoneration of Messrs. Baker and Denzer. At a meeting of the Automobile Club of America, held on the 3rd inst., the following resolution was adopted:—"Whereas the Automobile Club of America deeply regrets and deplors the terrible accident which occurred during the holding of the record trials by this Club on Staten Island on May 31st last: Resolved, That although similar trials have been heretofore held throughout the world without serious accident, yet this accident, notwithstanding every safeguard that precaution could suggest was adopted, has convinced the Governors of the Club that it is unwise to hold speed trials with automobiles on the public highways, and that the Governors of the Club will not hold or consent to the holding of such contests by the Club."

So far as the trials were carried through, the best times in the various classes were as shown below:—

Class 1—Motor-Bicycles.					
	Vehicle.	H.P.	Mile.	M. S.	Kilometre.
C. H. Metz	Orient	3½	1 10 2-5	...	0 43 3-5
Class 3—Petrol Cars under 1,000 pounds.					
L. S. Thompson	Renault	8	1 35 3-5	...	0 59
Class 4.—Petrol Cars 1,000 to 2,000 pounds.					
Percy Owen	Winton	15	1 17 3-5	...	0 47
Class 5.—Petrol Cars over 2,000 pounds.					
William Guggenheim	Panhard	24	1 11	...	0 44
Class 6—Steam.					
S. T. Davis, Jun.	Locomobile	10	1 12	...	0 46 1-5
Class 7—Electric.					
Baker Motor V. Co.	Baker	—	—	...	0 36 1-5

THE Laffrey hill-climbing competition, organised by the Automobile Club Dauphinois, will this year be held on the 20th July. There are three categories—(1) racing cars; (2) touring cars; and (3) delivery vans.

MR. J. VAN HOOYDONK, the maker of the Phoenix motor-bicycles, has introduced a spring seat pillar for those machines. The springs are powerful and ample, and should effectively break up the vibration transmitted to the rider through the saddle post.

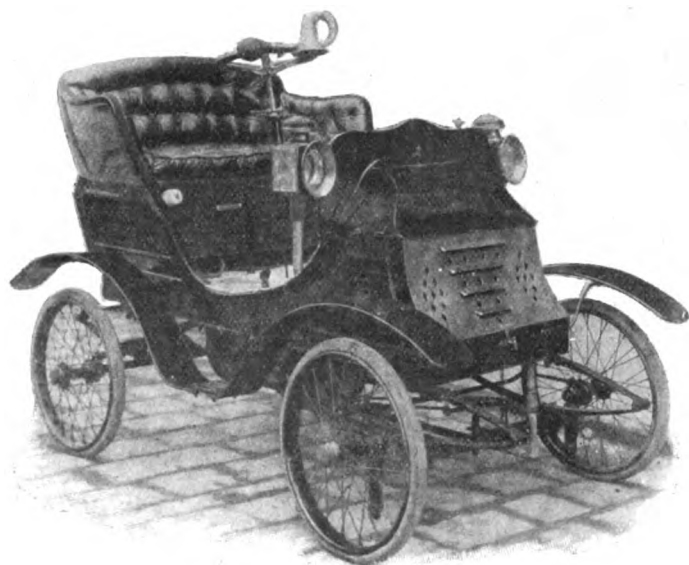
WE have received a copy of the new catalogue of petrol motors just issued by Messrs. Strickland and Company, of Teddington. They are made in sizes ranging from 1½-h.p., air-cooled, up to 48 h.p., the latter having four water-cooled cylinders 6 in., diameter by 6 in. stroke.

A DETAIL improvement which has lately been effected in the engines of Napier cars is an arrangement to insure that the correct amount of oil is always in the crank chamber. Many motorists find much difficulty in judging as to how much oil there should be in the chamber, and great damage is done to engines through insufficient oil. By the new arrangement, it is only necessary to fill the chamber until the oil begins to run out of the overflow pipe.

MESSRS. C. H. GUEST, LIMITED, of Draycott, have just issued a very complete catalogue of motor-car and cycle sundries. It gives particulars of a large range of accessories, including a number of Mr. Guest's own specialities, these including a useful combined exhaust valve raiser and grinding tool. The last four pages are devoted to the consideration of "Motor Problems," a perusal of which should be found useful by all who have taken up motoring recently. The catalogue is well got up, and motorists would do well to procure a copy for reference purposes.

THE "NEW CENTURY" VOITURETTE.

IN a recent issue we briefly mentioned that a new small petrol car had been put on the market by Messrs. Hoyle Brothers, and Co., Limited, of Brighouse, Yorkshire. We are now able to give an illustration of the vehicle, which has been named the "New Century." The engine, which is of the horizontal type, has a cylinder diameter of $4\frac{1}{2}$ in., the stroke of the piston being $4\frac{1}{2}$ in., and the normal speed 900 revolutions per minute. A Longuemare carburettor is employed to furnish the explosive mixture, which is fired electrically. The water circulation is on the thermo-syphon system, no pump being employed. The engine is located under a bonnet in the fore



part of the frame; it is not fixed horizontally, but at an angle of about 25 degrees thereto, the cylinder head being forward and uppermost. Two speeds—eight and eighteen miles per hour—are provided, the power being transmitted to the rear road wheels by friction clutches and chains; any intermediary speed is obtained by means of the variable ignition. Wheel steering is provided, while either solid rubber or pneumatic tyres can be fitted to the cycle-type road wheels. The car, except as regards the body, rims, and springs, has been built completely at Messrs. Hoyle's works; it weighs, complete, about $7\frac{1}{2}$ cwt.

THE Automobile Transport Company has issued a capital little pamphlet descriptive of the "Twentieth Century" motor-vehicles, in which appears a comparative table as to the cost of motor-cars and horses. To run the car twenty-five miles a day the weekly upkeep is reckoned at 6s., and 3s. 6d. is allowed for the storage at stables, making a cost of 9s. 6d. per week. Against this the weekly expense in connection with a horse is set down at 15s., and 15s. is given as the rent of a stable, while the wages of a coachman at £1 10s. make up a total of £3.

VARIED in richness of scenery is the North-Eastern district of England, and thither the motorist will go to find pleasant alternations of hill, dale, mountain, moor, and stream, in a locality full of historical association and charming legend. The North-Eastern Railway Company is issuing a series of guides to different parts of their system, and their cyclists' guide to Northumberland, Cumberland, Westmorland, Durham, and Yorkshire is beautified by some capital pictures, while its utility is increased by the particulars given of nearly fifty special tours in those diversified counties. A special pamphlet for circulation in the United States has also been issued, as well as a list of hotels and furnished lodgings in farmhouses, seaside and country villages—altogether a splendid demonstration of the way in which the railway companies are catering for tourists by road and rail.

AN ANCIENT MOTOR-BICYCLE.

THE original American motor-cycle dates back to 1884-85. The machine, which was devised by Messrs. W. E. and L. D. Copeland, of San Francisco, and exhibited very generally throughout the State, was thus described at the time of its introduction:—"The bicycle, it will be seen, is the regular Star pattern. The engine and boiler are planned so as to occupy very little space outside the lines of the machine. The engine proper weighs one pound and twelve ounces, including the driving pulley, and the speed is seven revolutions to one of the bicycle. The engine is capable of making 1,000 revolutions per minute. Enough water can be taken in the boiler to last an hour, and the power of the engine is sufficient to drive the 51-inch bicycle about twelve miles an hour on the floor, or about one mile in eight minutes on the road; hence it will be seen that it would be quite an assistance to the feet in propelling the machine. We presume that it would be necessary to avoid any serious falls, but the inventor claims that it will stand rough handling. By unscrewing a couple of bolts the engine can be removed, when there remains the Star bicycle pure and simple.



"The inventor claims that he can so perfect the steam power that it will be perfectly practicable, as much so as a locomotive, and in the winter time, when the riders are snowed in, the machine could be used for driving sewing machines, amateur workshops, etc."

Later on the H. B. Smith Machine Company, of Smithville, N.J., sought to improve upon the machine by using a higher powered motor, and applying it to a vehicle with three wheels, making what was a very respectable forerunner of the present steam-driven vehicles. Later Copeland himself built at least two steam tricycles, carrying two persons each.

WRITTEN in a popular style, "The Conquest of the Air" is a new book by Mr. John Alexander, published by Messrs. S. W. Partridge and Co., which attempts to give a history of ballooning, from the efforts of a Brazilian monk early in the eighteenth century to those of M. Santos Dumont. Sir Hiram Maxim contributes an introduction to the volume, which also contains some contemporary accounts of notable balloon ascents.

WE learn from the Bombay office of the Standard Oil Company that in January next there will be held at Delhi, India, an exhibition at which all manufacturers of motor-vehicles are invited to exhibit. It is to be noted in this connection, however, that the use of petrol is surrounded with strict precautions in the tropics, and most motor-vehicles which have been sent to British India or Java have been equipped, for this reason, to use ordinary paraffin as fuel.

THE DUCELLIER ACETYLENE LAMP.

ONE of the first necessities after purchasing a motor-car is a good lamp, and just as the motorist has a large range of cars to choose from, so is an increasing array of light-givers forthcoming from which a choice can be made.

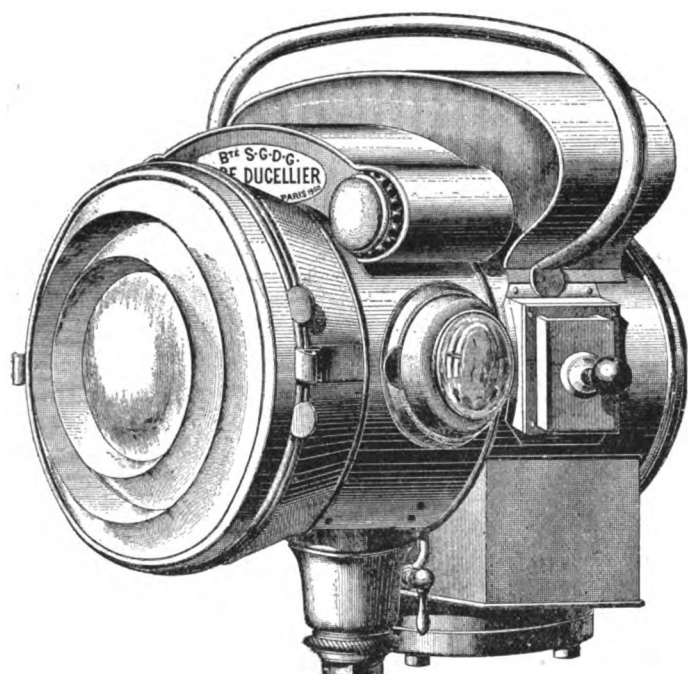


FIG. 1.—VIEW OF THE DUCELLIER LAMP.

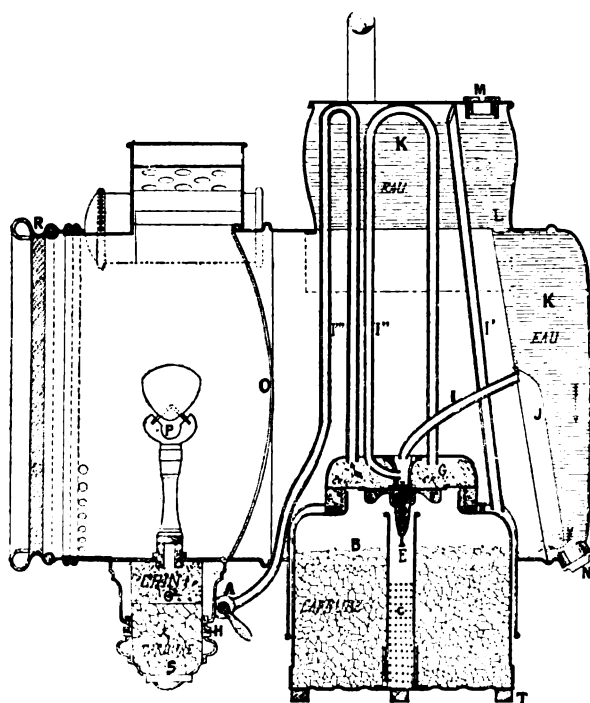


FIG. 2.—SECTION OF DUCELLIER ACETYLENE LAMP.

- | | |
|--|--|
| A—Gas control. | I ¹¹ —Tube which conducts the gas to the second filter. |
| B—Carbide container. | J—Gas chamber with water admission control. |
| C—Removable central tube. | K—Water reservoir. |
| E—Water regulator. | M—Water inlet. |
| F—Washer which can be unscrewed for cleaning filter G and regulator E. | N—Water outlet. |
| G—Horse hair filter. | O—Reflector. |
| G ² —Filter filled with carbide and horse hair. | P—Twin burner, passing 25 litres of gas per hour. |
| H—Leather washers. | R—Door with special contrivance for replacing glass. |
| I—Tube for passage of water. | S—Plug for cleaning filter. |
| I ¹ —Tube for overflow of water. | T—Clamps for unscrewing purges. |
| I ¹¹ —Tube for equalising gas and water levels. | |

One of the latest acetylene lamps to be put on the English market is the Ducellier, which has already met with a large adoption in France. We give an illustration (Fig. 1.) of the lenticular "Phare Ducellier," which is claimed to be capable of projecting a light over a distance of 165 yards. The generation of the acetylene gas is entirely automatic, ordinary commercial carbide of calcium being used, giving a pure white light. The lamp, of which a section is given in Fig. 2, works on the "drip" principle. The water is conducted by the tube I to a central tube C, and attacks the carbide through the holes in that tube, by which means gas is generated which fills the gas chamber J. When the gas chamber is full, the excess pressure of gas rises in the tube I¹, and forces back the water into the reservoir. The supply of water is thus cut off, and the generation of gas ceases until the pressure is relieved by consumption. The gas on its way to the burner passes first through a filter consisting of horsehair in place of the usual cotton-wool, then along the pipe I¹¹, and afterwards through a second filter consisting of carbide and horsehair. It will be seen that the upper part of the pipe I¹¹ is located in the water tank; in this way and by means of the two filters the gas arrives at the burner in a completely dry and cold state, and without giving rise to any condensation in the pipes. By means of the reference letters it will be seen that every provision is made for the cleaning of the various parts. We may add that the sole general agent in this country for the Ducellier lamps, which are made in a variety of patterns and sizes, is Mr. André A. Godin.

NEW FORMS OF IGNITION.

ALTHOUGH electrical ignition has, for motor-car purposes, completely ousted the incandescent tube system, there is still plenty of room for improvement in ignition devices. A method which has of late been attracting much attention is that in which heat generated within the cylinder or explosion-chamber is utilised to ignite the charge. This may be that due to compression, as in the Diesel motor; it may be heat from a previous explosion stored in some part so located as to be fairly well insulated from cooling influences, or it may be heat generated by the action of certain absorbent bodies, such as spongy platinum, etc., upon hydrocarbon gases and gaseous mixtures. Ignition apparatus employing the heat generated in the last-named manner has received considerable attention in France during recent years, and a number of commercial devices of this kind are now upon the market.

There are two kinds of ignition apparatus depending upon catalytic action. In the first the hydrocarbon gas acted upon by the absorbent body is derived from a special source, and the entire device follows somewhat the lines of an incandescent tube igniter, dispensing, however, with the chief objection to the latter—the exposed flame.

The other type of apparatus employs the charge used in the cylinder for generating the power, and requires, therefore, no special petrol tank and carburettor for the igniter. This system is of extreme simplicity, but has the disadvantage that it only begins to operate after the motor has been running for some short time—about a minute—since the catalytic action is not sufficiently intense to raise the absorbent body from the ordinary temperature to the ignition temperature during the extremely short period when hydrocarbon gases are in contact with it. Some auxiliary ignition device must, therefore, be provided. Difficulties would also be expected if this form of ignition were to be applied to a throttle controlled motor, but these might possibly be overcome by providing means, interconnected with the throttle lever, to vary the cubic contents of the ignition chamber. It must be admitted, however, that the application of the phenomenon of catalytic action to explosion motor ignition seems to open up a new and promising field of invention.

ELEMENTARY NOTES ON POWER AND TRACTION.

THE motor-car being propelled by mechanical power, the methods of measurement of this power and the units employed in its measurement are frequently referred to in automobile literature, and this is one of the first stumbling blocks of the novice. In popular parlance the term power is very broad, but in mechanics it has a limited and well-defined meaning. However, the term is often confounded with force, and the relations between the three factors of mechanical phenomena, force, power and energy, are seldom understood. In this article we shall, therefore, deal with this subject, and in the latter part particularly with the power required for the propulsion of vehicles under various conditions. It may be well to state here that the definitions given have been selected not because of their comprehensiveness, but because of conveying accurate ideas in simple terms.

First as to force. A force is best thought of as a pressure. A freely-suspended body exerts a force on its suspension, and this force is measured by the weight of the body. The unit of force most commonly employed is, therefore, the unit of weight, the pound. The corresponding unit in the metric system is the kilogramme.

Next as to energy. When a body is moved against a resisting force, energy is expended. This energy is measured by the product of the resisting force and the distance through which the body is moved. The unit of force being one pound, and the unit of distance one foot, the unit of energy is that amount of energy required to move a body one foot against a resistance of one pound (lifting a weight of one pound one foot vertically, for instance), and is called one foot-pound—abbreviated, ft.-lb. The corresponding unit in the metric system is the metre-kilogramme. The term work is often used as a synonym for energy. Coming now to power, energy may be expended at different rates. For instance, a body may be lifted one foot high in one second or in ten seconds. The energy required to move a body a certain distance against a certain resistance is always the same whether the motion be slow or fast, but the power developed in moving the body increases with the speed of motion or the rate at which the motion is accomplished. Power is, then, the rate of expending mechanical energy or of doing mechanical work. The unit of power is the power required to expend a unit of energy in unit time. The unit of energy being one foot-pound and the unit of time one minute, the unit of power is one foot-pound per minute. The corresponding metrical unit is one kilogramme-metre per minute.

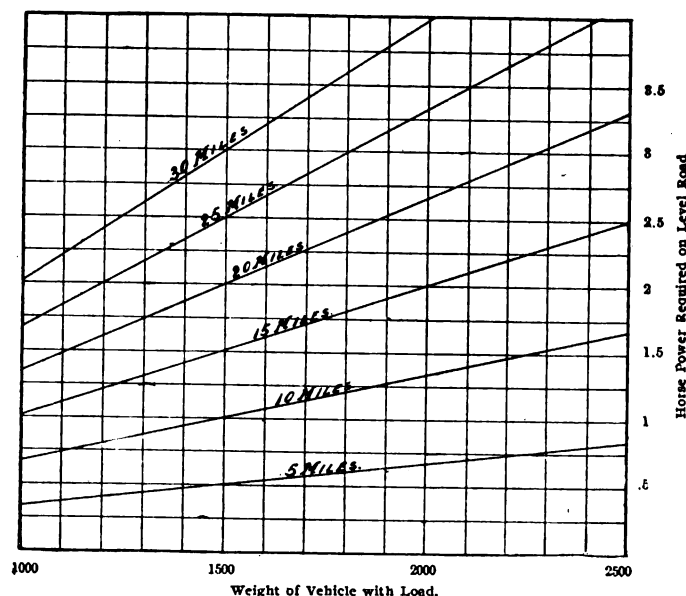
This unit of power is very small and in most calculations a unit 33,000 times as large—one horse-power—is employed. The mechanical horse-power, then, is equal to 33,000 foot-pounds per minute, or to the power required to raise 33,000 pounds one foot in one minute. Just as energy is composed of the two factors, force and distance, so power is composed of the two factors, force and speed. If the resisting force of a body be doubled, the power must be doubled to move the body at the same speed, and if the speed is to be doubled also, the power must be quadrupled, and so on. In dealing with the subject of motor-cars we have, remarks *The Horseless Age*, to make use of the unit of force to express the tractive effort—that is, the force or pull required to keep the vehicle in motion under various conditions. The tractive effort can be measured directly by attaching the vehicle behind another one through the intermediary of a spring balance and observing the reading. The tractive effort is expressed in terms of the unit of force—that is, in pounds. For a given vehicle the tractive effort required varies with the road surface, the grade, the speed, and the wind.

The tractive effort required by a certain vehicle under certain conditions depends on the weight of the vehicle. For purposes of comparison the traction effort is reduced to the basis of a vehicle weight of one ton, and this factor is called the traction co-efficient. For instance, if it be found that it requires a pull of 20 lbs. to

draw a vehicle weighing 1,000 lbs. slowly over a smooth pavement then the traction co-efficient for these conditions is 40 lbs. per ton. The traction co-efficient in practice varies from less than 50 lbs. per ton on hard, smooth roads to over 300 lbs. on soft mud roads. In calculations of the power required for the propulsion of motor-cars on good roads the traction co-efficient is generally assumed to be 50 lbs. per ton.

When a vehicle moves up-hill a greater traction effort is required, and when moving down-hill a smaller traction effort than on a level road. The steepness of a hill or grade is measured in per cent. A grade of 1 per cent. corresponds to a rise of 1 foot per 100 feet horizontal distance. To find the extra effort required to pull a vehicle on an up-grade it is only necessary to multiply the weight of the vehicle by the fraction which represents the per cent. inclination of the grade. For instance, the extra effort required by a 2,000 lb. vehicle on a 5 per cent. grade is 100 lbs. For an up-grade this effort must be added to the effort required on the level to get the total effort required, and for a down-grade it must be subtracted from the effort on the level. When the road surface is such that the traction co-efficient is 50 lbs. per ton, the effect of gravity on a vehicle just counterbalances the resistance to motion on the $2\frac{1}{2}$ per cent. down grade, and any grade steeper than this a vehicle will therefore descend by its own weight.

To find the horse-power required for propelling a vehicle it is only necessary to multiply the traction effort it requires by the constant 33,000. In practice a chart is used to determine the horse-power of vehicles of different weight travelling at different speeds on level road and on grades. Such a chart is given herewith, from which the horse-power required on level road may be determined for vehicles weighing with load from 1,000 to 2,500 lbs., travelling at speeds from 10 to 25 miles an hour. The traction co-efficient is assumed to be 50 lbs. per ton. To use the chart locate



on the horizontal axis the point corresponding to the weight of the vehicle, proceeding upward until meeting the inclined line corresponding to the speed the vehicle is travelling at, and from this point proceed to the right, to the vertical axis on which the horse-power may be read off. As regards power required on hills, it may be stated that, with the assumptions made, the power required is doubled on a $2\frac{1}{2}$ per cent. grade, trebled on a 5 per cent. grade, quadrupled on a $7\frac{1}{2}$ per cent. grade, and so on.

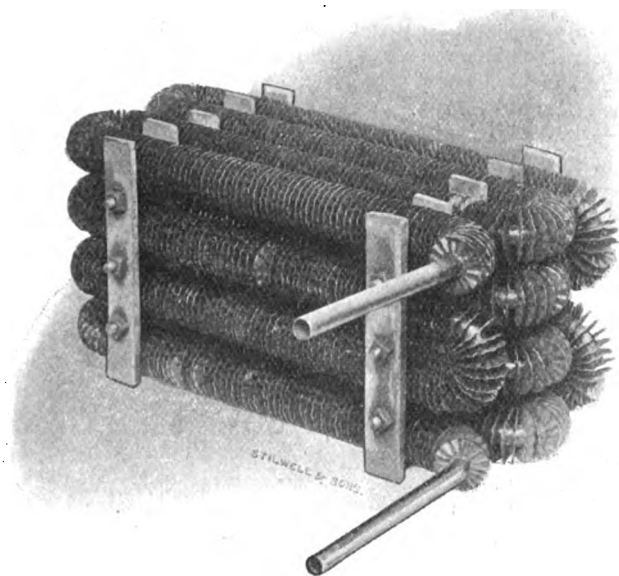
ANOTHER suit has been added to the steadily lengthening list of those brought by the Whitney Steam Motor Wagon Company, of Boston, U.S.A., for alleged infringement of the Whitney steam-car patents. This time it is the Foster Automobile Manufacturing Company, of Rochester, N.Y., which has been selected.

HERE AND THERE.

ON Sunday next the Motor-Cycling Club will hold a run to Brighton, meeting at Purley Corner at 10.30 a.m.

ON Saturday the King received the new Daimler motor-car which was exhibited at the Agricultural Hall in an unfinished state.

THE Doherty Motor Accessories Company, of Coventry, have this season brought out a radiating coil for petrol motors, of which an illustration is given herewith. The bends are per-



fectly symmetrical, and we understand that the coolers have given entire satisfaction to several leading firms in the Midlands.

MR. C. B. M'LAREN, M.P. for one of the Leicestershire divisions, has become a motorist, the particular car he favours being of the Daimler type.

THE London and Paris Garage is being opened in Store Street, Tottenham Court Road, W. Accommodation is provided for about sixty cars.

MR. C. T. SCHWIND, of Broomfield Hall, Derby, has joined the ranks of automobilists, having purchased one of the Birmingham Motor Manufacturing Company's Rex cars.

PREMISES on the London Road, Norbury, S.W., have been acquired by the General Motor-Car Company, Limited, where facilities are being provided for the repair of automobiles and the storage of about two dozen cars. The company is building a 24-h.p. racing car to take part in the next Bexhill trials.

MR. J. W. FOWLER, engineer, of Twywell, is now keeping a stock of Carless and Leonard's petrol, and is also well equipped to undertake repairs to motors of all kinds. This should prove a boon to tourists travelling between Thrapston and Kettering, Wellingboro', and Northampton, the depot being close to the main road, three miles from Thrapston.

THE Richards Machine Tool Company have issued new catalogues of their machine tools, and also of their Anglo-American lathes. Most of the leading makers of automobiles in France have adopted the "Richards" machine tools, the list of users including such well-known makers as Panhard and Levassor, who have thirty-five of these machines, De Dion and Bouton, De Dietrich, Mors, Gaillardet, etc.

AN interesting little pamphlet on electric ignition has been issued by the Electric Ignition Company. The diagrams and drawings illustrative of the E.I.C. double pole ignition system and of the company's various specialities are excellent, while the letterpress will be of interest to all automobilists. An imposing selection of testimonials with regard to the E.I.C. sparking plugs accompanies the pamphlet.

A PUBLIC service of motor-cars is about to be started between Hostalrich and San Hilario, Spain.

THE third meet of the members of the Aero Club will be held at the Ranelagh Club to-day (Saturday).

AMONG the objects of the Victoria Hotel and Carriage Company, Limited, is that of dealing in motor-cars.

CRICKET teams are using motor-cars in several parts of the country to convey them to and from the scene of their contests with bat and ball.

BY a recent ruling of the licence commissioner of St. Louis, Mo., U.S.A., owners of motor-cycles are required to pay a licence fee of £2 per annum.

A FIVE miles motor-bicycle handicap is included in the events to be run off at the race meeting of the Waterford Bicycle Club, at Waterford, on the 1st prox.

OWING to the adverse conditions of the weather, the gymkhana which was proposed to be held at Ranelagh last Saturday was postponed.

THE wretched weather and the greater attractiveness of the automobile are responsible for the decreased number of houseboats which will be seen on the Thames this year.

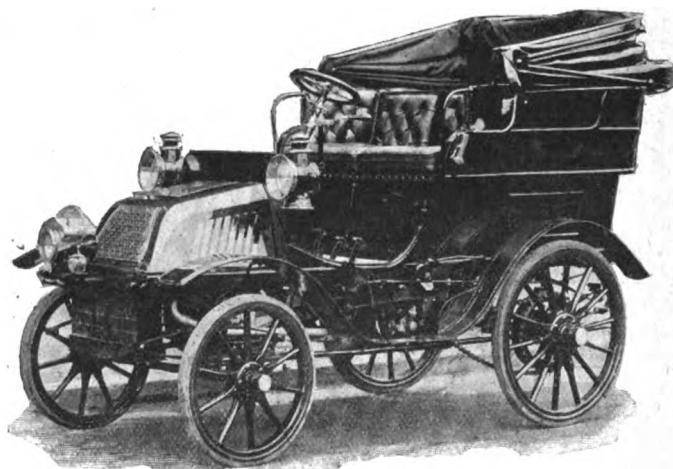
MESSRS. CLUBBE AND SOUTHEY, Limited, has been registered, with a capital of £2,000, to acquire the business of Mr. A. W. Southey, and build electrical vehicles of all kinds.

DURING May the Hozier Engineering Company turned out twenty-four Argyll cars, and the production for the present month will probably reach thirty cars.

THE Scottish Automobile Company, Limited, Edinburgh, has been registered to carry on the business of motor-car manufacturers, dealers, and hirers. The capital is £1,000 in £1 shares.

MOTORISTS journeying in the Eastern Counties will find plenty of helpful friends. Mr. D. Hunter, of Southbridge House, Bury St. Edmunds, has an inspection pit which is at the disposal of motorists free of expense, and Mr. H. Brabrook, of Garland Street, in the same town, is well able to set fallen cars on their wheels again.

THE accompanying illustration shows a Belle double phaeton lately supplied by Messrs. E. J. Coles and Co. to Mr. W. J. Ellis,



of Southend-on-Sea. The car is fitted with a 7-h.p. engine. A description of the general arrangement was given in our issue of December 7th last.

THREE boys were hanging on to a vestry mud-cart propelled by a motor, says the *Globe*, when one of them slipped and fell. He recovered himself from under the hoofs of a cab-horse, and ran after the mud-cart to retake his seat; but the others, laughing at his mishap, would not suffer him, beating him off with kicks and blows. Enraged by this unchivalrous conduct, the red-faced boy rushed to the side of the snorting motor and yelled to the driver, "Hi, guv'nor, hi!—whip behind!—whip behind!"

THE advance agents of some of the American theatrical companies are employing automobiles on their rounds.

MESSRS. F. H. WILLIAMS AND CO. have opened an automobile agency at Shanghai, China.

MR. A. W. MACONCHIE, M.P. for an Aberdeenshire division, has placed an order with Mr. G. Hurst, of Holloway, for a 20-h.p. four-cylinder car.

THE Motor-Bicycle Union of Ireland has decided to hold an informal hill climb. No prizes are to be given, the object being rather to give the members an idea of the capabilities of the different machines which they are using. The test will probably take place early next month.

THE test of a motor-car was undertaken recently at Cornell University, N.Y., U.S.A. A petrol car which was kindly lent by a gentleman in Ithaca was so mounted in the laboratory that a brake could be used either on the fly-wheel or on a counter-shaft driven by the rear wheels of the car. Thus, the power lost in the transmission gear was easily obtainable. Indicator cards were taken throughout the test, the maximum speed being about 700 revolutions per minute. These cards showed very clearly the performance of the gases in the cylinder, but were unreliable as far as indicating the power was concerned. Horse-power, petrol consumption, power lost in transmission, and the different efficiencies were the chief results of the test.

PROBABLY the first of the Indian Princes now in London for the Coronation drive was His Highness the Maharajah of Kohlapur, who was to be seen one day last week on a Daimler.



TOURING IN ALGERIA.—A VISIT TO BISKRA. (See page 342.)

THE value of the exports of motor-cars and parts from the United States during April last only amounted to £30,239.

A PUBLIC service is being started between Genoa and Torriglia, Italy. The cars used are 16-h.p. Cannstatt-Daimlers.

MESSRS. HOYLE BROS. AND COMPANY, LIMITED, of Brighouse, whose works are on the main road to Wakefield, Bradford, Halifax, and Huddersfield, inform us that they are keeping a stock of spare parts for motor-cars, and have a supply of about 200 gallons of petrol on hand. They are also well equipped to undertake repairs to motor-cars of all kinds.

SOME time ago the Auto-Lubrine Company, of Fairfield, sent us a sample of their Auto-Lubrine for trial. It is a pure hydro-carbon, having a very high flash point. One of its special features is that even at high temperature it retains its lubricating properties, not becoming too thin. Not only so, but during the early part of the present year, when King Frost was master of the situation, the firm made considerable experiments, with the result that they have produced an oil which can be relied upon to remain liquid at a temperature below freezing point. The result is a lubricant which can be relied upon at all periods of the year. We have given the oil a thorough trial on our 9-h.p. Napier car and are able to report that owing to its freedom from acids and impurities, it gives rise to no troublesome deposits on the valve.

to enjoy a motor-car drive was His Highness the Maharajah of Kohlapur, who was to be seen one day last week on a Daimler.



TOURING IN ALGERIA.—INTERESTED NATIVES AT OLD BISKRA.

IMPORTS OF MOTOR-CARS, ETC.

BELOW we publish our official list of the imports of motor-cars, motor-cycles, and the parts thereof into the United Kingdom during the month of March, 1902. Compared with the preceding month, the total imports officially recorded were as follows:—

March, 1902 £67,303.
February, 1902 £52,928.

BELGIUM.

Shipped from	To	Description.	No.	Value.
				£
Antwerp	Bristol	Motor car	1	185
"	Harwich	" cars	4	560
"	"	" parts	—	30
"	"	" cycles	5	190
"	"	" parts	—	2,454
"	London	Electric motor car ..	1	296
"	"	Motor car	1	190
"	"	" cycles	4	100
Brussels	"	Motor car	1	150
"	"	" frames	3	200
Ghent	"	" parts	—	105
Ostend	"	" cars	3	630
"	"	" cycles	19	508
Total Value of Imports from Belgium, March, 1902				£5,598
" " " " Jan.-March, 1902				£14,424

FRANCE.

Boulogne	Folkestone ..	Motor cars	80	21,092
"	"	" parts	—	2,888
"	"	" cycles	2	100
"	Goole	" cars	2	480
"	"	" cycles	1	50
"	London	" cars	18	3,670
"	"	" cycle	1	32
Bordeaux	"	" car parts	—	20
Calais	Dover	" car	1	280
"	"	Electric motor car ..	1	300
Dieppe	Newhaven ..	Motor cars	46	17,365
"	"	" car parts	—	1,494
"	"	" cycles	1	45
Dunkirk	Hull	" cars	6	1,430
Havre	Liverpool ..	"	2	560
Marseilles	London	"	1	420
Paris	"	"	1	250
Rouen	Dublin	"	2	410
"	Hull	"	2	380
Treport	London	"	1	120
Total Value of Imports from France, March, 1902				£51,386
" " " " Jan.-March, 1902				£118,145

GERMANY.

Bremen	London	Motor-cars	10	3,078
"	"	" wagon parts	—	58
Total Value of Imports from Germany, March, 1902				£3,136
" " " " Jan.-March, 1902				£8,873

HOLLAND.

Flushing	Queenboro' ..	Motor-car	1	150
Amsterdam	London	" cycle parts	—	171
Rotterdam	Harwich	" car	1	160
"	"	" cycle parts	—	181
Total Value of Imports from Holland, March, 1902				£662
" " " " Jan.-March 1902				£4,615

UNITED STATES.

New York	London	Motor-cars	18	3,255
"	"	" parts	—	600
"	"	Locomobiles	7	1,517
"	"	" parts	—	40
"	Southampton	Motor-cars	3	460
"	"	" parts	—	159
"	"	Locomobiles	4	490
Total Value of Imports from the United States, March, 1902				£6,521
" " " " Jan.-March, 1902				£12,162

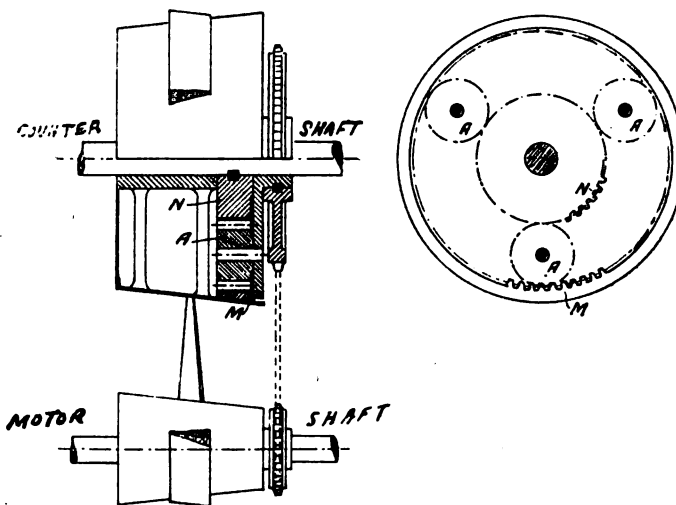
CORRESPONDENCE.

VARIABLE SPEED GEARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Reading the description of M. Massignon's variable speed gear, illustrated in your issue of the 7th inst., I thought it might be of interest to you to know that I have used a gear precisely similar in principle on a Marshall 5-h.p. car, and have obtained the result desired—that is, any speed between slow astern and full speed ahead (about 600 revolutions per minute) by striking the belt.

I enclose a tracing showing how my gear was constructed. The bodily-revolving pinions—three in number, and single—were carried by a plate driven by a Renold chain, and the whole of the gear, including the jack in the box (not shown in the drawing) was boxed in inside the taper



M. Internally toothed wheel carried by taper pulley.

A. Pinions carried by plate loose on countershaft and driven by Renold's chain.

N. Toothed wheel shown keyed on countershaft. Really this wheel was loose on the shaft and carried small pinions for the jack-in-the-box.

pulley so as to minimise noise and run everything in a bath of oil. The gearing was so designed that at about three-quarter speed everything—that is, the plate carrying the pinions, the taper-pulley carrying the internally-toothed wheel, and the wheel on the countershaft, revolved at the same speed. The only part of the gear which gave trouble was the belt, and this trouble I got over by using a link leather belt tapering in thickness from side to side, so that the pins of the belt were parallel to the axes of the pulleys on which the belt ran. I confidently expected this gear would have been in use now, but the fashion of gears for cars has changed, and I am assured that belt drives are no longer used. I am using a similar type of gear for boiler-feed pumps.—Yours faithfully,

E. PRICE.

QUERIES RE PETROL MOTOR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Replying to "W. T. R." I had similar trouble with my motor-car as regards the miss-fire, and the cause was owing to want of cleaning of the cylinder. After several months' running the cylinders generally get choked up, and it is then impossible to keep the commutator properly regulated. Hoping this information will be of service.—Yours faithfully,

C. HANNAM.

MOTOR-BICYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—After riding my motor-bicycle a few miles the other day the belt suddenly came off. I immediately switched off the electric current and dismantled. Much to my surprise, the motor did not stop running until I shut off the gas about three minutes after I had turned off the current. A careful investigation of the wiring showed no short circuit, nor could I get the motor to start again without turning on the switch. The motor ran after I turned off the current at about 500 revolutions per minute, and I could not vary same although I tried to do so with the throttle. I should be glad if any reader could give any explanation.—Yours truly,

NOVICE.

THE trials of electrical vehicles of the A.C.G.B.I. have been postponed until the week beginning Monday, July 21st.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	FINES.
Hailsham ...	Oliver Stanton, London, W.	28½ m. p. h.	£1 and costs.
" ...	C. Brown, Long Acre, W.C.	25 m. p. h.	£2 and costs.
" ...	E. Midgley, Hyde Park, W.	30 m. p. h.	£2 and costs.
" ...	F. Smith, Bowden, Cheshire.	30 m. p. h.	£2 and costs.
East Grinstead	Miss Schiff.	Above legal limit.	Adjourned.
" ...	B. L. Jones.	26 m. p. h.	£2 and costs.
" ...	T. Bingham.	26 m. p. h.	£2 and costs.
" ...	F. Belocht.	29 m. p. h.	£2 and costs.
Solihull ...	W. Williamson, Coventry.	28½ m. p. h.	£1 and costs.
Hayward's Heath	F. Mark, Plumstead.	30 m. p. h.	£2 and costs.
" ...	T. Ackford, Harefield.	25 m. p. h.	£2 and costs.
" ...	A. H. Gillman, Barns.	23 m. p. h.	£2 and costs.
Ryde (I. of W.)	G. Molecey, Shanklin.	Above legal limit.	£2 and costs.
" ...	A. Clarke, Ryde.	" "	£3
Saffron Walden	G. Cousins, Bury St. Edmunds.	" "	£1 and costs.
Faringdon (Berks)	H. Mosenthal, Oxford	25 to 30 m. p. h.	£10 and costs.
Wootton Bassett (Wilts)	H. Mosenthal, Oxford	35 m. p. h.	£10 and costs.
Stony Stratford	Y. Mayer, Regent Street, W.	30 m. p. h.	£3 and costs.
Eastern Ainsty (Hull)	E. G. Wade, Hull	Above legal limit.	£1 and costs.
Stockport ...	W. B. Dale, Rosholme	17 m. p. h.	2s. 6d. and costs.
" ...	F. E. Dale, Rosholme	17 m. p. h.	2s. 6d. and costs.
" ...	J. Higginson, Cheadle, Hulme.	Above legal limit.	2s. 6d. and costs.
Portsmouth ...	D. Weigel, Long Acre, W.C.	20 m. p. h.	£3 and costs.
Chelmsford ...	H. Sharp, Deptford	Above legal limit.	£2 10s. and costs.
" ...	H. Norfolk, Blackheath	" "	£5 and costs.
Cheshunt ...	J. Oakley, Kennington	22 m. p. h.	10s. and costs.
Pewsey (Wilts)	A. J. Poole, Shrewton (Wilts)	Above legal limit.	£10 and costs.
Tonbridge ...	F. Large, London, S.W.	21 m. p. h.	£1 and costs.
Wolverhampton	A. Nightingale, Wolverhampton	12 to 14 m. p. h.	10s. and costs.

THE Stockport cases, in which the defendants were fined 2s. 6d., were all concerned with motor-cyclists. A measured distance of 220 yards had been prepared by the police.

Nor often does a motorist have the distinction accorded to Mr. H. Mosenthal, an Oxford undergraduate, who has been fined in two places for furiously driving a motor-car on the same day. At the Wiltshire Court the costs amounted to £2, while in Berkshire they were only £1 7s.

In the Isle of Wight cases it was stated that Mr. A. Clarke had been previously convicted. Mr. Molecey gave evidence on his own behalf, and said his car broke down the day previous. On the following day witness went with Mr. Clarke to fetch the vehicle, and they repaired the car sufficiently to drive it home. It was impossible to drive the car at the speed alleged. The utmost speed he could have got out of the machine would have been twelve or thirteen miles.

In connection with the case at the Hailsham Petty Sessions reported above, the measured distance and the stop watch was employed by the police. Messrs. Brown, Midgley, and Smith did not appear, and the Bench intimated that in future they would insist on the presence of defendants. Mr. Stanton was present, and admitted that he was travelling beyond the legal limit, but contended that under the circumstances the speed was perfectly justifiable. The watch, produced by the constable, was an old one, and, he suggested, unreliable. He was an expert motor-car driver, and during his several years' experience he had had nothing of that kind brought against him—except a little misunderstanding in Warwickshire, which was of no importance. When stopped by the constable he had the car under perfect control.

MEASURED distances were employed by the police in the Stockport, East Grinstead, and Haywards Heath cases, as well as in those of Messrs. W. Williamson, G. Cousins, H. Sharp, H. Norfolk, and J. Oakley.

A. J. POOLE, who was fined at Pewsey, is motor-car driver to Mr. Sievier, the well-known owner of racehorses. Evidence was given to the effect that the car in question was going at the rate of from thirty to forty miles an hour. It ran over a dog and killed it, and Mr. Sievier had compensated the owner. One of the witnesses said defendant did not blow a horn, and if he (witness) had not jumped into a ditch he would have been served as the dog was.

NO LIGHTS.

At Preston, Dr. W. E. Wilson, of Burnley, has been fined £7 10s. and costs for driving a motor-car without a light. In the course of his trip he collided with a cab.

C. J. MULLEN, of Bexhill, has been fined 5s. and costs for having no light on his motor-tricycle when riding in Bexhill after sunset.

At the Hitchin Petty Sessions, Dr. L. S. Barnes, of Whitwell, has been fined 6s. 6d., including costs, for driving a motor-car at night without lights.

JOSEPH PORTER, a motor-car driver in the employ of Idris and Co. (Limited), was summoned at the Canterbury Police Court for driving a motor-car without showing a light in front. Defendant pleaded not guilty. P.C. Smith said at 1.25 on the morning in question he saw a motor-car in Westgate. Defendant was driving it. It had no light except a lamp which was on the seat beside him, and could not be seen in front. There was no red light behind. Defendant said he left London on Tuesday, but had two breaks-down, and, in consequence, ran short of oil for the lamps. The lamp he had could be seen in front. He should have been in Canterbury before dark if it had not been for the break-down. Superintendent Farmer said the regulations required a white light in front and a red light behind. The Bench imposed a fine of 20s. and 12s. 6d. costs.

MOTOR-BICYCLING RECORD.

On the three-lap cement track at the Crystal Palace, G. A. Barnes, of the Putney A.C., after three attempts has succeeded in steering his "Mitchell" 2-h.p. motor-bicycle over the mile course in 1 min. 35 2-5 secs. from a flying start. Barnes thus beat the previous best of V. Rogers under similar conditions by 1 sec.

THE MOTOR-CYCLE UNION OF IRELAND.

THE rules of the recently-formed Motor-Cycle Union of Ireland have been finally adopted. The definition of an amateur is the same as in the case of similar bodies, such as the Irish Cyclists' Association. The objects of the Union are as follows:—To ensure a fair and equitable administration, of justice as regards the rights of motor-cyclists as such. To establish, revise, or alter the rules regulating the sport and pastime of motor-cycling. To control and arrange for race meetings, matches, competitions, or time trials for motor-cyclists. To endeavour by such means as may seem advisable to bring about the more efficient maintenance of Irish roads. To protect the interests of motor-cyclists and motor-cycling generally. As regards the constitution, the following is taken from the rules:—The Motor-Cycle Union of Ireland shall consist of motor-cycling clubs; of individual members, whether members of motor-cycling clubs or unattached riders; and of such persons interested in motor-cycling as shall join it. Membership shall be strictly confined to amateurs. Government of the Union shall be by the following officers:—President, vice-presidents, hon. treasurer, and hon. secretary, and an executive committee of twelve. Five of the total committee shall form a quorum.

A CAMBRIDGE GENTLEMAN AND HIS MOTOR-CAR.

HIS HONOUR JUDGE INGHAM and a jury heard at Coventry County Court, on Tuesday, the case brought by Mr. Edwin Latham, of Cambridge, against John Charles Lee, a Coventry organ builder, to recover damages in respect of a motor-car. Mr. Maddocks was for the plaintiff, and Mr. McCardie for defendant. Plaintiff's case was that just before Christmas he saw an advertisement in a motor paper of defendant having a car for sale, and he ran down to Coventry and saw it. The car was then standing in defendant's yard. Plaintiff did not at that time understand motor-cars, but, he added significantly in the witness-box, "I do now." Defendant told him the price was £75, that he had been 500 miles in the car, and that when overhauled it would be in "splendid condition." There was some reason why he did not try the car, but on defendant's assurances he became the purchaser at the price named. Mr. Maddocks made merry over the business, when the scene of interest was removed to the city on the Cam. "Instead of being a car to drag people about, it had to be dragged about itself by horses." Mr. Latham put it into the hands of experts, and had spent £38 on repairs. He admitted in cross-examination that defendant sent the car to the Priory Motor Company for a new piston, but witness himself got it from there and took it to the Maudsley Motor Company, and it was still at the latter's works in Coventry. A consultation then ensued between the parties engaged in the case, with the result that Mr. McCardie announced that terms had been arranged, and a juror was withdrawn.

ACTION FOR PERSONAL DAMAGES.

W. A. Hawke, of Horrabridge, a minor, suing through his father, Mr. F. Hawke, of Cornworthy, Totnes, brought an action against Mr. George Grigg, of Cann House, Crownhill, Plymouth, to recover the sum of £50, damages for injuries, including loss of wages and board and lodging for three months. Of this sum £34 was claimed for personal pain and suffering. Mr. Pearce, for the plaintiff, said that damages were claimed of Mr. Grigg because of the negligent driving of his motor-car, in the vicinity of Dousland Cross, on November 25th last, whereby the plaintiff was injured and incapacitated for some time. Mr. Grigg, however, was only the nominal defendant; the real defendant was an insurance company, with whom he was insured. Plaintiff swore that there was no bell rung or horn sounded to notify the approach of the car. He was on his right side, and the motor-car rushed past him at a great rate and frightened his horse. Replying to the Judge, who was quoting from the Light Locomotive on Highways Act, 1896, Mr. Bickle (for the defendant) said the car was fitted with the necessary warning horn, but it was admitted that it was not sounded just before the accident, as there was no necessity for it.

The Judge said that, according to the plan produced by the plaintiff, defendant's view must have been obscured in the direction in which the plaintiff was proceeding, and he should hold that it was his duty to have sounded his horn. Mr. F. Hawke, father of the plaintiff, deposed that in an interview with defendant the latter said that if he gave his son anything the company would not fulfil the terms of his insurance. Defendant admitted that he did not see the trap until he was on it. Mr. Bickle, said both the insurance company and Mr. Grigg denied any legal liability. They were in a position to show that the horse and cart were 60 feet away, with ample room for passing, and that it was not necessary, therefore, for Mr. Grigg to sound the horn.

His Honour stated that it would save time if he said that there was no evidence that the defendant was going at an excessive speed. In addition, Mr. Grigg had behaved throughout like a gentleman. In giving judgment for the plaintiff, the Judge said the Act laid down that when necessary audible and sufficient notice of the approach must be given. What did that mean? It meant that the defendant must give fair notice to the public. There had been an admitted breach of a statutory duty, and the verdict must go against the defendant. He found for the plaintiff for £26 and costs.

CASE DISMISSED.

THE Reigate magistrates have had before them as a defendant Mr. J. W. Stocks, manager for De Dion, Bouton, Limited, 28, Brook Street, Bond Street, W., who was charged that, being the driver of a motor-car, he did not sound his alarm so as to give sufficient warning. Witnesses spoke to a fatal accident on April 26th to a wagon-driver, whose horse had been startled by a motor-car, but they could not swear to Mr. Stocks as being the driver of the car. Mr. Purchase, for the defence, characterised the case as one of excessive zeal on the part of the police. The summons was not issued until nearly a month after the accident, and another summons for furious driving was not issued till May 24th. He suggested this was done in order that the police might have something else to fall back upon. The Bench dismissed the case and the charge of furious driving.

ON THE FOOTPATH.

Two young men, Percy F. Thwaites and Ernest J. Thwaites, have been charged at the Hawthorn police-court with driving a motor-car along the eastern footpath of Auburn Road. The evidence showed that accused were proceeding at the rate of eight miles an hour, and pedestrians were obliged to leave the footpath to avoid being run down. Accused were each fined £2 10s., with 2s. 6d. costs.

MOTOR-BICYCLING CONTEST.

At the Sports Meeting at Coventry on Saturday there was a one-mile motor-bicycle contest, limited to motors of not more than 2½ in. cylinder bore. The event was run off singly, the two fastest subsequently running off five miles together. The best times were:—Bert Yates (Humber), 1 min. 58 sec.; Sam Wright (Excelsior), 2 min. 3.5 sec.; F. Robb (Starley), 2 min. 2 3.5 sec.; H. W. Stones (Rex), 2 min. 5 sec.; A. Ford (Rex), 2 min. 7 1.5 sec.; S. J. Stevens (Excelsior), 2 min. 9 sec.; H. E. Starley (Starley), 2 min. 9 2.5 sec.; A. Rivett (Blizzard), 2 min. 15 2.5 sec.; H. S. Sharpe (Blizzard), 2 min. 15 4.5 sec.; E. Bromwich (Rex), 2 min. 16 1.5 sec.; H. W. Williamson (Rex), 2 min. 28 3.5 sec.; E. T. Arnold (Princeps), 2 min. 29 4.5 sec.

The result of the time trials brought together for the five miles race Messrs. Yates and Wright. Yates got away very quickly from the push off, and continued to gradually increase his lead until two miles were covered. Then a slight mischance caused him to lose ground, and Wright looked to have a chance of getting level. Just before the last mile Yates got his machine going at top speed, and drew away, winning well by 9 3.5 sec., the full time for the two competitors being:—Bert Yates (Humber), 10 min. 9 1.5 sec.; Sam Wright (Excelsior), 10 min. 18 4.5 sec. The winner's mile times for the race were: One mile, 2 min. 5 sec.; two miles, 4 min. 2 3.5 sec. three miles, 6 min.; four miles, 8 min. 12 sec.; five miles, 10 min. 9 1.5 sec.

"TRYING" A MOTOR-TRICYCLE.

At the Brompton County Court, London, on Friday, before Judge Stonor, Mr. W. Parry, 158, High Holborn, E.C., brought an action against Mr. P. Williams, 58, West Cromwell Road, Kensington, W., claiming £15 for damage to a motor-tricycle. The plaintiff stated that a short time since he saw an advertisement in the *Motor-Car Journal* for a second-hand motor-tricycle. Having such a machine to dispose of, he rode it down the same day to the address given in the advertisement, that of the present defendant. Mr. Williams carefully inspected the machine, and then asked him to ride it along a mews close by. He (plaintiff) did so, and the defendant then asked permission to try how the machine ran. Witness enquired whether he understood how to switch off the power and otherwise control the machine, and the defendant replied that he could manage it. Witness set the taps so that the machine should go very slowly, and on the defendant got. He rode about a hundred and fifty yards along by a wall, witness running behind, when suddenly he turned the machine, and, without switching off the power, ran "bash" into the wall at the side. The front part of the tricycle was badly smashed. In answer to the Judge, plaintiff said that he was asking £40 for the machine before the accident, and that after it was repaired he sold it for £37. He himself bought the tricycle about twelve months ago, paying £23 for it, but he had greatly improved it. The defendant stated that he had "not a great deal of experience" with motors, and never owned one until subsequent to the accident in question. When the plaintiff brought the machine witness asked whether he might try it, but he "did not want to go at all"—he "simply wished to try as to the weight of the machine." The plaintiff allowed him to get on the tricycle, and then gave it a push. He did not remember the plaintiff asking him whether he could control the machine. After going about a hundred yards he (defendant) switched off the power, and the machine almost stopped, but there was a slight fall in the road towards the wall, "and the front wheel went towards it." He tried as hard as he could to turn the wheel, but the mud guard on the front wheel caught one of the pedals, and the handle of the switch came off in his hand, and "then the thing ran into the wall."

The Judge: I think the defendant represented that he had sufficient skill to ride the machine, but the evidence shows, I think, that he had not sufficient skill, or that, if he had it, he did not exercise it. I find for the plaintiff with costs.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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COMMENTS.



A FEW brief particulars of the three cars which have been entered by the Wolseley Company for the Gordon-Bennett and Paris-Vienna races, will no doubt be of interest. As has already been stated, three cars are being run, two being of 30-h.p. and one of 45-h.p. The 30-h.p. cars are fitted with four-cylinder motors, the cylinder diameter being 5 in. and the stroke 5 in. The wheel-base is 8 ft., and the width of track 4 ft. 9 in. The 45-h.p. car has a three-cylinder engine (6 in. cylinder diameter by 6 in. stroke). The wheel base is 8 ft. 6 in., and the track 4 ft. 3 in. The wheels of all the cars are 36 in. diameter, the front ones being fitted with 3½ in. Dunlop tyres, and the rear wheels with 5 in. tyres of the same make. The Wolseley Company are to be congratulated on their enterprise in following the example of the builders of the Napier car in entering the Continental racing field, and every English motorist will, we feel sure, echo the wish of the *Motor-Car Journal* that an English car may be steered to victory.

A Sensible Bench.

IN our list of cases of alleged furious driving this week is one against a Yorkshire architect, Mr. Walter Jackson, which is rather notable. He was summoned for driving a motor-car at a greater speed than twelve miles an hour at Ilkley, on May 20th. The evidence of a policeman and four witnesses was to the effect that the defendant drove 500 yards on the Leeds and Ilkley road in forty seconds, a speed of 25.5 miles per hour. The defence was that the police were mistaken in the car, and that the defendant, who had been a motorist for five years, was well skilled in driving, and would not travel at a dangerous speed. The Bench, whilst satisfied that the defendant was not driving to the public danger, were agreed that he was going above twelve miles an hour, and fined him 6d. and costs. This imposition of a merely nominal fine shows a right appreciation of the position, which we commend to magistrates elsewhere.

A Dean's Sunday Ride.

SUNDAY motoring seems to have secured a convert in the Rev. Dr. Leigh, Dean of Hereford, who journeyed to a preaching engagement on a recent Sunday on a motor-car. He preached in Hereford Cathedral in the morning, and had to preach at the Cathedral at Worcester on Sunday evening. Lightly over-coated, and with a soft black hat for headgear, the Dean took his seat on Mr. Albert Marriott's voiturette just before three o'clock, and thoroughly enjoyed the ride through the fresh air and admired the diversified sylvan scenery through which they were travelling. At the foot of the British Camp, on the Worcestershire side, a halt was made for the purpose of changing accumulators, and the Dean alighted. The news immediately spread amongst the

people of the neighbourhood that the Bishop of Hereford had honoured them by coming up on a motor-car. Punctuality being precious, the Dean was observed to consult his watch more than once. But all was well, and Mr. Marriott ran the Dean up to Worcester Cathedral in time for the commencement of the service. Dr. Leigh put on his silk hat and walked up to the Cathedral refreshed by his ride, and ready for preaching to another vast congregation on the message of peace.

Forthcoming Trials.

IN addition to the 650 miles trial to be held during September, and of which we give preliminary particulars in another column, the Automobile Club will hold a race meeting at Bexhill on August 4th. In the tourist section there will be six classes, including races for motor-cycles, steam vehicles, and electric cars. A similar number of contests will be held in the speed section, the classes being as follows:—Motor-cycles, racing voituresses, light racing cars, racing cars weighing less than 1,000 kilogs., and a scratch race for the fastest vehicle. A handicap race and a competition for appearance will conclude the meeting, entries for which should be sent to the Club not later than the 26th prox. At Welbeck, on August 8th, a similar programme will be carried through with the exception of the appearance competition.

Defendants must Appear.

ON the occasion of hearing the second batch of summonses issued against motorists when returning from the Automobile Club's trials at Bexhill, the chairman of the Bench made an announcement which cannot fail to be of interest to all who are unfortunate enough to catch the policeman's eye. In future, cases against motorists will not be heard at Uckfield unless the defendant appears or is professionally represented. Some gentlemen had written pleading guilty and promising cheques on hearing the amount of their fines, but this will not accord with the humour of the Surrey magistrates in future, and, like their neighbours at Hailsham, they will insist on personal attendance, no matter what the inconvenience may be, or legal representation.

Irish Tour.

MOTORISTS wishing to see some of the beauties of the Emerald Isle will have a capital opportunity between July 19th and the 28th, when the Irish Automobile Club will have its annual tour to Connemara and the Mayo Highlands. The roads in these districts are for the most part excellent for motoring, while the scenery is exceedingly beautiful, and the hotel accommodation good. As many members do not care to drive long distances every day, it has been arranged to remain in Connemara from July 19th until the morning of July 25th, and at Mullaranny or Westport from July 25th to July 28th. Those taking part in the tour can then please themselves as regards the length of each day's journey, or can spend part of their time fishing or boating, if they so desire. For the convenience of those who

wish to thoroughly enjoy the beautiful scenery in the districts to be passed through, itineraries have been drawn up for each day, which, of course, it will be optional to follow.

In far Japan.

THE Japanese have taken as kindly to the automobile as they have to other European innovations, and under the auspices of a motor firm in Tokio an automobile club has been established on lines which would be regarded in this country as somewhat novel. During the first year of the club's existence members will be allowed to ride on the cars, which will be the general property of the club, and at the end of the twelve months the vehicles will be distributed among the members by means of a ballot. The membership of the club is restricted to 300, and it is a wise provision, under the circumstances, that each member should be compelled to effect some sort of insurance on his own life. In a club run on such lines it is rather hard to say whether there will be more cars than members remaining at the end of the year; but what would suit the British would probably not appeal to the Japs, who may be allowed to pursue their own way—even to destruction.

The Argyll Racing Car.

WE are able this week to give an illustration of the racing car which, driven by Mr. A. Govan, did so well in the Scottish Automobile Club's hill-climbing competition the other Saturday. It is driven by a 8-h.p. single-cylinder motor, and, fitted with a light two-seated basket-work body, weighs 8 cwt. Mr.



Govan's time for the mile climb up the hill, having a gradient of one in twenty-one, was 2 min. 39 sec., which works out at 22.6 miles per hour. The top speed of the car is 35 miles per hour on the level, and it can easily average 30 miles per hour on a give-and-take road. We understand that the Hozier Engineering Co., Limited, are arranging to put these cars on the market in quantities.

Trial of Electrical Vehicles.

BETWEEN July 21st and July 26th a trial of the reliability of all parts of electrical carriages, with the exception of the accumulators, will be held by the Automobile Club. The routes selected include London to Brighton and back, Esher and back, and Windsor and back. On July 25th a special route will be followed from Niagara, Westminster, to Maida Vale, Finchley Road, up Netherall Gardens, Hampstead, Highgate Hill, Gray's Inn Road, and back again to Niagara. The same accumulators will have to be used throughout the week, and an entry fee of twelve guineas paid by noon on the 12th prox.

Speed in Scotland.

WE hear that a movement is developing among the County Councils of Scotland with a view to secure the compulsory registration and numbering of automobiles travelling north of the Tweed. A deputation on the matter to the Secretary for Scotland has been suggested, and it is probable that some such step will be taken ere long. The necessity for motorists to avoid excessive speed when turning corners and to pay regard to the law in the matter of speed cannot be too often urged—especially as Parliamentary action on the subject is being contemplated by some motorists in the House of Commons.

An Anti-Motorist Sentenced.

WE are glad to hear that the assailant of Mr. Campbell Muir—the assault upon whom we reported last week—has been caught, convicted, and sentenced to a month's imprisonment with hard labour. He proved to be a butcher named Hosking, and his appearance at the Guildford Police Court should be a warning to others similarly ill-disposed towards automobilists.

The Regulation of Traffic.

AS locomotion on the public roadways becomes more efficient the police will have to be more exacting with regard to ordinary traffic. It is no uncommon thing for motorists to have to proceed slowly behind heavy drays that will persist in travelling along the tram lines instead of keeping to their own side of the thoroughfare. Apparently the drivers of such vehicles value the privilege of holding the road temporarily against all comers when they happen to be in possession, and no amount of tooting will cause such obstinate persons to divert their course. This is a matter which the police should certainly take in hand.

Dogs on the Highway.

CANINE curiosity is one of the tantalising subjects to which motorists have to submit, and it may be as well that they should know that the owners of such animals are responsible for all the damage which they may do when trespassing upon a highway. Otherwise, should an accident happen, the owner will find himself legally wrong. And every dog, unaccompanied by his owner or some person in charge, is a trespasser as soon as he leaves the footway. Should the dog be under such lax control as to be likely to cause danger to persons on the highway he is also accounted a trespasser. Although dogs are becoming less objectionable when motor-cars pass by, there are still scores of uneducated canines which rush out from gateways whenever they hear the tooting of the horn. It behoves every dog owner to teach such wayward creatures their place.

Alcohol.

RECOGNISING the persistence with which the use of alcohol for motor-cars is being advocated and developed in France, the *Freeman's Journal*, of Dublin, is drawing attention to the possibilities that Ireland should offer in the matter. If France can produce alcohol from agricultural products like the potato, and if many of her scientists see such a great future in the industry, why should not an effort be made in Ireland to provide at least for the home demand? The Excise duty would, of course, have to be removed, and some other method adopted than the present one of rendering the spirit unfit for human consumption. The French, however, have already got over these difficulties, and so there should be no difficulty in the matter here. All over Ireland are derelict mills, distilleries, breweries, and other such buildings which, with comparatively small expenditure, could be adapted for the purpose of making this commercial alcohol. Should alcohol prove a complete success for motor-vehicles and small-power engines which are now driven by gas or petroleum, and

should it prove more economical than these, there will be a trade even in England for commercial alcohol. And as England in several respects is not so well suited as Ireland for the production of such alcohol, there is no reason why some share of the English trade in the fluid should not be enjoyed by Ireland. If the Irish do not take up the industry they will probably have to buy their commercial alcohol from France, Germany, and other enterprising countries which have been more wide-awake than Ireland.

Roads in the United States.

THE American Automobile Association, a national organisation of automobilists, is trying to persuade Congress to build a transcontinental automobile road from New York to Sacramento. Representatives of the Association are already preparing a Bill for the purpose, and will have it introduced into Congress. The modest estimate of the cost of building the road is 9,000,000 dollars—3,000 dollars a mile. Whatever the cost, the automobilists may have some difficulty in persuading Congress that it is any of the Federal Government's business to construct roads for their benefit. It might be very pleasant to have the Federal Government build a transcontinental automobile road, a transcontinental speedway, a transcontinental bicycle path; but when anybody wants special favours for his special recreations, he will be likely to find that the Government is less benevolently paternal than he would like to have it. Automobilists will share in the general benefits which the awakening interest in good roads will bring, and is bringing in the several States, but it is vain for them to expect special legislation. They may, however, do much to induce the State authorities to improve the present condition of road surfaces.

Sixty Years Ago.

A CORRESPONDENT sends us an extract from *Bell's Life* in London of June 7th, 1840, as follows:—"On Friday a steam-carriage, which had started from Deptford on the previous day, returned from Brighton to the Elephant and Castle, with passengers, having made its journey in three hours and a half. The route taken was through Cuckfield, Reigate, etc., and the trip gave general satisfaction to the passengers; but even the advocates of steam-carriages on common roads were rather shaken in their sanguine expectations that such a mode of travelling can be made generally available on common roads, the short and steep hills being a great detriment. The fare charged was only 5s. each person, and the novelty of course drew a full complement. This is the second trip of the sort which has been taken within a month, but they have been merely experimental, and much may yet be done to perfect the scheme."

The Question of Mechanicians' Dress.

REFERRING to the comment on this subject in a recent issue *Automobile Topics* observes that the inclination in the United States is to put the driver of an electric carriage in livery, but to leave drivers of steam and petrol vehicles a more or less free choice of their apparel, with the result, however, that the latter often appear unnecessarily untidy. The great progress made in regard to protecting drivers and occupants of motor-cars from grease (and at the same time improving the vehicle's efficiency) will probably lead to the right solution of the dress problem in the course of a short time, and we believe it will be found midway between the fanciful livery and the slovenly go-as-you-please dress.

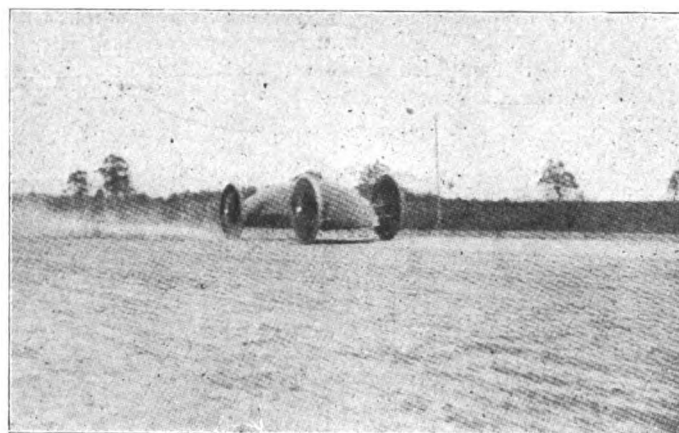
Furious Driving Cases.

OUR columns have lately contained reports of many cases of furious driving by owners of motor-cars; we would take the present opportunity of emphasizing the necessity for care and discretion. The whole question of the present state of the law with regard to the speed of automobiles is likely to be again discussed in Parliament ere long, and it would be

a pity if the minds of M.P.'s were prejudiced by hearing of too many cases of defiance of the law in places where such actions may prove dangerous to the public.

A Hint to Engineering Professors.

THE motor-car and its component parts offer an almost endless supply of subjects worthy the attention of the trained experts at the many technical colleges and institutions throughout the country. Certain institutions have carried out in the past complete and exhaustive tests of locomotives, involving a great variety of mechanical and thermodynamical points, and have carried on work relative to the tractive efforts, air resistances, and frictional losses involved in the operation of railway trains under conditions of practice. A similar service might well be performed by them in relation to self-propelled road vehicles. In time it ought not to be strange to see inaugurated in some technical institutions



THE BAKER ELECTRICAL VEHICLE AT FULL SPEED.

(See last issue.)

courses of instruction covering self-propelled highway transportation which would lead to the equipment of a class of engineers specially trained to develop this art along most advanced lines.

Some Suggestions.

It would appear presumptuous for us to attempt to enumerate more than a very few of the points which college laboratory work might be expected to elucidate. One which naturally suggests itself is that of the efficiency of the various forms of transmission devices now in use. Almost every user of a motor-vehicle has speculated vainly upon this point, and has wondered what proportion of the net power of his motor is actually transmitted to the road wheels. Careful dynamometer tests upon actual vehicles, representative of various types and makes, would give a clear idea of what the common practice is in regard to the proportion of power sacrificed in transmission, and would throw some light upon the relative value of different forms of speed-changing devices and their modes of connection to the driving-wheels. The internal combustion engine has already received considerable attention in these laboratories, and data of extreme value have been the result. Most of these tests, however, have been conducted upon stationary engines, and hence are of somewhat restricted application to the engines of motor-cars. Data upon the actual efficiency of high-speed motors are almost unobtainable, so that some experimental work in this connection would be of considerable service. If a motor-vehicle were equipped with a transmission dynamometer between the driving power and the road wheels, and were run over roads of all kinds, in all weathers, and on all varieties of tyres, with frequent careful readings of speed and tractive efforts, a flood of light would be let in on a most inter-

esting and instructive subject. An experimental vehicle equipped with dynamometer springs capable of registering the maximum stresses upon the rear axle when in rough practical use, would furnish data for application in rational axle design, and special tests of steels in respect to resistance to combined bending and twisting would enable a metal of the most fit qualities to be selected for this most important use. These are but a few brief and imperfect indications of the lines of work which the laboratories of educational institutions might take up, to the mutual advantage of their students and the new and already great motor-car industry.

The Suggestion Adopted in Germany.

We are glad to learn that the application of the Professor to German motor-car builders for drawings and examples of motor-car parts, for use in connection with the lectures has met with a favourable response. No doubt, if the lectures are well attended, work of the kind outlined above will be subsequently taken up by the institution.

CURIOUSLY enough, since the foregoing was written, we learn that a series of lectures on automobile construction is to be delivered during the coming summer session by Professor Lutz at the Imperial Technical High School at Aix-la-Chapelle.

An English Air-Ship.

THE Mellin air-ship No. 1 has been exhibited this week by the constructors, Messrs. S. S. Spencer and Co. The balloon has a capacity of about 20,000 cubic feet, and its weight with netting is 290 lbs. The bamboo framework which contains the motor, gearing, car, etc., is 42 feet long. It is built with triangular supports, and is rigidly braced with steel-wire stays. It is slung 10 feet below the balloon, and the motor is 20 feet from the escape valve. The motive power is supplied by a Simms petrol motor, with water-cooling and magnetic ignition. The mechanism comprises a steel shaft from the clutch, which is attached to the motor, working a steel pinion, which revolves at the full speed of the engine. This works a gun-metal spur-wheel of ten times its diameter, which carries the propeller shaft. Ball-bearings are provided throughout. The exhaust from the motor is surrounded with wire gauze on the Davy Lamp principle to avoid danger through the flame coming in contact with any escaping gas. On Monday the airship made its maiden trip from the Crystal Palace. On being liberated the balloon rose to a height of thirty feet and proceeded round the large arena which has been set aside for its trials. Many circuits were made, the helm answering readily the will of the operator. After about an hour's manoeuvring the airship was returned to its shed. We understand that experiments will be made daily.

TO-DAY (Saturday) the Irish Automobile Club will hold a run from Dublin to Lucan.

AT the Crystal Palace track, on Saturday last, H. Martin rode five miles on an "Excelsior" motor-bicycle, with a flying start, in 7 min. 25 2-5 sec.

THE Tottenham District Council has resolved to purchase for the fire brigade an automobile combination chemical engine, fire-escape, and hose tender.

THE Continental Caoutchouc and Guttapercha Company is offering a large number of prizes for cars fitted with Continental tyres in all categories of the Paris-Vienna race.

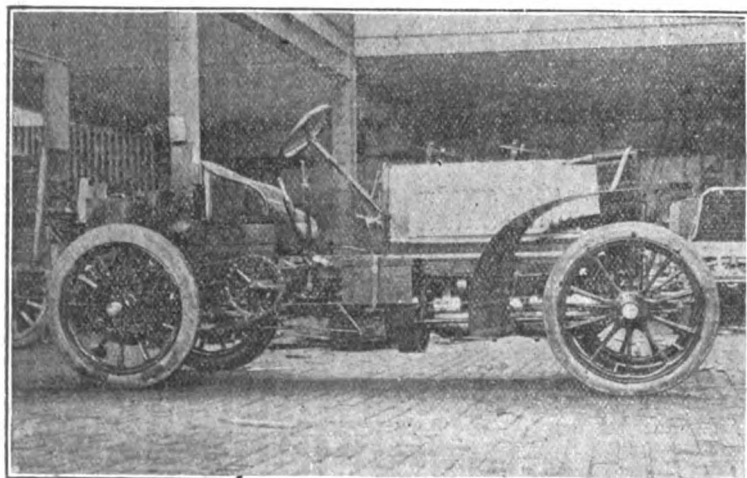
IN connection with the combined meet of provincial automobile clubs at Harrogate at the end of the week, trips will be arranged for Saturday and Sunday, full particulars of which will be posted at the Prince of Wales' Hotel, Harrogate.

EVEN motor-bicycles are taking part in the Paris-Vienna race, among the entries being the Werner, Clement, Lamaudiere, etc. Apart from the long distance, the race is over very trying roads, so that the event will be a thorough test of the capabilities of these small machines.

SATURDAY was a varied day at Ranelagh, the attractions including a terrier show, some sheep-dog trials, a polo match, and a balloon ascent. Three balloons were sent up, viz., Mr. Leslie Bucknall's Vivienne, Mr. F. H. Butler's Graphic, and the City of New York, the passengers including the Hon. G. S. Rolls and Miss Vera Butler.

ON Friday Her Majesty the Queen took a trip through Windsor in the King's new motor-car which is illustrated on page 364 of the present issue. Last week a contemporary had a drawing showing the King seated in this motor-car, but, unfortunately for the veracity of the artist, his Majesty had not, up to Monday of this week, had a run thereon, his indisposition causing him to take his rides in a closed carriage.

OUR Midland correspondent, writing on Monday, states:—"Motor-cars and cycles will figure largely in the Godiva and Trades Procession which is to be held on Friday, the 26th inst., in celebration of the Coronation. Messrs. Bayliss, Thomas and Co., Limited, will have a decorated car representing 'motor-cycles,' while six decorated motor-cars have been entered, viz., two by the Progress Motor Company, Limited, two by Messrs. Allard and Co., and one each by the Daimler Motor Company, Limited, and the Motor Manufacturing Company, Limited.



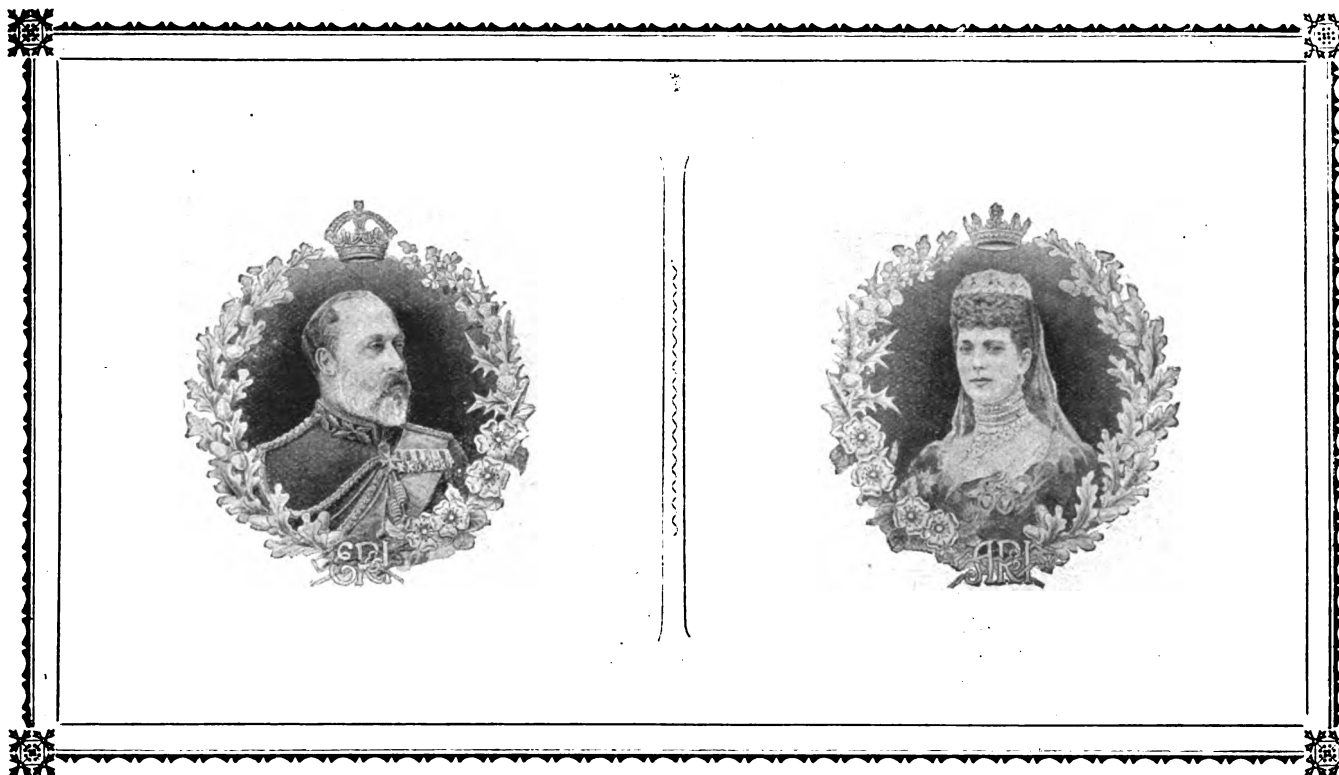
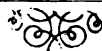
MR. C. JARROTT'S PARIS-VIENNA PANHARD RACER.

JUNE 26TH, 1902.

To-day the heralds loud proclaim,
The sovereignty of worth,
For Royal Edward and his Dame
Are cynosures of earth;
His courtly air,
Her visage fair;
When crowned as King and Queen,
Shall live in thought,
Affection-wrought,
As 'twere a fairy scene:
But diadem
With sparkling gem,
Shines pale before our hope for them,
Which glows more lustrously serene
Through love for Britain's King and Queen.

So let an air
Of music rare
The universal joy declare,
And swell the chorus clear and keen
God bless our motoring King and Queen.

King Edward the Seventh as a Motorist.



CORONATION week will be remembered as one in which the whole British Empire rejoiced—for, not only has the news of Peace brought a long period of sad suspense to an end, but the crowning of King Edward VII. and his Consort the gracious Queen Alexandra promises to be an event of unwonted splendour—fit dawning of the Twentieth Century and the opening of a reign that should vie with the Victorian era, not perhaps in the beginnings of new movements, but in the culmination of developments which were begun while His Majesty's Royal mother was upon the throne.

At such a time we may well call attention to the interest which the Royal family, and especially the King, has taken in automobilism. When it is remembered that motor-cars were only legalised in this country so recently as the winter of 1896, it will be seen that His Majesty's practical knowledge of the ways and intricacies of motor-vehicles cannot have been of long standing. But it commenced shortly after Parliament gave them sanction to run freely on the ordinary roads, and has been of a thorough and exhaustive character. King Edward has not dallied with the matter; nor treated automobilism as a fad. He recognises it as a practical thing, and by his frequent use of motor-cars for business as well as pleasure has set an example to his subjects which is appreciated by all who wish well to the comparatively new industry.

When the display of automobiles was made at the Imperial Institute, the Prince of Wales, as he then was, paid a visit to the exhibition, and had a run along the narrow halls of that building on a vehicle shown by the Hon. Evelyn Ellis. But it was at Warwick Castle, two years later, that he made his first real acquaintance with the motor-car on the open road. The Earl and Countess of Warwick have always been keenly interested in the progress

of the movement, and at the present time own some splendid cars. It is a curious coincidence, too, that only a few weeks ago the Duke of Connaught had some automobile experiences at Warwick Castle, having been driven thither from Broughton Castle, Banbury, where H.R.H. had been staying on a visit to Lord and Lady Algernon Lennox. The coincidence may be continued further, for on the occasion of the Prince of Wales's first motor-car trip rain came on so heavily that he was persuaded to return by ordinary horse-drawn carriage. The excursion of the Duke of Connaught was similarly spoiled, and he returned to Banbury by train. The fact that he is using a motor-car in connection with his duties as commander of the troops in London for the Coronation is proof of His Royal Highness's high opinion of the utility of the automobile.

So convinced was the present King as to the hill-climbing and travelling capabilities of the motor-car, that when on the Continent he frequently gave particular heed to the various designs and types which were constantly passing along. Occasionally he indulged in short expeditions; but probably his enthusiasm was first developed during one of the Homburg seasons, when, driven by M. Serpollet on one of that gentleman's steam cars, he went for several long runs, and was fully convinced as to the reliability of the automobile. A photograph of the King on a steam-car, which appeared in the *Motor-Car Journal*, attracted much attention at the time.

It is exactly two years since the King had his first car—now, we believe, in the possession of Lord Hastings. Just previously we had published an interview with Mr. O. Stanton, who had been the cycling tutor of the Prince of Wales, and shortly after his public introduction to the automobile world he was able to take us down to Ascot on a special visit of inspection

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of the car—a photograph of which (with the *mecanicien* aboard) was published in our issue of June 16th, 1900.

Not only is the King interested in motoring, but the Queen, too, drives an electrical vehicle, and although her trips have been almost wholly about the Sandringham Estate, Her Majesty has also enjoyed long runs on petrol cars. At the Automobile Show at the Agricultural Hall last year the identical voiturette used by the Queen was on view. As is generally known, the King's new 22-h.p. Daimler car was shown at this year's Exhibition in an unfinished condition. It was delivered, as shown in the accompanying illustration, a fortnight ago, and will play a part in the Coronation festivities, for it is the King's present intention to utilise it in paying a visit to his poor guests dining in London. Should the weather prove propitious, the Queen will accompany His Majesty on his visit, which will commence at the

and when the road is clear he has been known to enjoy a spin at a good rate of speed, which an ordinary police constable would regard as infringing the law. Thus he is anticipating the time when legal restrictions will be on more common-sense lines than now, and when the careful and experienced driver will be allowed a little latitude, provided he does not endanger the public life and limb in the enjoyment of his pastime. King Edward VII. and Queen Alexandra have already done much for the industry, and it must be gratifying to the English people to know that their patronage has been extended to vehicles of British make.

Hitherto the present Prince of Wales has not added motoring to his other pleasures. But he has hugely enjoyed the motor-car excursions he has taken, notably a series of runs in South Wales in the winter of 1900, of which we published an interesting souvenir on November 24th, 1900. In visiting the Motor-

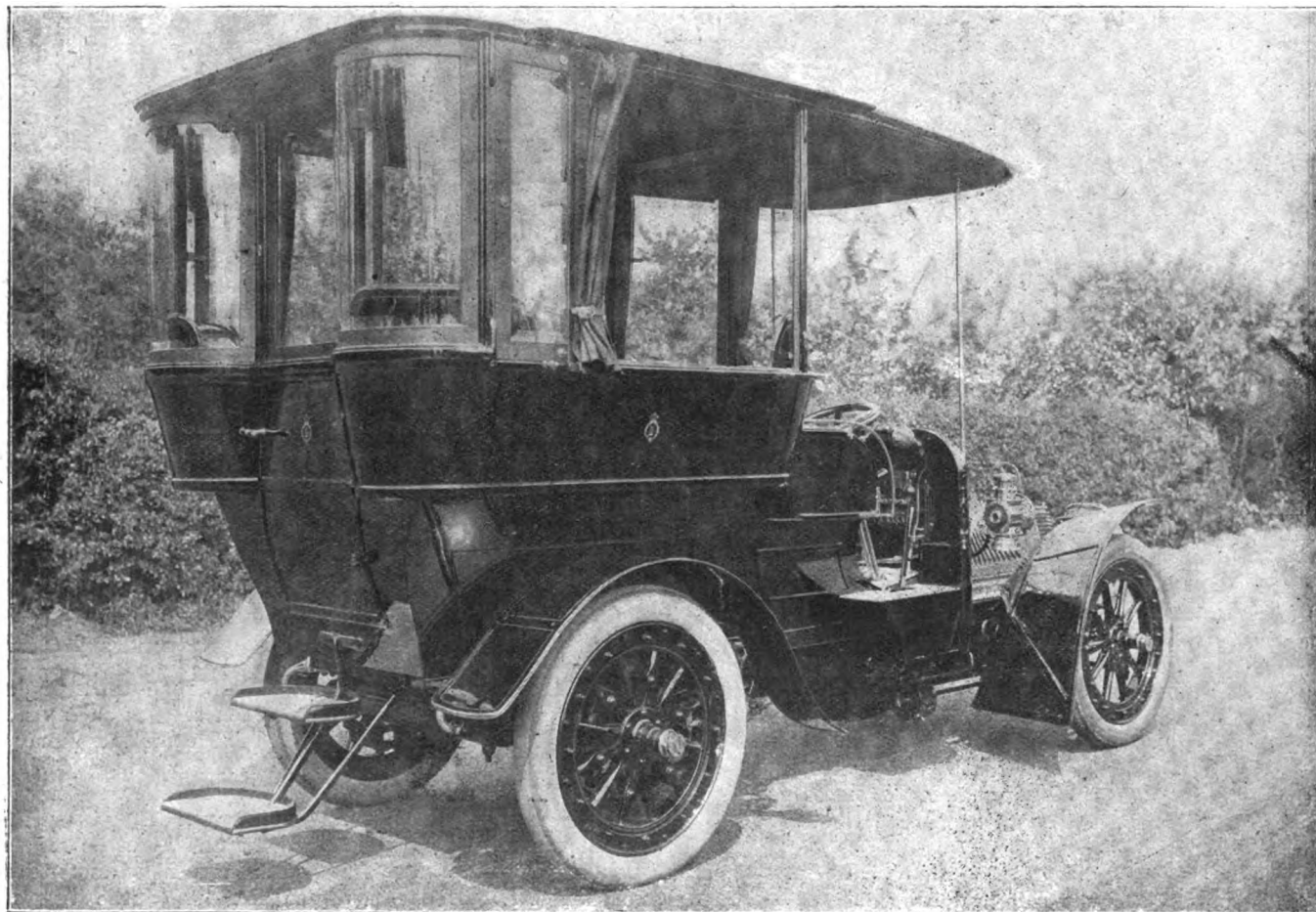


Photo by]

KING EDWARD'S NEW 22-H.P. DAIMLER CAR.

[McCle & Co., Coventry.

Archbishop's Park, Fulham Palace, where about 4,000 people will dine. He will then go to Poplar, calling *en route* at the Floral Hall, Covent Garden, the Law Courts, the People's Palace, Mile End and the Tunnel Gardens at Poplar—a distance of about twelve miles. On such an occasion the public will have a Royal demonstration of the value of the motor-car in making calls that should do much to further establish the automobile in popular favour.

Often has the King been heard to express not only his delight in automobilism, but also his sense of its value as a recuperative force. Recently he combined a yachting and motoring holiday, with the result that his health was thoroughly re-established, after a long period of State and other worries. His Majesty does not always keep to the legal limit, for he is a believer in progression,

Car Exhibition organised by Messrs. Cordingley and Co. at the Agricultural Hall, London, in May last, he gave further evidence of his interest in the industry, as well as his pleasure in the pastime. So that it may safely be said that our Royal Family—like those of Germany, Russia, Italy, Austria, Belgium, and Spain (for Alfonso XIII. has a motor-car on order), is keenly alive to the progressive movement of the age, which finds its culminating point in the speedy motor-car.

In the open hill-climbing competition for motor-bicycles of any horse-power at Namur recently, there were sixteen starters. Of these three were fitted with the standard Kelecom motor and finished first, third, and sixth, the first and third beating several 3-h.p. motor-bicycles.

THE PARIS-VIENNA RACE.

—●—
BY AUTOMAN.

THE automobile world in France has watched with much anxiety the different phases of uncertainty through which the chances of the Paris-Vienna motor-car race have passed. All through the winter of last year, although the organisation of the preliminaries of this year's racing was continued with vigour by the Automobile Club, there was always a fear that the authorities would not relent. However, it was so patent to everybody that the Paris-Berlin race had been the direct cause of an immense increase in the national industry that it became a matter of very serious moment for the authorities to preclude racing in the future. Close on the heels of this question came another of equal national importance, and which interested a very much larger section of the population of France, namely, the agriculturists. From experiments that had been made, it became known that petrol used for the propulsion of motor-cars could be effectively, and perhaps economically, replaced by alcohol. M. Dupuy, the Minister of Agriculture, whose attention was drawn to these facts, took up the matter, and organised certain trials, which were so successful that he was able to get the consent of his colleagues to organising a Government road race for motor-cars. Emboldened by this success, and seeing that there had been no accidents of any description, the Government gave the necessary sanction for the Paris-Vienna motor-car race, which is at present in progress, the start having been made on Thursday, the 26th inst.

The race, although it is only a three-day event, will not be completed until Sunday, the 29th inst., and this on account of the impossibility to obtain the sanction of the Swiss authorities. In Switzerland each Canton has complete authority over the traffic on its roads, and it would have been necessary to see every Canton separately, and obtain the consent of each, and although the authorities in general look sympathetically on the race, there was no time between the authorising of the race in France and the date of the event in which to get the necessary formalities carried out. Switzerland has therefore been neutralised, and the racing cars will pass through it at touring speeds only. The country, however, being neutralised, it would have been possible for the first cars to execute all sorts of repairs and still arrive at the end of the day's journey within the limits of the time allowed for touring. To prevent this Switzerland has been divided into eight sections of about twenty miles each, and competing cars will be allowed a certain time to cross each section, and will thus be prevented from doing any repairs, for should they not arrive at the end of one section in the allotted time, the extra time will be added to their total racing time.

The race, therefore, will follow the stages hereafter indicated, namely, June 26th, Paris to Belfort (the start being made from Champigny). On Friday, June 27th, the cars will proceed at touring rate along the French side of the frontier to Delle, and thence through Switzerland to Bregenz, in Austria. On Saturday morning, June 28th, racing will begin again, and the cars will pass through the Tyrol to Salzburg. On Sunday, June 29th, the race will be concluded with the journey from Salzburg to Vienna.

The entries number 208 cars, and include cars manufactured by all the well-known makers. Nearly the whole of the cars are of French make, but five English cars are entered—two Napiers and three Wolseleys. There are a few Belgian, a few German, and a few Austrian cars.

Along the whole route the following notice has been posted up in the language of each country:—

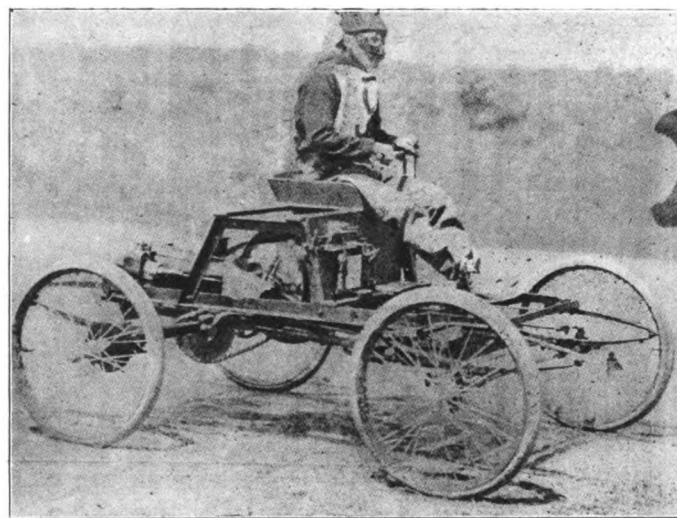
"In order to develop the automobile industry, and the employment for industrial purposes of alcohol, an international race for motor-cars has been organised from Paris to Vienna, by the Automobile Club of France, with the assistance of the Automobile Club of Austria, in virtue of an authorisation given by the President of the Council of State, the Minister of the Interior.

Inhabitants are informed that the cars taking part in this

race will cross the territory of the Commune the day of June, between o'clock and o'clock. The attention of masters and parents is called to the danger there may be in allowing children to be on the road, and the greatest care is recommended in this respect. Carters and drivers are earnestly requested to keep continually on the right-hand side of the road, even should the middle of the road appear to be free. The roads should be freed from all obstructions, and all animals should be driven off the public way."

The route will be marked out by means of triangular placards, orange in colour, the apex of the triangle being placed in the direction in which the cars must go. A yellow flag signifies "forced stop"; a blue flag means slow down, dangerous; a black flag means slow down by order of the local authorities; a flag with the lower half white means full speed ahead. A hundred metres before any stop black and blue flags are placed, and a yellow flag exactly at the stopping place. Controls are marked with three flags together, the central one being yellow and the two side ones National flags.

The route followed by the racers from Champigny lies, as will be seen, on reference to the map published in our last issue, through Nogent-sur-Seine, Troyes, Chaumont, Langres, and Lure to Belfort, 407 kilometres, or a little more than 253 miles. Belfort is a picturesque town on the borders of France, Alsace, and Switzerland, and it is there that in the war between France and Ger-



"STRIPPED TO THE BONE"—ONE OF THE COMPETITORS IN THE RECENT SPEED TRIALS IN AMERICA.

[Automobile Topics.]

many the French garrison were allowed to march out with their rifles.

On Friday, June 27th, the cars leave Belfort and proceed to the Swiss frontier, which they cross at Delle. The eight neutralised sections for Friday are the following:—Belfort to Delle, 31 kilometres, or 19 miles; Delle to Malettes-Delemont, 40 kilometres, or 25 miles; Delemont to Basle, 50 kilometres, or 31 miles; Basle to Bruck, 48 kilometres, or 30 miles; Bruck to Zurich, 35 kilometres, or 22 miles; Zurich to Winterthur, 31 kilometres, or 19 miles; Winterthur to Saint-Gall, 58 kilometres, or 36 miles; Saint Gall to Bregenz, 34 kilometres, or 21 miles. This day's route, commencing in France, crosses the whole of Switzerland almost at its longest part, and reaches the Austrian frontier at Rorschach. After passing the night at Bregenz, racing will be recommenced on Saturday morning right through the Tyrol to Salzburg, 337 kilometres, or 205 miles, *via* Feldkirch, St. Anton, Landeck, and Innsbruck. Just before reaching Salzburg a corner of Bavaria is traversed, and the Austrian frontier is recrossed at Reichenhall.

On Sunday the race will be brought to a close, and Vienna reached *via* the Danube valley and Luiz, altogether 335 kilometres, or 208 miles. In the evening of Sunday there will be an official banquet at the Kursaal and on Monday morning an

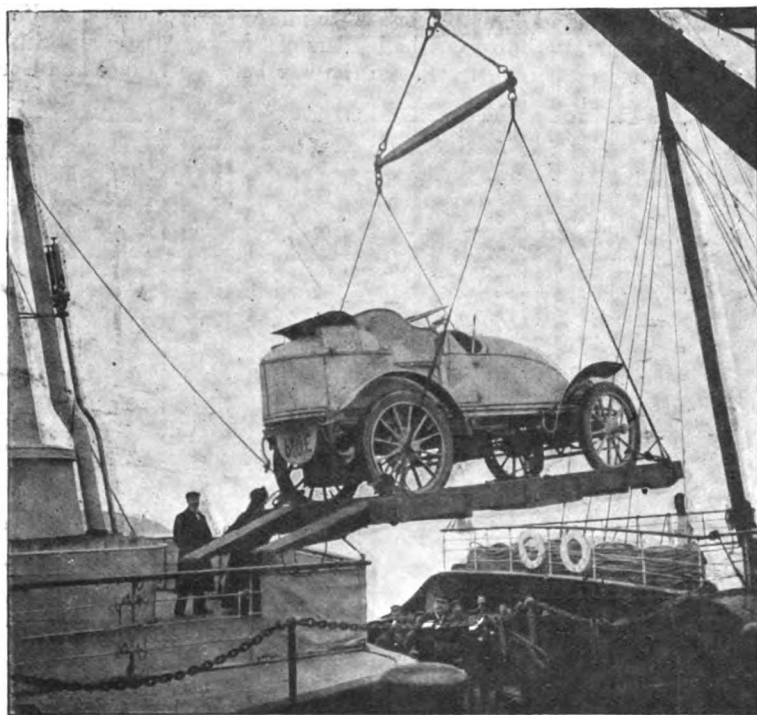
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official reception. In the afternoon there will be an excursion by steamer to Kussdorff, and thence by special train to Kehlenberg, where there will be a gala dinner, a concert, and display of fireworks.

On Tuesday, July 1st, there will be a lunch at the Austrian Automobile Club, and at 5.30 mile and kilometre races on the Prater and a battle of flowers. In the evening there will be a general reunion at Wenedig.

The most difficult day will undoubtedly be Saturday in the Tyrol, for the season has been so inclement that the passage of the Arlberg has been quite impracticable since November last year, and there is still deep snow on the Alpine roads.

The Gordon-Bennett challenge cup will be decided in two stages, namely, between Paris and Belfort and Bregenz and Hall, near Innsbruck, over a total distance of 600 kilometres, or 373 miles. The cars competing for the cup will start in front of all the racing sections, and will be painted blue, in order to distinguish them from the other cars. The Gordon-Bennett cup this year is to be raced for between England, represented by the Wolseley and Napier Companies as challengers, and France as the



M. SERPOLLET'S RACER IN MID AIR AT FOLKESTONE.
La France Automobile.

defenders, represented by Girardot on a C.G.V., Fournier on a Mors, and René de Knyff on a Panhard.

The touring section of the Paris-Vienna race started from the Hotel Pastoret, in the Place de la Concorde, at 8 a.m. on Thursday, the 19th inst., and will occupy ten days in the journey to Vienna, arriving on Saturday, the 28th. The following will be the stages followed: Paris to Auxerre, Auxerre to Dijon, Dijon to Neuchatel, in Switzerland. Neuchatel to Interlaken. Interlaken to Ragaz. Ragaz to Innsbruck, in Austria. Innsbruck to Toblach. Toblach to Klagenfurt, Klagenfurt to Graz, and Graz to Vienna. The highest altitude reached will be at the Arlberg, 1,812 metres above the sea.

THE Collier Twin Tyre Company, Limited, is now extremely busy with a number of large orders for tyres recently received.

A PROPOSAL is under consideration in the United States to form an institution of automobile engineers. There are so many questions relative to the automobile industry that could be discussed with advantage by manufacturers and others that the proposal is worthy of serious consideration.

GRAVITY v. PUMP CIRCULATION.

WHILE many cooling devices are being tried and recommended by their users, it seems, considers Mr. C. E. Duryea, to be a fit time to enter a plea in favour of the gravity circulation system. The arrangement of the tank above the cylinder jacket, with pipes for circulation, is admitted to be the simplest cooling device outside the ribbed air-cooling system. That it does its work perfectly is an admitted fact, and its main objection is the necessity of refilling the tank at frequent intervals. As opposed to this we have, first, the air-cooling system used on small motors, which is more or less objectionable because of the variations in its results. At rapid speed on a cold day it was certainly effective, and conditions may exist under which it keeps the motor too cool for the best efficiency, while at slow speeds, such as climbing a hill on a hot day, it is not effective enough. On this account it is confined to small motors and gives its best results under limited conditions.

The forced circulation adds to the cost and trouble of a pump, with its leaky joints, its friction, and some, though but little, additional care. This pump, being ordinarily directly driven from the motor, operates fast at high speed, although the engine may be throttled very low, and therefore make but little heat; and it operates slowly at low speed, although the greatest heat may be generated, as, for example, in hill climbing. It operates whether the engine is hot or cold, which is disadvantageous in starting, and may fail to operate by the failure of the driving device when most needed. To avoid refilling the tank, multiple pipes having radiating fins are provided, which further increases the complexity and the liability to damage by accident, leakage due to vibration, possibility of freezing and similar objections. This radiating system is further objectionable because the water is hottest in hot weather and coolest in cold weather, whereas, considers Mr. Duryea, the reverse should be true. It is hottest on hard, slow work, as in hill climbing, and coolest on easy, fast work, as in speeding on the level.

The ideal system should not be open to so many objections. With the water tank with gravity circulation the water does not begin to circulate until the motor becomes warm, and the rate of circulation is accelerated as the heat of the motor increases, which is as it should be. Its simplicity is admitted, and its only objection is the fact that the water boils away and must be replenished frequently. It would seem, therefore, that inventive effort should be directed to overcome this one fault, and to this end the steam from the motor should pass into air condensers of some kind and thence back to the water tank. Such an arrangement would be free from pump complications and would give an almost constant temperature to the motor, under which conditions the motor can be made to work with its greatest efficiency.

THE Beswick Cycle and Motor Company, Limited, has been registered with a capital of £1,000.

KING LEWANIKA, the paramount chief of the Barotse kingdom, had his first ride on a motor-car last week, and was apparently much interested in the mechanism.

MOTORISTS journeying through Ripon will find Messrs. G. Harrison and Co. well equipped to do any necessary repairs to automobiles.

THE Motor Power Company, Limited, have sent us an advance copy of a new booklet they are issuing with reference to the well-known Gladiator light motor-carriages. In producing this handbook the object has been to make it as complete and comprehensive as possible. In addition to the specifications of the carriages at the beginning of the booklet, we notice that a full description, illustrated with diagrams of the interior portion of the car, has been included. This is, we think, a part of the book which should appeal very strongly to users of the Gladiator cars who are not familiar with the arrangements and mechanism of the vehicle. The book concludes with a number of testimonials from users of Gladiator cars, and a short list of the most notable successes that have been obtained by these vehicles.

THE DECAUVILLE LIGHT CAR.

IN our issue of January 11 we gave a brief description of the new light car which the Decauville Company had introduced for the 1902 season. There are a number of special features in the vehicle, so that some further particulars may not be without interest. As will be seen from the illustrations showing an elevation and plan of the chassis, the frame is constructed of steel tubing well stayed by cross tubes. The engine comprises two vertical cylinders 110mm. diameter by 110mm. stroke, and at a speed of 1,000 revolutions per minute develops 10-h.p. A governor is provided, as also an accelerator acting on the exhaust valve, while the ignition is on a special magneto-electric system. Accumulators are used for ignition purposes as usual, but in the

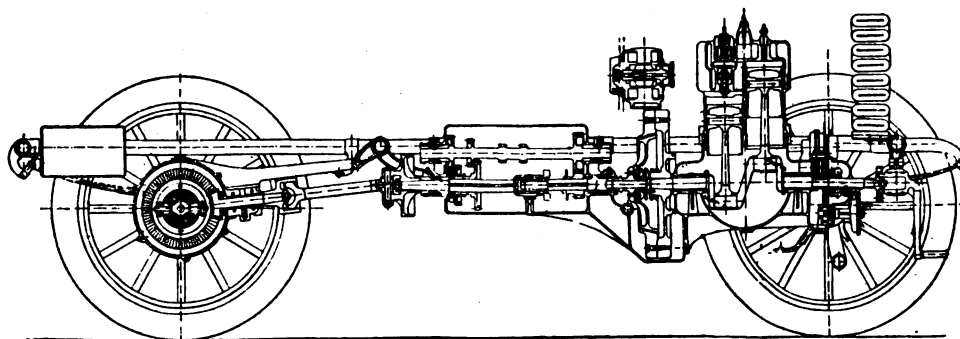


FIG. 1.—SECTIONAL ELEVATION OF DECAUVILLE 10-H.P. CAR.

circuit is ingeniously arranged a dynamo, driven off the engine, and by means of which the accumulators are not allowed to become discharged. Particular attention has been devoted to the question of the lubrication of the various moving parts of the motor. Four forward speeds—from twelve to fifty-five kilometres per hour, with the engine running at 1,000 revolutions—and a reverse motion are provided. The change-speed gear box is combined with the crank case, and an important feature is the fact that, when on the high-speed gear, the power of the engine is transmitted direct without the intervention of any spur wheels. From the gear-box a universally-jointed shaft and bevel gearing convey the power to the rear live axle. The lubrication of the five principal bearings of the crank shaft and live axle is accomplished by means of rings similar to those in use on large dynamos, and the cranks themselves are centrifugally lubricated. The vehicle complete weighs between 11 and 12 cwt. We may add that the Motor-Car Company, Limited, are the agents for the Decauville cars in this country.

A remarkable motor run has just been made by a 10-h.p. car of the type illustrated. Starting from the G.P.O., Edinburgh, early on Thursday morning last, London was reached the same evening, the distance—some 400 miles—being accomplished in 20 h. 40 min., or at the rate of about 20 miles an hour. What is more important, the run was made from start to finish without a single stoppage, the car requiring no adjustment whatever. Mr. F. T. Bidlake travelled on the car as observer, and the journey was made under the direction of Mr. Moffat Ford.

CALLING in at the London Autocar Company's depot the other day we were shown a new clutch for motor-tricycles and quads the firm have lately introduced. Outwardly it somewhat resembles the Dupont two-speed gear, but it is only adapted to give a free engine. The device can be fitted on to any De Dion motor, and enables the motor to be started by hand.

THE MOTOR-CAR AND THE HORSE ON THE HIGHWAY.

WHENEVER a new means of transportation makes its appearance, innumerable complaints are heard on every side from those who still cling to the old. There are many who would undoubtedly become ardent automobilists were it not for their fear of unavoidable conflicts with horsemen, and of the consequent disagreeable airing of grievances in a police court. Much of the fear on this point has originated from reports of accidents where automobiles have been operated with greater recklessness than desirable. The danger point is, however, now passed, and special precautions are nowadays practically required only in exceptional cases, as when the motor for some reason or other does not operate satisfactorily or the horses encountered are fresh from a country stable and entirely unaccustomed to the sight of a motor-car. But in such cases the regard for human safety, as well as the progress of the automobile movement, demands considerate and intelligent action.

To every reasonable person it will be evident that it is the moral duty of all those who, out of sheer love of the new sport, have opened up all the highways to the motor-car, to accustom both horses and men to the new vehicle and to prove conclusively that a motor-car is a perfectly safe conveyance, that danger is incurred only if the *chauffeur* or the driver of a horse-drawn vehicle is regardless of his own safety, as well as of that of the man on the street. It is likewise the duty of the automobilist to gain the sympathy of the public in order that popular opinion may support him in his conflict with enemies of the motor-car.

It is our purpose in the present article, remarks *Automobile Topics*, to outline the proper relation of the *chauffeur* to the horseman. In the first place, it must be considered that the horse is both an incredibly good-natured and an exceedingly fearful animal, and that he is most susceptible to moral suasion. He must feel that he has a master who must be obeyed. Often

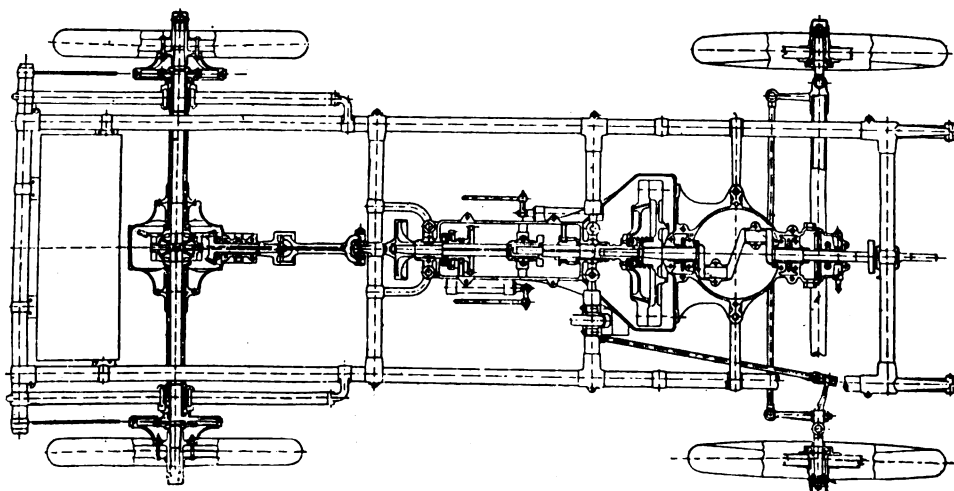


FIG. 2.—PLAN OF DECAUVILLE 10-H.P. CAR.

enough we have all seen an unruly horse, trembling with fright, and shying at every obstacle, appeased by the soothing words of his rider. Although the horse is a creature of habit that soon accustoms himself to new things, he does not forget the ill-treatment which he has received from an object, no matter how familiar it may be to him. Many a horse shies at a motor-car only because his rider or driver has at some time beaten him unmercifully when an automobile was encountered, acting under the impression that fear of the whip would prevent him from

shying again at the sight of a motor-car. A horse should be treated as his nature and temperament demand. It is a good plan to accustom horses often met on the street to the new vehicle. The carriages in the neighbourhood are sometimes drawn up to the curbstone to wait before the door of a house. While the horses are either thus standing still or walking up and down the street, the *chauffeur* should slowly ride near the carriage. Whenever the horses show the least fear, the automobile should be stopped, and the motorist should alight and approach the animals, pat them on the neck, and give them a lump of sugar. When the horses are appeased, the experiment may be continued. By such treatment horses will lose much, if not all, of their fear of the automobile, and *chauffeurs* will be spared many annoyances and delays. Obviously this method can hardly be employed to any great extent either on country roads or on city streets. Nevertheless, many a motorist can do much for the cause of the automobile if he pursues the method described whenever an opportunity is presented.

If the *chauffeur* is in the habit of spinning along at a good speed, he should keenly observe the horses in front of him and note whether their drivers seem to be cool-headed and strong. It might almost be laid down as a hard and fast rule—Watch the driver. For horses are usually like their masters. If the driver is apparently a good horseman; if the horses are not inordinately excited, and if the road be not overcrowded or otherwise dangerous, the motorist may venture to speed past the horses, his foot, however, being constantly on the brake pedal. But if, on the contrary, danger threatens, and it appears advisable to lower the speed or to stop, it cannot be too strongly urged that the *chauffeur* should check his vehicle at a respectful distance from the carriage in front of him; for the horses will easily gain the impression that the *chauffeur* intends in some way to harm them. The noise of the brake and the changed sound of the motor are also sufficient to frighten a horse, and perhaps, cause disaster.

If the motorist, in running past a carriage, has reduced his speed but slightly, he should call out to the horses with some well-known coachman's cry, and should endeavour so to control his motor that as little noise as possible is made. When the *chauffeur* has passed a horse whose field of vision is limited by blinkers, he should increase the speed as quickly as possible, but without a sudden noise. If it be found necessary to stop entirely, it may often be advisable to lead the horse past the automobile. This method of quieting a horse will spare the motorist much abuse from the driver, and perhaps still the wrath of many a coachman. It should be observed that a horse should never be led toward the curb; for in the first place he will be conducted away from the automobile, and in the second place, the *chauffeur* may be forced against the curbstone or a stone wall, and trampled upon. Furthermore, the reins should be held with an outstretched arm a short distance below the bit, and the horses led in the desired direction without looking back. For, if the motorist should look back, the horses would become frightened. This fear of animals finds its counterpart even among men. Time and time again soldiers who have been ordered to attack an enemy's position in the face of a galling fire have fled in fear merely because their commander, instead of marching boldly on, has turned around to look at them.

It is one of the most disagreeable of all experiences, if a team of horses suddenly stops and then begins to back up or attempts to turn around in the street. This proceeding is due primarily to lack of energy or to ignorance on the part of the coachman, and is often the cause of serious accident. If the *chauffeur* sees any tendency of the horses in front of him to block the road, he should immediately stop his vehicle, appease the horses and lead them past the car. It is a most deplorable habit of many coachmen to turn their horses into a side street whenever an automobile looms up. To be sure, a motorist can hardly forbid a coachman to turn aside; nor would such a procedure be advisable, since the *chauffeur* would certainly be held responsible for any damage caused by the frightened horses. On the other hand, the coachman may rest assured that by swerving aside his horses he will never conquer their fear of the

automobile. A horse quickly enough perceives when he has triumphed over his master.

It cannot be too strongly urged that the horseman must have or must require a strong will, great presence of mind, and infinite patience. But since drivers of horses are not always possessed of these qualities, and are but mere erring flesh and blood, it may not be out of place briefly to discuss the part which the coachman should play when he endeavours to pass an automobile. The tales which might be told by many a *chauffeur* of encounters with unreasonable and ignorant coachmen and drivers would be harrowing. If the coachman decides to drive past the automobile he should not violently pull the reins and suddenly urge the animals on. The horses must feel that their driver is making his preparations with coolness and without the slightest hesitation. The least sign of nervousness on his part will destroy their confidence. The whip was made to urge on a horse and not to appease him. Unmerciful lashing is not only cruel but also entirely unnecessary. If the driver desires to force his horses on he should keep a firm hold of the reins to prevent any tendency to leap sidewise. This rule is seldom followed; coachmen insist upon lashing their horses into the course to be followed, and often, as a result, find themselves in a ditch with their carriages overturned and occupants perhaps fatally injured.

Many drivers will alight from their carriages, place themselves directly in front of their horses, seize the reins and order the *chauffeur* to ride on. As a result of this foolish procedure the horses back away despite all resistance, and the carriage is either forced against the curbstone or moved directly in the middle of the road. If the motorist in such a case be forced to stop, his position will not be very comfortable; if he succeeds in passing a carriage, the horses usually start forward and often force the coachman aside or throw him down. In case of an accident the *chauffeur* will probably be the first to offer assistance. The automobile should not be too suddenly stopped except when a collision seems unavoidable. The motorist should back away from the scene of the accident and return on foot. Only too often a polite inquiry from the automobilist as to the disposition of a horse, or a civil request to drive on, or a reassuring exclamation, is met by an insult or a hearty curse from the coachman. It is useless to quarrel with a surly driver; the *chauffeur's* attitude in such a case should be one of indifference or of inattention.

THE Technical Commission of the French Automobile Club has decided to organise for October next trials of motor-cars for town and suburban use.

MR. W. L. CREYKE, of Oxford, who purchased the steam car on which M. Serpollet made the marvellous record of a kilometre in 29.45 secs., at Nice, is advertising the car as for sale in the American motor papers; £2,000 is the price demanded.

IN the current issue of the *Speaker*, Mr. Mervyn O'Gorman says that since last Whitsun he has run 3,000 miles on his motor bicycle and his repair bill has amounted to £3. It would be interesting had he also given the average cost for petrol, say, per twenty miles.

MR. R. W. WALLACE, as Chairman of the Automobile Club, has written to the *Times* saying that the behaviour of the motorists exposed by Colonel C. G. Edwards, last week, "has aroused the anger of every gentleman who drives an automobile," and should it be found that the offenders are members of the Club, and have been guilty of the conduct charged against them, they will be removed from the list of members.

THE contract for carrying the mail between San Juan and Ponce, Porto Rico, for two years has been awarded to the Automobile Transportation Company of Porto Rico. Two trips will be made daily; the night run is to be made in ten hours and the day run in nine hours. The cars have been running across the island almost daily for several weeks and within the schedule time. The company have five vehicles in constant service at present, but for the mail service special vans will be used.

MECHANICAL FLIGHT UP-TO-DATE.*

By SIDNEY H. HOLLANDS.

CHAPTER VIII. (Continued).—BIRDS. FLYING INSECTS AND WINGS.

BY virtue of the observed stepped condition of the wing-feathers of soaring and sailing birds during passive flight (referred to in the preceding chapter) each feather becomes a separate efficient sustaining aerocurve, the aggregate effect of which is certainly far greater than when the component feathers overlaid closely, and the wing thus forming one continuous and slightly concave surface, as in ordinary active flight with the smaller short-winged birds. Some workers in the field of flight have wasted

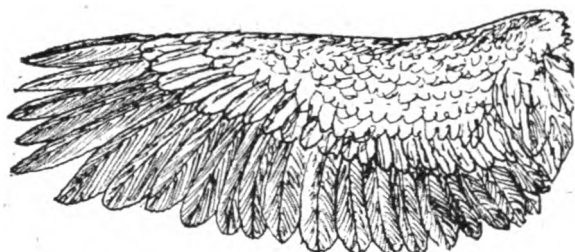


FIG. 7.—WING FROM A SOARING BIRD.

much time and labour in their endeavours to produce large artificial wing-feathers by a servile imitation of Nature's methods. It is not necessary nor expedient to make a "Chinese copy" of a bird, *à propos* of which Brearey rightly said: "In designing a flying machine deviations from the natural wing are necessary, provided the theoretical conditions involved in flight are borne in mind."

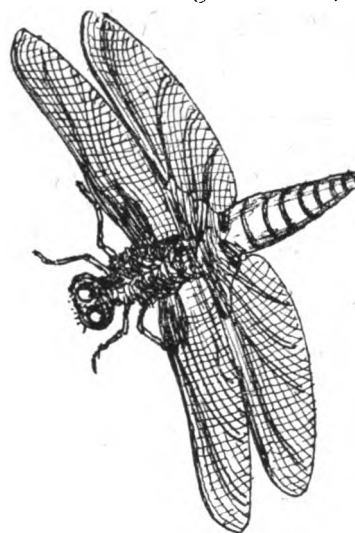
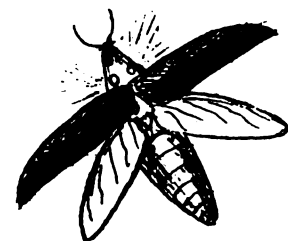
Thus the natural feather, admirable accessory as it is, is not common to all flying creatures, and so not indispensable, as witness the flying mammals, insects, and even the flying fish, with their membranous wings of varied form; hence, we may reasonably infer that artificial feathers are not a *sine qua non* in aviation—indeed, as I remarked before, that inference has been warranted and borne out, inasmuch as aviators of three different types have flown without them. Another American aviator, Mr. W. K. Brooks, in an article in "The Popular Science Monthly," a few years ago, *à propos* of wings, said: "He who knows all that is to be learned about a wing has a good store of useful information; but he who knows all that may be learned from a wing is a wise man" (Fig. 7). This valuable knowledge when acquired has to be applied with discretion in the designing of aviators. It has been observed that the most efficient birds of flight, those longest on the wing, rise from level ground with the greatest difficulty, and, indeed, in a confined space, although open to the sky, they cannot rise on the wing at all, lacking the necessary distance for a preliminary run. This "preliminary run" and "getting under way" of an eagle was once carefully noted under favourable conditions, and is thus related: "An approach to within eighty yards aroused the king of birds from his apathy. He partly opened his enormous wings, but stirred not yet from his station. On approaching a few feet further he begins to walk away with half-expanded but motionless wings. Now for the chance! Fire! A charge of No. 3 from 11 bore rattles audibly but ineffectively upon his densely-feathered body. His walk increases to a run; he gathers speed with his slowly-waving wings, and eventually leaves the ground. Rising at a gradual inclination, he mounts aloft and sails majestically away to his place of refuge in the Libyan range, distant at least five miles from where he rose. Some fragments of feathers denoted the spot where the shot had struck him. The marks of his claws were traceable in the sandy soil as, at first with firm and decided digs, he forced his way, but as he lightened his body and increased his speed with the aid of his wings, the imprints of his talons gradually merged into long scratches. The measured distance from the point where these vanished to the

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place where he had stood proved that with all the stimulus that the shot must have given to his exertions he had been compelled to run fully twenty yards before he could raise himself from the earth."

The only really successful experiments in aviation thus far have been dependent on such a "preliminary run," either on the ground or on a track parallel to it, and it is exceedingly improbable that we shall ever make a true flying machine to rise vertically from the ground. As we have seen, the enormous provision of power necessary is prohibitive. A little space may be devoted to the flying mammals. The flying fox (*Pteropus Edulis*) is the largest and perhaps the most interesting, being less familiar than the bat, etc. Natives of Burmah and some parts of India, they are often seen in flocks, flying high overhead, towards sunset, to their distant feeding grounds. These weird animals attain a weight of over two pounds, a total wing-stretch of just upon four feet, and a total sustaining-surface area of two square feet. The membranous wing (skin and bone only) displays a constructive feature common to all wings—i.e., it is very stiff along the front, or leading edge, and very flexible along the rear edge. Unlike the bat, the wing-action of the flying fox is very steady and uniform. It has been observed, too, that when let free on the ground they crawl to the nearest tree or other eminence, and climb it to launch off in flight. Brearey's "wave-action" is closely akin to the latter variety.

Among flying insects the dragon-fly is perhaps the most admirable and astonishing: it can outstrip and escape from the swallow in full flight (ninety miles an hour). It can suddenly reverse and fly backward, or it can suddenly stop and fly laterally (broadside on) either to right or left, and at right angles to its previous course. These latter two astounding feats no bird or other flying creature can perform (Fig. 8). It is noteworthy that, although doing all this, the wing velocity of the dragon-fly is much less than that of other insects, excepting butterflies and moths, being twenty-eight beats per second, while the bee makes 190, the horse-fly 300, and the mosquito probably even higher than this, judging from its high-pitched wing-note. It seems probable that the hard and rigid wing-sheaths of beetles, etc., are used as sustaining aerocurves, being extended horizontally, and

FIG. 8.—DRAGON FLY.
(One of 50 varieties.)FIG. 8a.—"FIRE-FLY."
(Showing wing-sheaths extended and stationary in flight.)

held stationary while the insect "wheels its droning flight" (Fig. 8a).

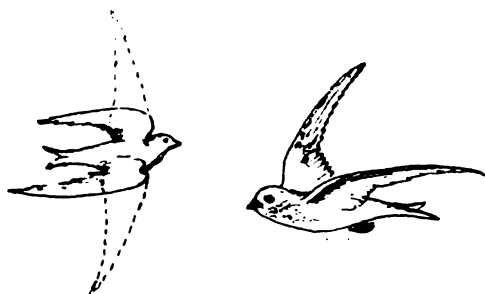
There is another remarkable little creature that calls for notice (although proverbially dumb), i.e., the flying representative sent up by the fishes (Fig. 9). In spite of some reports to the contrary, the flying fish's aerial transit is absolutely true flight, as much so as the swallow's, which it closely resembles (Fig. 10). It jumps from the water at about an angle of 45 degs., and ordinarily to a height of about a foot from the surface; it then gives about a dozen rapid and vigorous flaps of its fin-wings,

and sails horizontally for twenty yards or so, when it again makes a quick series of flaps, and then another skim, and so on. It has been observed to make six such distinct flights before returning to the water, and for a duration of nearly one minute, with probably some deadly fish of prey on its track below all the time.

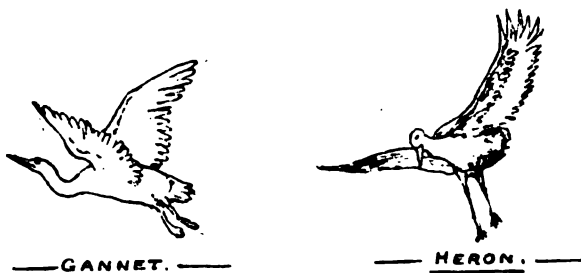
In concluding this chapter, which is necessarily longer than its predecessors, I will quote two or three memorable remarks by different authorities on bird-flight. A well-known leading engineer journalist once said: "We have in the bird a machine burning concentrated fuel in a large furnace at a tremendous rate." Mr. Chanute wrote: "The bird is an acrobat, and balances himself by instinct." The late learned Duke of Argyll wrote,



FIG. 9.—FLYING FISH.

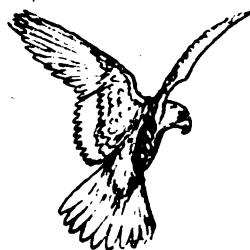


FIGS. 10 & 10a.—SWALLOW.



GANNET.

HERON.



HAWK HOVERING.

FIG. 11.

in his "Reign of Law": "It is not so much the amount of vital force (or power) bestowed on birds as the mechanical laws which are appealed to, in order to make that power effective in the accomplishment of flight." The late Dr. Lilienthal wrote: "The curvature of the bird's wing and the action of the wind upon it conduce to flight; this action is augmented by the beat." . . . "We are now well up in the theory of flight, since we are enlightened as to the air-resistance of the bird's wing, and the power-saving quality of its profile curves." It is fairly obvious that birds steer by tilting towards the side they wish to turn to, and effect it by slightly reducing the energy of the wing-stroke

on that side, little more than mere volition being needed; and it is, I think, equally obvious that the function of the tail, over and above that of contributing to the sum total of sustaining surface, is the imparting and maintenance of longitudinal stability, the wings amply providing for lateral or transverse stability. Carl Bittenstedt, an excellent German authority on bird-flight, writes: "The most essential condition on which natural flight depends is the elasticity of the organs of flight" (i.e., the wings and tail). The great mediæval artist-mechanician Leonardo da Vinci also recognised this fundamental fact, and referred to it in his book on "The Flight of Birds;" also the important fact that the flexibility of the natural wing feather increases regularly from root to point. Bittenstedt writes further: "The actual power of flight is much greater without the beating of wings; the beat of the wings acts only in propulsion and not in sustentation." . . . "The change of the columns, or strata, of air under fixed flying surfaces is a greater obstacle to falling than wing work without change of air columns" (i.e., moving on to new air strata). The final illustrations display different evolutions of various birds of flight.

LESSONS OF THE ROAD.

IN reading the accounts of experiences of automobilists, we have noticed that they occasionally only deal with one phase of the subject; that is to say, they are either very rosy, usually only expressing the emotions experienced by the motorist when gliding along at a swift pace, without being annoyed by accidents to the mechanism, or else they confine themselves almost entirely to a rehearsal of the various mishaps they have met with. In the case of the former we sometimes feel a little suspicious that a mention of the little difficulties that arose has been purposely avoided. There may be some justification for the contention that there is no reason why these little troubles should be heralded far and wide, but the opposite view seems to us to be more logical, for the following reason. When the driver of a motor-vehicle has much trouble with a certain part of the vehicle, it may be that the construction of the part is defective, or that he misunderstands its operation or adjustment, and does not give it the proper care. But when scores of others experience trouble with the same parts, it may be accepted that these parts are defective. Experience is a true teacher, as has often been said, but the essence of its teachings with regard to a certain car, or parts thereof, or a certain class of motor-vehicle, can only be arrived at by comparing the experiences of many users, in order to eliminate the personal equation which figures in each single experience. A relation of the difficulties with which users have had to contend with may appear to some as a depressing tale of woe, discouraging to those engaged in the automobile industry, but there is no reason why it should be so. Not a single one of those who have related their experience in our columns, states the *Horseless Age*, and who have met with many unpleasant incidents, has given up the use of the motor-car. They are, on the other hand, mostly such firm believers in the future of the automobile that they think it unnecessary to offset any impression that might be created by a rehearsal of their troubles by a lengthy statement of the value of the motor-car, and of the services it may and does render. One effect of these "experience letters," which we always welcome from practical readers, may be to acquaint prospective users with the fact that they, too, will occasionally have to battle with mechanical difficulties when enjoying a ride in a motor-vehicle, and it is certainly better that they should be forewarned of them and prepared to meet them before they become users of motor-cars than to learn them afterwards. The chief value of these letters lies in the fact that they show that practical service is rendered by motor-cars, what the defects are that give the greatest annoyance on the road, and how they can be remedied.

MR. P. MEYRA has transferred to the Harbourn Electrical Manufacturing Company, Limited, the patent, trade mark, goodwill, and manufacture of the "Meyra" ignition dry cells.

THE 1902 TRIAL.

IN September of the present year the Automobile Club of Great Britain and Ireland will hold a 650-miles trial, and a representative committee of organisation has been appointed. The start and finish of each day's run is to be made daily at the Crystal Palace, and the return route is not to be over the same road as the outward journey. The suggested programme is as follows:—

PROGRAMME.

Monday, September 1st.—Crystal Palace to Folkestone *via* Riverhead, and back *via* Sidcup. 136½ miles.

Tuesday, September 2nd.—Crystal Palace to Eastbourne *via* Sevenoaks, and back *via* Edenbridge. 114½ miles.

Wednesday, September 3rd.—Crystal Palace to Worthing *via* Epsom, and back *via* Arundel. 119½ miles.

Thursday, September 4th.—Crystal Palace to Brighton *via* Bolney, and back *via* Cuckfield. 93 miles.

Friday, September 5th.—Crystal Palace to Bexhill *via* Sevenoaks, and back *via* East Grinstead. Including speed trial on the "flying kilometre" course. 123½ miles.

Saturday, September 6th.—Crystal Palace to Tunbridge Wells *via* Riverhead, and back *via* River Hill, Poll Hill, and Westerham Hill. 62 miles.

Unless a car makes an average of 12 miles per hour on the route to Bexhill it will not be allowed to run on the track.

The trial is open to tourist cars only, the test being a trial of reliability, and including hill-climbing and a speed run on the private course at Bexhill. No manufacturer will be allowed to enter more than two vehicles. There will be two sections, viz., one for motor-vehicles and one for the parts of motor-vehicles. With regard to cars the following is the classification:—

				Entrance Fee.
Class A.—Vehicles (cycles or cars) declared at a selling price of				£
Class B.—	Do.	do.	do.	£150 or less .. 10
Class C.—	Do.	do.	do.	£200 .. 12
Class D.—	Do.	do.	do.	£300 .. 14
Class E.—	Do.	do.	do.	£400 .. 16
Class F.—	Do.	do.	do.	£500 .. 18
Class G.—	Do.	do.	do.	£600 .. 20
Class H.—	Do.	do.	do.	£700 .. 22
Class I.—	Do.	do.	do.	£800 .. 24
Class J.—	Do.	do.	do.	£1,000 .. 26
Class K.—	Do.	do.	do.	£1,200 .. 28
Class L.—	Do.	do.	do.	over £1,200 .. 30

These entrance fees must be paid not later than the 12th prox. After then the entrance fees will be increased by 25 per cent. per week, and no car will be allowed to enter after Saturday, August 2nd.

No changing of sprockets for speed trials or hill-climbs, or at any time during the trial, will be permitted. There will be a maximum number of marks for reliability for each day's run, viz., 300, and one mark will be deducted for every minute during which the vehicle is at rest from the time of starting to the conclusion of the run except for:—(1) Three compulsory stops per day for refreshments, viz., ¼ hour in the morning; luncheon, ¾ hour; tea, ¼ hour. The engine must be stopped, and the car may not be adjusted or replenished during the two morning and afternoon stops of ¼ hour each, but only during the ¾ hour luncheon interval. These stops may only be made at the specified places indicated in the programme, and cars must not restart after the luncheon interval until the hour specified in the programme; (2) traffic; (3) tyre troubles; (4) accidental detours; (5) lighting carriage lamps.

The trials will include certain hills on which separate records from those of the day's run will be taken of the time occupied by the various vehicles in making the ascents. The marks awarded for the hill-climbing trials will be calculated as follows:—

$$\text{H.P.} \times 100,000.$$

Price in £ \times 8 for every shillingsworth of fuel consumed.

H.P. = Horse-power as shown by performance, which for the purpose of this formula will be roughly calculated as follows:

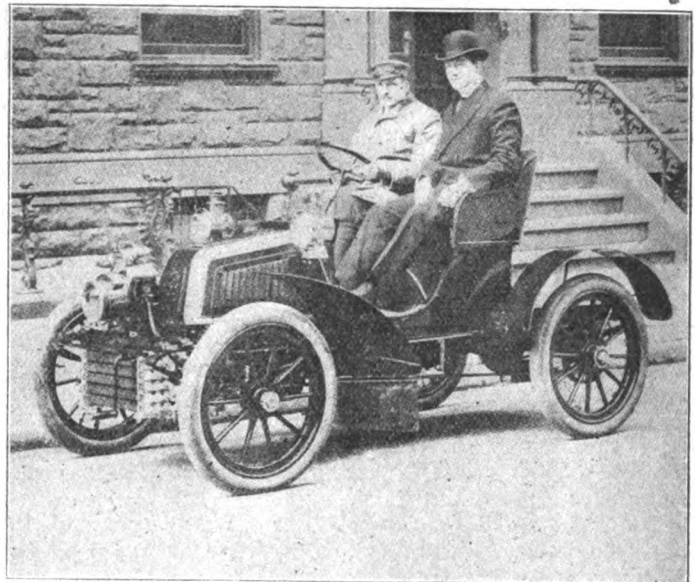
$$\frac{\text{Vertical height of hill in feet.} \times \text{Weight of car and load in lbs.} + 40 \text{ lbs. for every ton of total weight.}}{\text{Time in minutes}}$$

$$33,000.$$

The number of passengers carried during the hill-climbing must not exceed the number carried during the other portions of the run.

The Judges' Committee will hold special tests on Saturday, August 30th, and at other times, to ascertain whether the Trial vehicles are fitted with sufficient brake-power, and specially whether the brakes are so constructed that they will prevent the vehicle from running backwards if stopped on a steep up-gradient. Marks will be deducted in accordance with the inefficiency of the brakes; also if the steering-gear is, in the opinion of the judges, insufficient in design or material.

The Committee of the Automobile Club will give [medals on the recommendations received from the Judges' Committee appointed by the Club:—Section I., gold and silver medals, as first and second prizes in each class; Section II., parts, gold and



THE A.C.A. 100-MILE ENDURANCE CONTEST. MR. C. J. WRIDGWAY ON A 16-H.P. PEERLESS CAR.

silver medals. The awards will be made by adding together the marks gained by each car during the trial for:—

- Reliability;
- Hill-climbing;
- Speed on private track (marks = speed in miles per hour \times 10).
- Horse-power and weight;
- Steering gear;
- Brakes;
- Condition of car at the end of the Trial.

The marks for horse-power, as shown by performance in proportion to the weight and to the number of passengers carried, will be arrived at by the following formula:—

$$\frac{\text{Horse-power as shown by performance} \times 100 \times \text{the number of passengers carried.}}{\text{Weight in cwts. (without passengers).}}$$

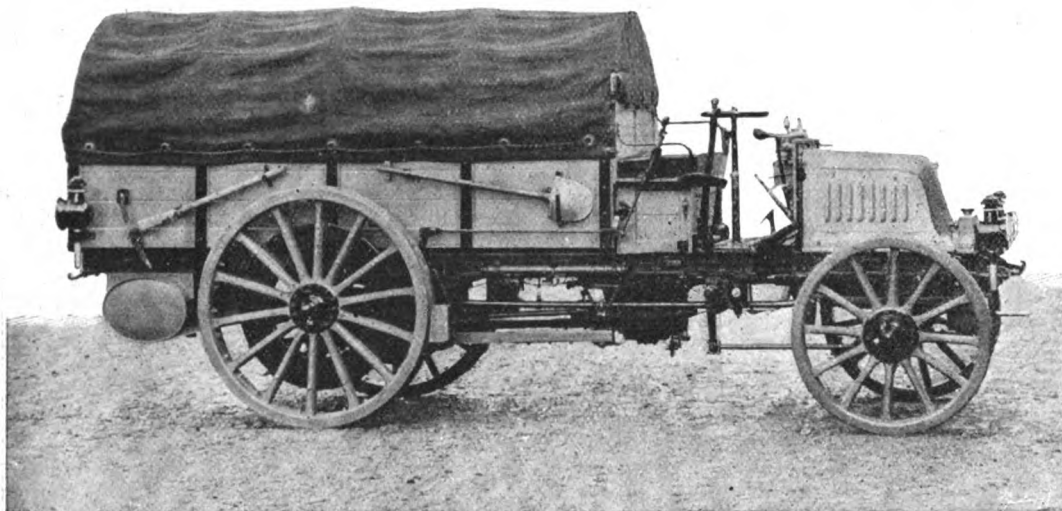
CONDITION OF A CAR AT THE END OF TRIAL.

If a car has been driven before the trial, the driver may call the attention of the judges to any worn parts before the trial. The maximum marks allotted in respect of the condition of the car after the trial shall be 500, and marks shall be deducted by the Judges Committee for parts replaced, and a list of parts replaced in each car shall be published in the report.

In subsequent issues we shall publish news of the progress of the Trial arrangements.

AT Messrs. Jones and Company's garage at Lichfield, which has capacity for twenty cars, a horse is kept on the premises. Is this regarded as a necessary instrument in the education of the automobile; or is it intended for emergency purposes?

DR. A. STERNBERG, of Berlin, has appointed Mr. G. Braulik, of 217 and 218, Upper Thames Street, E.C., the sole agent for the United Kingdom and British possessions for the Protos motors and motor-cars, which, it will be remembered, were shown at the recent Exhibition at the Agricultural Hall.



THE CANNSTATT-DAIMLER MILITARY WAGON (CHAINLESS).

THE Germain cars were well to the fore in the recent trials at Namur, Belgium. In the hill-climbing trials, which aroused keen interest, a 20-h.p. just missed the coveted prize by 17 seconds, taking a second place. Another 20-h.p. Germain came in a close third. In the kilometre race, a 20-h.p. Germain missed the first place by two seconds only; the other two Germaines, following closely, came in third and fourth out of ten winning racing cars.

New York officials, acting under a recent ruling of the Bureau of Combustibles, are making an active campaign against the motor-car garages in the city and are prohibiting the storage upon the premises of gasoline in any quantity. In some cases all vehicles are required to have their tanks emptied before being stored, and great inconvenience is being caused thereby. Proprietors of garages are seeking a modification of the ruling.

THE Motor Cycle Club of America has been organised in New York, with a membership of forty motor cyclists. It has affiliated with the Century Road Club Association, and will use the clubhouse of that association.

HEREWITH are illustrated two types of motor wagons which have lately been supplied by the Cannstatt-Daimler Company to the German War Office. The cars, which are intended to carry a load of $2\frac{1}{4}$ metrical tons, are fitted with four-cylinder motors developing 12-h.p. Altogether twelve vehicles have been supplied, six being arranged to work with petrol, and six with alcohol. As will be seen from the illustrations, the cars are of two types, one being chain-driven

A MOTOR-CAR exhibition is to be held in Hamburg from the 3rd to the 12th October next.

THE Frankfort Automobile Club is organising a series of races for motor-cars and cycles to be held on the Oberforsthaus track at Frankfort-on-Main, Germany, on August 31st next.

WE hear that Mr. Harrison Benn, vice-president of the Yorkshire Automobile Club, has ordered through Mr. Albert Farnell, of Bradford, a 22-h.p. Daimler car of the latest type.

THE Reading Electric Supply Company has just reduced its price for current used for charging the batteries of electrical motor-cars to 1½d. per Board of Trade unit.

THE Ruling Passion.—“I hope,” said the minister soothingly, “that you are quite reconciled to the future, my friend?” “Yes,” said the scorcher who had only his own recklessness to blame for having run into a stone wall with disastrous results to himself; “I think I could die happy if it wasn't for one thing.” “And what is that?” “I can't help wondering how much faster they will build motor-cars to go after I am dead.”—*Auto Magazine*.

ACCORDING to the new automobile law in Prussia, all motor-vehicles must carry on the back of the body a letter and a number in black on a white background and of specified dimensions. The letter denotes the province in which the vehicle is registered

and the number the registration number.

THERE is every probability that a broad, level speed road for the exclusive use of motorists will be constructed on Long Island in the near future at a cost approximating £100,000. It will certainly be twenty-five miles in length, remarks the *Motor-World*, and may extend for a distance of fifty miles. A number of wealthy automobilists, most of them members of the Automobile Club of America, are supporting the project, and the work of acquiring the right of way, surveying the course, etc., is already in hand.



THE CANNSTATT-DAIMLER MILITARY WAGON (CHAIN DRIVEN).

(*Allgemeine Automobil Zeitung*.)

FOLLOWING the example of the A.C.G.B.I., the French Automobile Club has appointed a committee to enquire into the suitability and capability of *mecaniciens* seeking to have their names put on the register.

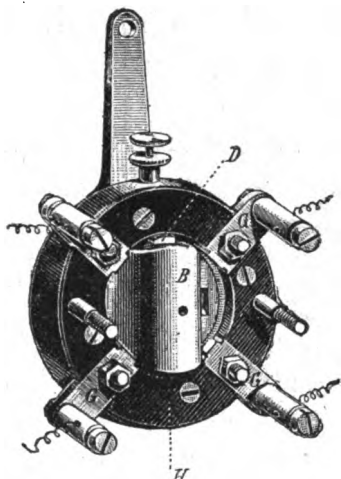
THE Canadian Motors, Limited, of Toronto, have just shipped their fifth electric motor-car to England. It is being sent to Mr. Ernest Bremner, of London, who has been visiting Canada in the interest of the pulp and paper mills at Fenelon Falls.

HERE AND THERE.

ON Saturday next, the 5th prox., the Colonial Premiers now in England will go by motor-car to Three Bridges, Sussex.

AN automobile section is being organised in connection with the International Exhibition, which is to be opened in Athens, Greece, on the 28th September next.

THE accompanying illustration shows a new advance spark apparatus for contact breaker, which has just been put on the



market by Messrs. John Child Meredith, Limited. The device can be adjusted so as to give varying lengths of spark; it is made for one cylinder, two cylinder, and four cylinder motors.

ACCORDING to a Northern humorist, "A motor-car, which was injured by an infant in a perambulator at the top of High Skellgate, Ripon, is progressing favourably and may now be considered out of all danger."

MR. ALFRED DUNHILL has opened a depot at 2, Conduit Street, Regent Street, W., for the sale of his well-known "motorities." The stock includes an extensive array of garments suitable for lady and gentlemen motorists.

BEFORE the congress of the American Laryngological Association at Boston, Dr. Emil Mayer has noted the increase in bronchial troubles, and expressed his belief that the use of automobiles would cause a yet greater increase in the number of cases. The high speed attained by *chauffeurs*, he thought, was favourable to the entrance of foreign particles into the cavities.

A LARGE number of motorists are tyros in photography, and will be interested in a new book entitled "Photography for Novices," written by Mr. Percy Lund, and published by Messrs. W. Butcher and Sons. It is written in a non-technical style, and can be recommended as both accurate and useful. There are a cyclopædia of photographic terms, etc., and sixty capital illustrations included in the 180 pages of which the volume consists.

THE Neckarsulmer Fahrradwerke, of Neckarsulm, Germany, who have lately taken up the construction of motor-bicycles on the lines of the Minerva, have sent us a copy of a handbook to the same that they have just issued. It is one of the most complete we have seen, extending to over sixty pages and including clearly-drawn illustrations of the various parts. It should prove of much service to German motor-cyclists, for whom, being printed in the German language, it is intended.

THE first motor-bicycle road race in America was held on May 30th last over a ten-mile course on the Irvington-Millburn road. There were ten entries, but only six started. F. A. Wyckoff, Newark, N.J., won in 18 min. and 16 sec. W. T. Green, Newark, was second, his time being 19 min. and 48½ sec., and F. C. Condon, Newark, N.J., third, in 22 min. 3 sec. All three winners rode Orient motor-bicycles. The race was limited to machines fitted with motors of not more than 2½-inch cylinder bore.

MESSRS. HOSKEN, TREVITHICK, POLKINGHORNE, AND CO., of Hayle, are using a motor-waggon for the purposes of their business, and it is attracting much attention in that part of Cornwall.

THE Oldsmobile Company of Great Britain, Limited, has been registered with a capital of £3,000. The first directors are Messrs. P. J. de Galindez, J. de Galindez, and F. W. Peckham.

NEW members of the Automobile Club include the Earl of Leven, the Earl of Berkeley, and Mr. Lees Knowles, M.P. Mr. T. Garfit, M.P., is a candidate for membership of the Lincolnshire Automobile Club.

IT is a memory of the grandfathers of the present generation, says the *Brighton Standard*, that when the oldest of them were but children, a motor-car was run for public service between Loch Eck and Holy Loch in Scotland.

MR. ANDRE A. GODIN has sent us copies of the new lists of induction coils made by Messrs. Hommer, and the tyre pumps, lubricators, tanks, and other specialities of Messrs. Sclaverand, for which he is the sole general agent in this country.

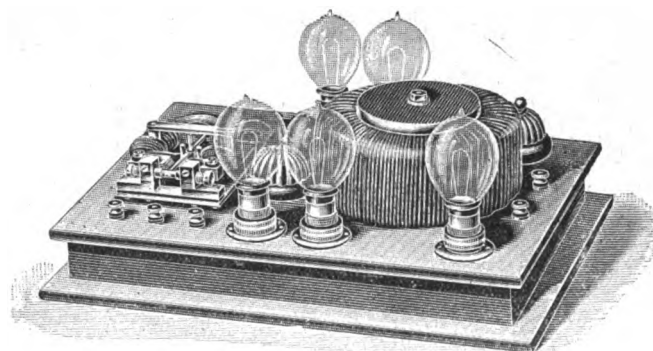
THE Standard Automobile Supply Company, of Betz Building, Philadelphia, are placing upon the market a patented "vacuum smoke chimney," which is claimed to effectively check any tendency of the fire in steam cars to burn back or blow out.

THE MOTOR UNION is appealing against the decision of the Chester magistrates in connection with a case in which a member of the Manchester Automobile Club was summoned for having crossed over a bridge in Cheshire at a greater speed than six miles an hour, contrary to a bye-law.

THE Mountain Ash Livery Company's motor-car was returning from Tynte Town one day last week, when, in going down the hill behind the Penrhiwceiber Colliery, the tyre of the front wheel came off. Before the driver could stop the car it toppled over and threw the occupants into the road. They all had a severe shaking.

IT was evident, from the large attendance of medical men at the last Automobile Show at the Agricultural Hall, that the profession is keeping itself well informed with regard to the development of automobilism. Further proof of this—if it were needed—comes in the announcement that an exhibition of automobiles is being arranged in connection with the visit of the British Medical Association to Manchester.

WE are now able to give an illustration of the Batten "rectifier," which was described at length on page 30 of our issue of March 15th last. The apparatus, which has been introduced by the General Electric Company, Limited, is intended for use in connection with the charging of small accumulators, exciting spark coils, or driving small motors, where direct current is required but only an alternating current is available. It consists of a polarised relay, whose tongue moves synchronously with the alternations



of the current, and sends unidirectional impulses into either of two paths which it opens for itself, and is independent of alterations of frequency or voltage. It is claimed to work with a much lower percentage of wasted energy than would result from doing the same work on a direct-current circuit through charging lamps. It will start at once at full load, without speeding up, and without delicate mechanical starting devices, and will carry six amperes at 50 volts and a larger current at lower voltages.

CORRESPONDENCE.

THE CLUB AND JOURNALISTS.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—I see from the official organ of the Automobile Club that a watchful eye is being kept on journalists who give publicity to the doings of the automobile world. Now, I should be sorry to see the leading authority with regard to our sport in conflict with the Institute of Journalists, but if this policy of dictation as to what shall be published and what shall be suppressed be maintained, there is a danger that the matter may be brought forward at the next meeting of the London District of the Institute, if not before the Council itself.

During the last few years journalists have endeavoured to set a high standard of accuracy in reports, and if a writer is invited for a run on a car, and that car travels at a speed of, say, forty miles an hour, surely he should be allowed to say so. Smart spins by locomotives, and record runs by cyclists are all published; why not let the public know that cars are capable of travelling at thirty or more miles an hour? I am afraid that the phrase "up to the legal limit" has become possessed of a meaning never originally intended, and the sooner it is dropped the better. For, when I hear of a man driving "up to the legal limit" I always have visions of about two miles in three minutes—and so have most of the public.

The matter will settle itself without the Club attempting to interfere with the rights of journalists who may also happen to be motorists. I write as one who wishes well to the Club, but who also intends his pen to run freely along the lines of fair and true report.—Yours faithfully,

A MOTORING M. I. J.

P.S.—There is also another aspect of the matter other than the professional one I have raised. In view of prospective legislation on the subject of the speed of motor-cars, is it wise for the Club organ to suggest that the actual speeds should be suppressed? Some smart M.P.—Mr. T. G. Bowles for instance—could use one or two sentences from the last issue of the "Club Notes" with marked effect against legislators advocating a change in the present law. And it would be a pity if anything of an official character could thus be quoted in opposition to the Hon. J. Scott Montagu, the Hon. Arthur Stanley, and other friends of the automobile in the House of Commons.

PISTON RINGS.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have at various times read a number of articles on making piston rings for petrol motors, but so far have never seen the method I used described. When I want a perfect fit, and one that will give good compression, I turn the rings considerably larger than the bore of the cylinder, cut a piece out, then spring them into a ring or chuck bored 1-32 inch larger than the cylinder bore, then clamp to face plate of lathe and turn to exact size of cylinder bore. Result, the rings bear all around. I also find that two rings in a groove give better results than a groove for each ring.—Yours truly,

MOTOR ENGINEER.

FURIOUS DRIVING CASES.

In the course of the case against Mr. Midgley there were several lively passages of arms between the prosecuting solicitor and Mr. Staplee Firth, who represented the defendant. Evidence was given of some timekeeping experiments on a motor-car, which showed it was impossible to attain the speed alleged.

THE two Deptford defendants who have been fined at the Essex Petty Sessions were travelling on motor-bicycles. Curiously the gentleman riding at an alleged speed of thirty miles per hour was fined twice as much as he who was said to be travelling at a less speed. Probably the lessened costs were regarded as a kind of compensation.

JAMES COLLINS, whose case is reported this week, is the motor-car driver to the Earl of Cowley, and was defended by Mr. Staplee Firth. Sergeant Higgs said that at twelve minutes to nine in the morning he saw defendant go past his house (driving) Lord Cowley to Melton. At six minutes past nine defendant returned, having accomplished in that time a distance of six miles. From the point where witness first saw the car to the point at which he lost sight of it the distance would be 500 yards, and this was covered in forty seconds. Mr. Staplee Firth said it was an impossibility for the car to turn the corner at the speed suggested. It was not going more than ten miles an hour.

ALL the cases heard at Uckfield were against drivers of motor-cars, with the exception of that of Mr. Hooydonk, who rode a motor-cycle. Defendant denied that he was going more than six miles an hour, as his engine was temporarily wrong; and, after a lengthy argument, in which the veracity of the police evidence was attacked, the Court was adjourned, and the two furlongs measured and other points proved. Upon returning Mr. Staplee Firth said the distance was wrong by four yards. He urged that the evidence of the police was not according to fact, saying it was impossible for the defendant to have attained such a speed in the distance. After the Bench had conferred, the Chairman said there was an element of doubt in the case, to which the defendant was entitled; but they considered the attack which had been made on the police was wholly undeserved and most improper. It charged two men of the highest respectability with perjury, and he was glad he had had an opportunity of saying how entirely true their evidence was.

COURT.	DEFENDANT.	ALLEGED SPEED.	FINES.
Saffron Walden	L. de Rothschild, Cambridge	20 m. p. h.	£1 and 9s. costs.
Melton Mowbray	J. Collins, Melton Mowbray	Above legal limit.	£2 and costs.
Uckfield	J. A. Holder, Birmingham	32 m. p. h.	£5 and 11s. 6d. costs.
"	T. B. Browne, Earl's Court	30 m. p. h.	£5 and 10s. costs.
"	A. Goodwin, Chiswick	31 m. p. h.	£1 and 9s. costs.
"	E. Midgley, Hyde Park W.	25 m. p. h.	£1 and 15s. costs.
"	J. M. Gorham, Westminster	Above legal limit.	£1 and 5s. costs.
"	E. H. Clift, Kensington	30 m. p. h. at East Hoathly.	£5 and 9s. costs.
"	E. H. Clift, Kensington	30 m. p. h. at Crockstead.	£7 10s. and 9s. costs.
"	J. C. Crowdy, Swindon	25 m. p. h.	£1 and 9s. costs.
"	J. V. Hoogdonk, London, N.	27½ m. p. h.	Dismissed.
"	G. C. Mandleberg, Higher Broughton, Manchester	20 m. p. h.	£7 10s. and costs.
"	A. C. Couchman, Purley	29 m. p. h.	£5 and costs.
"	C. Browne, Long Acre, W.C.	Above legal limit.	£5 and 9s. costs.
"	A. Govan, Glasgow	" "	£5 and 8s. costs.
Greenwich	P. Grazeux, Pimlico	20 m. p. h.	£3 and 7s. costs.
Chelmsford ...	H. Sharp, Deptford	28 m. p. h.	£2 10s. and 9s. 6d. costs.
"	H. Norfolk, Deptford	30 m. p. h.	£5 and 7s. costs.
Otley	W. Jackson, Baildon	25 m. h. p.	6d. and costs.

SEQUEL TO AN ACCIDENT.

THE Scarborough Motor Vehicle Syndicate, Limited, were the defendants, and Mr. Himsworth, cab proprietor, Scarborough, and Mr. Blackburn, Field House, Batley, plaintiffs, in an action heard before Judge Raikes and a jury at Scarborough, the claim being for £46 damages sustained by injury to a horse and carriage, and loss of earnings, through the horse being frightened by a motor-car and upsetting the victoria to which it was attached, Mr. Himsworth having a narrow escape. The driver of the car, it was stated, did not stop when first signalled to, or the accident would not have occurred. The jury found a verdict for the plaintiffs for £22 and costs.

ON THE WRONG SIDE.

SUMMONSES have been heard at Saffron Walden against Mr. R. C. Knight, of Chelmsford, for driving a motor-car on the wrong side of the road, and for not stopping when signalled to do so in face of a restive horse. The defendant and Major Lowndes, of the Rifle Brigade, who was in the car, denied the charges, and they were dismissed.

MOTOR-CARS from Leicester, Derby, Mansfield, and Nottingham will take part in the Coronation procession at the latter place.

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THE Motor-Car Journal.

VOL. IV.]

LONDON, SATURDAY, JULY 5, 1902.

[No. 174.]

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COMMENTS.



I NTEREST in the Gordon-Bennett Cup has naturally been quickened by the victory of an Englishman, and a summary of the conditions of the competition is of particular concern at the present moment. Challenges must be arranged by the automobile clubs of the various countries, and must be received by the President of the Club holding the Cup not later than January 1st of each year, the race to take part between May 15th and August 15th. A deposit of 3,000 francs—which is to be returned if the challenging car appears at the start—is to accompany the challenge. As is generally known, the competing cars must be constructed entirely and in every part in the respective countries of the competitors, and the length of the race is to be from 550 to 650 kilometres. The race is to take part in the country of the Club holding the Cup, but the Automobile Club of Great Britain and Ireland—now the proud possessors of the Cup—have the option of holding the race in France.

A Patriotic Offer.

RECENTLY we expressed the hope that an English car would be successful—a result that was confidently anticipated by those who knew the pluck and skill of Mr. S. F. Edge, and also the good points of his car. Now British makers should have the support of private automobilists, who have had a splendid demonstration of the reliability of cars made in this country. With a view to keeping the Gordon-Bennett Cup within our shores a public-spirited motorist is about to make an interesting offer to encourage British makers to produce cars that will maintain the national prestige against the challenge that will assuredly come from foreign firms, who can hardly be expected to sit supinely still in view of the success of the Napier. This will probably take the form of purchasing, at a high figure, the car that retains the Cup in British hands, thus ensuring to the maker of the successful vehicle an adequate return for the trouble and expense involved.

Motor-Cars in Town.

LAST week London was crowded with all sorts and conditions of folks, but most noticeable was the number of motor-cars darting hither and thither—"pip-pip" being heard continuously, not only during the day but also (in the earlier part of the week, at least) during the night as well. The behaviour of the drivers was most exemplary, and we saw very little passing taking place in town, the rule apparently being that when one car came up with another it joined line. At one time we were at the tail end of five motor-cars. The decorations were viewed by occupants of hundreds of cars, but travelling was not pleasant, especially with a car having four cylinders, and the rate of progression about a mile an hour. The car got hot, the lubricating oil smelt and

smoked, and those immediately behind passed audible remarks. In fact, several endeavours were made to keep as far in the rear as possible, but those further behind would not allow this. Numerous Serpollets were seen and for the first time in London an Arrol-Johnston car.

In Hyde Park.

HYDE PARK has been visited daily by large numbers of motorists, and at one time on the afternoon of Thursday of last week there were more motor-cars than horse-drawn vehicles in the Park. Many owners regularly took part in the procession indulged in by the rank and beauty of the West End, but this, we think, was a great mistake, as the rate of progression was so slow and the stoppages so frequent that many cars seen were steaming visibly and smelling unpleasantly. The Park has been inordinately crowded, there being as many as seven rows of vehicles at one time, only a narrow centre line being left for the Royal vehicles, which have been largely in evidence.

The Great Bazaar.

ON Thursday, Friday, and Saturday next the Imperial Coronation Bazaar will be held at the Royal Botanical Gardens, Regent's Park, N.W., in aid of the Hospital for Sick Children. Her Majesty the Queen will open the bazaar on the first day, and Lady Jeune is president of the bazaar, while among the stallholders are many other ladies known in connection with motoring, including the Duchess of Sutherland, the Countess of Derby, the Countess of Essex, the Countess of Gosford, the Countess of Warwick, Lady Edward Spencer Churchill, Lady Llangattock, Lady Wimborne, Lady Troubridge, Lady Sarah Wilson, Mrs. Bradley Martin, Mrs. Paris Singer, and Miss Schiff. Owners of motor-cars who would like to assist in augmenting the funds have an opportunity of doing so. A large number of patrons will probably like to make the run from their abodes to the Botanical Gardens by automobile, and motorists who are willing to lend their cars for the purpose of conveying patrons and friends to the grounds are invited to communicate with Mr. Loxton Hunter, 59, Great Ormond Street, London, W.C., who has charge of the arrangements in this connection.

Motor-Cars Wanted.

WE understand that nearly thirty motor-cars have been promised, but Mr. Hunter would like to receive offers of another twenty. The vehicles will be stationed at the House of Commons, Lord's Cricket Ground (where the Eton and Harrow match will be in progress), the Stock Exchange, and Hyde Park Corner. No charge will be made for conveying visitors to the bazaar, but a collection box will be placed in each car, and the proceeds will go to increase the funds of the bazaar, which promises to be the great social event of the summer. Mr. Hunter will be glad to hear from motorists willing to lend their cars for one day or the three days as early as possible.

B

Firth v. Lang.

A CURIOUS correspondence illustrative of official curtness and legal courtesy comes to hand this week. On the occasion of the automobile trials at Bexhill the Surrey police made a great attack on automobilists. On the return journey Mr.

Staplee Firth was mounted on a friend's motor-car, and just beyond East Hoathly noticed a man in a crouching posture in the hedge with a watch in his hand. As soon as they passed he rose and signalled to someone else. Mr. Firth, with the instinct of a Sherlock Holmes, returned to investigate, but the man dived into the hedge again and disappeared. The solicitor dismounted—or should we say “alighted”?—and on making a careful search, found a man, who confessed to being a policeman on duty, squatting in the corner of a pig-sty. As he explained he was acting under the orders of Major Lang, the Chief Constable of East Sussex, and was taking the times of motor-cars with an ordinary watch, Mr. Firth wired from Uckfield to the Chief Constable asking whether it was true that the man was acting under instructions.



MR. S. F. EDGE, THE WINNER OF THE 1902 GORDON BENNETT CUP RACE.

“No further Discussion.”

NOT receiving a reply, Mr. Firth wrote to Major Lang four days later setting forth the circumstances summarised above, and received a communication acknowledging his telegram and letter, “neither of which,” said Major Lang, “require any answer.” To that Mr. Firth replied, expressing surprise at such a retort and pointing out that, although he could not compel a reply, he could “leave others to judge as to whether such proceedings are compatible with an English gentleman's notion of justice and fair play.” Major Lang's response to this further request was to inform Mr. Firth “that the matter does not admit of further discussion.” The next move must now come from 77, Chancery Lane, W.C.

Horses and Motor-Cars.

THE Lord Justice Clerk of Scotland has been again indulging in his enthusiasm for automobilism, and also observing one of the great nuisances that drivers have to put up with on the roads, viz., the number of horses which are left unattended, whilst their drivers are holding pleasant converse or otherwise engaged with people not minding their own business. In the course of four and a half hours, Lord Kingsburgh noticed no fewer than 128 such horses, the majority, as usual, standing outside public houses. The letter from him which we publish in another column should be shown by readers to

any of their friends who may entertain prejudiced notions with regard to motor-cars. Leaving horses thus unattended constitutes a serious danger to the public, for they are far more likely to be frightened by passing locomotives, the ordinary electric tram, or even by German bands, than by the motor-car. Horses, too, are often the aggressors, as the experience of our Yorkshire correspondent confirms.

Furious Driving Cases.

THANKS to the fact that the Surrey police have made no great haul of motorists during the last few days, our list of alleged furious driving cases is slightly diminished this week. But the police around Wrotham, in Kent, seem to have entered the running with those of Surrey, and a quartette of cases heard at the Malling Petty Sessions have resulted in convictions. In one case the Chairman of the Bench asked the constable how he could tell when the motor-car commenced travelling along the measured distance. The only answer he received was that the constable arrived at it as nearly as he could. On this conclusive (?) evidence, fine and costs were of course imposed. In another case the defendant said he was not travelling so fast as the police stated, as the road was slippery, and his two passengers included a magistrate who was somewhat nervous. Here again the Bench imposed a fine; and we really think the nervous old gentleman who, taking holiday from his magisterial duties, was indulging in motoring pleasures should bear his proportion of the cost.

Motor Ambulances.

THE value of the motor-car in connection with rendering assistance to injured persons in our streets was demonstrated anew at Isleworth on Sunday night. A man was thrown from a trap into the road, and had his leg broken. He was conveyed to the Infirmary on a passing motor-car. Often have we referred to the excellent system of electrical ambulances with which New York is provided, and the provision of such equipment to the London Ambulance Corps would be an inestimable boon, seeing the thousands of people who are injured in our streets every year. Even in dealing with injured horses motor-power might well be utilised, for on Monday afternoon, within twenty yards of the office of the *Journal*, one of the horses attached to a fire engine came into collision with a passing vehicle and was severely injured. It remained in agony in the street for over two hours before a horse-drawn float was obtained to take it to be destroyed. In all such cases requiring urgent assistance the motor-car has a very humane part to play.

Sir J. I. Thornycroft.

WE are glad to see that those associated with the automobile movement have not been entirely overlooked in the honours bestowed during the past few days, and the knighthood conferred on Mr. John I. Thornycroft, F.R.S., will be appreciated by all who have watched the work he has done not only in connection with naval architecture, but also in the development of heavy self-propelled vehicles, notably those for municipal work. The position which this country occupies in connection with automobiles for heavy traffic is largely due to the efforts put forward by Sir John Thornycroft and his firm, who are receiving substantial recognition from many of the leading municipalities of the value of their work.

The Provincial Meet.

OWING to the postponement of the Coronation, great uncertainty prevailed with regard to the meet of provincial clubs at Harrogate, with the result that the attendance was not so large as anticipated. Several members, however, arrived at the Prince of Wales Hotel on Friday and Saturday, and a circular run was taken to Studley Royal and back by

Boroughbridge. At the hotel a stock of petrol was provided by Messrs. Chippendale and Co. Among those present were Mr. and Mrs. Jackson and Mr. Hey (on a 10-h.p. Daimler), Mr. R. Kirk (16-h.p. Panhard), Mr. and Mrs. Firth (quad), Mr. A. W. and Mr. A. Dougill (8-h.p. Loidis car), Mr. Newstead (Pieper), Mr. and Mrs. Burrows (De Dion), Mr. Jones (Pieper), Mr. Boulton (8-h.p. De Dion), and Mr. E. Dougill (2½-h.p. bicycle). From Manchester Mr. and Mrs. Higginson went on a De Dion, and Mr. and Mrs. Padley, of Market Rasen, were also of the party, which included Mr. E. Shrapnell Smith, of Liverpool.

Developments at Bexhill.

FRESH automobile developments are again to be recorded from Bexhill, where Dr. Hulbert is about to establish a boarding establishment on somewhat novel lines. This will be located at De Vere House, and in conjunction with the Booth Motor Company, of Putney, a week-end motor-car service will be established. Every Saturday morning, commencing from to-day, a motor-car will leave the Strand and journey through Croydon, Godstone, East Grinstead, Knutfield, and Ashdown Forest to Bexhill. An inclusive rate will be charged for the tour and for board and residence at the enterprising seaside resort so much frequented during the present summer by motorists. This is a development which will be watched with intense interest by all who have anything to do with the prosperity of seaside resorts, as well as those who are concerned with the future of the automobile industry. Dr. Hulbert recognises that the motor-car trip to Bexhill and back again to London will be a valuable feature in the recuperative advantages of the scheme which he is encouraging.

A Case Dismissed.

EVIDENTLY the magistrates at Chepstow are not prejudiced persons, for they have just dismissed a case in which Mr. W. Graham, a well-known motorist of Barry Dock, was summoned for alleged furious driving on the road between Tintern and Monmouth. Police witnesses swore that they could see quite easily the name painted in small letters on the back of the car, although it was travelling at about twenty-five miles per hour; also that no ladies were with Mr. Graham. The defendant, however, proved that his wife was with him, and Mr. W. McLaren, who was another passenger, testified to the presence of a powerful Panhard car on the road. Probably it was a case of mistaken identity—as are many that are taken into court—and we congratulate both the magistrates and Mr. Graham on its dismissal. Fortunately it was not in Surrey, Sussex, or Kent.

Darracq's New Depot.

AUTOMOBILIA'S premises have been hitherto located in the Marylebone Road, N.W., but new and permanent premises have now been acquired in Oxford Street, almost facing the Marble Arch. These fine premises are of palatial extent, and consist of a beautiful hall on the ground floor, with basement, upper rooms, etc. The partners in Automobilia consist of M. M. Letellier, who is one of the owners of *Le Journal* and other French papers, M. Fordyce, and Baron Forest, the adopted son of Baron Hirsch; the latter (who drove a Mercedes in the Paris-Vienna race, arriving first at Salzburg) is married to a sister of M. Letellier. It may interest our readers, by the way, to know that it is possible M. Darracq himself will be present at the Bexhill trials to be held in August.

Motor-Cars and Medicos.

WRITING with reference to the growing use of the automobile in South Africa, we recently gave an instance of the utility of the motor-car in connection with medical work, for it was such a vehicle that was despatched to Cape Town during the illness of Mr. Cecil Rhodes, in order to obtain certain medicines.

Similarly, the motor-car played its part in connection with the illness of the King. When His Majesty was first suffering from a slight chill, Sir Frederick Laking, his physician, was at Windsor Castle. Had he gone from Windsor to Aldershot by train, the roundabout journey would have occupied an hour and a half; but by the use of the King's car he was by the side of his distinguished patient within an hour. On the occasion of the terrible railway accident at Slough, a year or two ago, Dr. Bruce Porter was able to reach that town by a motor-car much more quickly than would have been possible had he waited for the next train. These instances refer only to the saving of time. Economy in railway expenses is also noteworthy, and the Hon. John Scott Montague, M.P., estimates that last year he saved more than £40 in tickets for cross-country runs which he took by motor-car instead of by train.



MR. T. UNDERWOOD LEAVING SALISBURY FOR A NON-STOP RUN TO LONDON ON A 12-H.P. M.M.C. CAR.

1s. 6d. and Costs.

MR. HERBERT CUFF, a motorist living in Ireland, who has lately been touring in the West of England, will return with a good opinion of the ways and manners of the English police. He was summoned to the Salisbury Petty Sessions for driving a motor-car above the legal limit, and the Clerk to the Justices said the occurrence only took place the previous night, but as defendant wished to return to Ireland as soon as possible the case was arranged for that morning. After hearing the evidence, in the course of which Mr. Cuff said he had driven 18,000 miles and had not been complained of before, Superintendent Longstone said he felt somewhat grateful to Mr. Cuff for the generous way in which he had given information, and trusted that the Bench would deal as leniently with the case as possible. The result was the infliction of a nominal fine of 1s. 6d. with 18s. 6d. costs.

Advance in Glasgow.

LAST week we were able to announce that the Tottenham District Council has proved more enterprising than some larger municipalities, and has decided to adopt a motor fire-engine in place of the old-fashioned horse-drawn engine. The cleansing department of the Glasgow Corporation is now about to adopt a motor-van for the expeditious removal of its street refuse, thus following the example of Westminster, the Strand, Poplar, and other Metropolitan boroughs which have found the use of motor-vehicles economical both in time and cost. The

particular van ordered by the Glasgow authorities will be fitted with Kelly's patent tipping arrangement. Now that Glasgow has fallen into line with this improvement, we shall probably hear of other Scotch municipalities being quite up to date.

Tyre Repairs.

WHEN tyres are much worn and cut they are not necessarily worthless, but it is very necessary that repairs should be made by capable men. Just as there are engineers without the essential qualifications setting up as repairers of motor-vehicles, so there are firms that pose as effective overhaulers of tyres without possessing the requisite knowledge and experience. Hence the caution with which automobilists have regarded the tyre-repair question, but this will doubtless disappear as efficiency in work is combined with economy in cost.

Altering the Law.

THE chairman of the Llangollen Petty Sessions has been lecturing a motoring delinquent on the advisability of keeping to the requirements of the police. "Adhere to the law," he said, "and try to get it altered, if necessary." This may be regarded as a justification for Mr. Scott Montagu in introducing a Bill into the House of Commons with regard to the speed limit and also the numbering of cars. Sir Howard Vincent is also interesting himself in the legislative aspect of automobilism, and has suggested that the Government should introduce legislation on similar lines to that in vogue in France and elsewhere on the Continent. The matter is under the consideration of the Local Government Board, but nothing is likely to be done by Mr. Long during the present Parliamentary Session. Further, Mr. A. J. Balfour—keen motorist though he is—is not likely to give facilities for the passage of Mr. Montagu's Bill through the Commons this Session; although the author is more hopeful with regard to the Autumn Session.

Horse Breeding.

SIGNS are everywhere apparent that the demand for high-class harness horses has seen its best days, and reports of recent auction sales show that about fifty per cent. of the animals offered have been unsold. This happened on the occasion of the Brookfield stud sale and that fact alone would be significant even if it stood alone. Royal persons have become adepts as well as enthusiasts in motoring; fashionable folk go to the Opera in automobiles; Society runs to Waterloo *en route* for Ascot by electric cabs, and the motor-car is regarded as the "proper thing." Hence horse-breeders will shortly turn their attention to hunters and horses for riding in preference to the high-class harness horse, the demand for which seems to have sadly fallen off. But the popularity of the motor-car is not wholly responsible for this state of things; increased rating and taxation have caused economies in many directions—a fact not to be overlooked by those who denounce the automobile for the changes it is causing in our national life.

If a scorcher meet a scorcher
Whizzing on the sly,
And a scorcher hit a scorcher,
No one needs to cry.

Cabs v. Motor-Cars.

It would be interesting to have some adequate record of the responsibility of the modern cab for the destruction of life in our public streets during the last few years. Within recent memory no fewer than five persons of Parliament have been seriously injured by horse-drawn cabs. The other evening Mr. Edward Blake, M.P., was knocked down by a hansom in Westminster, and a year or two ago Sir Thomas Roe was similarly injured. More recently Mr. W. B. Beach, the father of the House of Commons, died from the effects of injuries re-

ceived from being thrown out of his cab in Parliament Street; Sir William Wetherell and Mr. Byron Reed, two members of great promise, both died from the effects of carriage accidents. We recall these accidents not in any spirit of antagonism to the hansom cab, but in order to remind readers that the motor-car has up to the present time been singularly free from accidents of this kind. In fact, if hansom cabs and other carriages could be controlled with the certainty and reliability of the modern automobile, the number of lives lost in the streets of our great cities would be considerably reduced. All interested in the preservation of human life and the safety of the streets will hope that the present year will witness a considerable increase in the number of motor-vehicles plying for hire in the streets of London.

Automobile Trials.

IN the United States, as elsewhere, automobile clubs seem to be promoting tests and trials of speed, reliability, etc., more in a spirit of securing pleasant social gatherings than in the business interests of the movement. It would perhaps be well if those responsible for the organisation of these events were to make up their minds as to whether they are to be a critical test of the capabilities of the vehicles, or whether by the arrangement of fantastic contests much on the lines of the old-fashioned obstacle races some sort of curious interest is to be given to the public. We do not feel that any real good is likely to accrue to the industry if these so-called contests are not conducted in a really business-like fashion. So far as those hitherto arranged in this country have been concerned there has been a considerable amount of organising skill exhibited, but the tendency to hold these trials to make sport for the public does not seem to be in the right direction. Bank holiday crowds as a rule are more eager for excitement than for anything else, and probably would appreciate some sensational performance far better than they would the ordinary tame procession of decorated cars which form a feature of so many Continental displays. Practical contests would attract practical men, and with them the future of the industry depends rather than upon drawing to seaside resorts the typical holiday crowd; hence the hope that adequate care will be taken in the organisation of such events.

THE English agency for the De Dietrich cars has been obtained by Mr. J. H. Clarke, Gayton Grange, Gayton, near Heswall, Cheshire.

THE inaugural hill-climbing competition in connection with the Motor-Cycle Union of Ireland will be held at Glenamuck Hill to-day (Saturday).

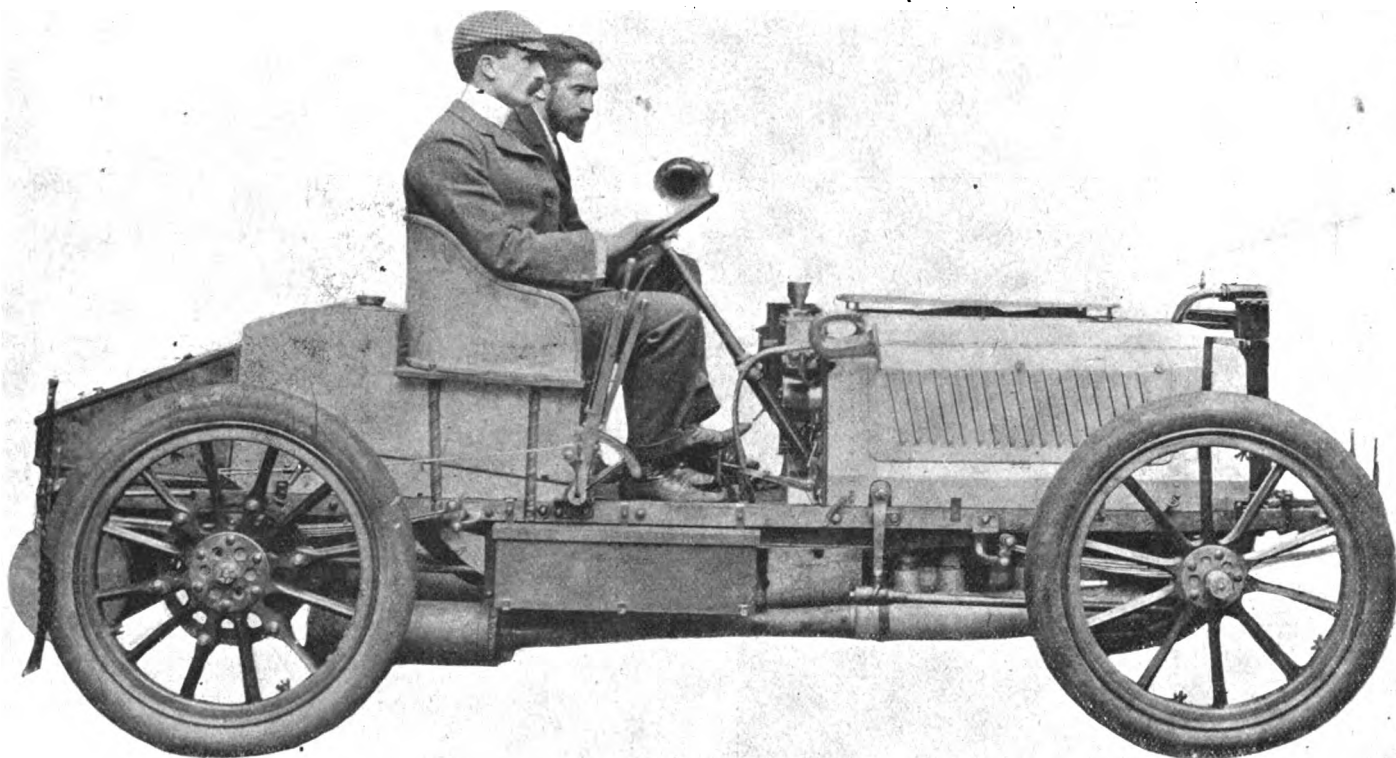
OWING to the breakdown of a motor-car a few miles from Dorking, last week end, a party of ten motorists were compelled to spend the night *en plein air*.

ON Saturday, the 12th inst., the Manchester Automobile Club will have a week-end run to Leasowe, on the Wirral peninsula, making their headquarters at Leasowe Castle Hotel.

ENTRIES for the forthcoming race meeting at Bexhill should be sent to the Automobile Club not later than the 26th inst. It is probable that on the Wednesday following the August Bank Holiday there will be a hill-climbing trial. The automobile week will conclude with a speed trial at Welbeck on the 8th prox.

FROM Mr. E. Kalker, of Coventry, the sole agent for the United Kingdom and the colonies for the Societe La Francaise, comes a catalogue of the motors, parts, and accessories identified with that firm. Among the specialities catalogued are water-cooled heads for De Dion and Aster motors, exhaust and inlet valves for various makes of cars and motor-cycles, advance sparking apparatus, induction coils, ampere and volt-meters, dry batteries, carburettors, etc. La Francaise light cars, fitted with 7 and 9-hp. motors, are also illustrated, and Mr. Kalker notifies that he is prepared to accompany intending purchasers to Paris in order to assist them in selecting cars.

The Gordon-Bennett Cup Contest.



MESSRS. EDGE AND NAPIER ON THE GORDON BENNETT CUP WINNER.

MOST popular among British automobilists is the great success of Mr. S. F. Edge in the Gordon Bennett Cup race, and the victory is a splendid tribute to British workmanship as well as to British pluck. Herewith we give a portrait of Mr. Edge, with Mr. Napier (whose share of the credit should not be overlooked) by his side, on the identical car with which he has brought to this country the Cup shown in the second illustration. It is a 40-h.p. car, with four cylinders, and is gear-driven. The wheel base is 7 ft. 7 in., the frame being carried on 34 in. wheels, shod with $3\frac{1}{2}$ in. Dunlop pneumatic tyres. The weight, with lamp bracket, extra silencer, etc., is just 16 cwt. 3 qrs. 27 lbs.

One interesting point in connection with the car is that it only left Messrs. D. Napier and Son's factory at Lambeth on the 19th ult., when Mr. Edge took his first trial trip on it. This was his second appearance as a competitor for the Gordon Bennett cup, and he was accompanied by his cousin, Mr. Cecil Edge. Although much discussion has taken place as to the proffered assistance of Mr. Edge when the car ran into a ditch, that gentleman has emphatically denied having had such help. Mr. Edge ran off the road at one point, and a number of peasants, ignorant of the regulations and of the English language, were most eager to push back his motor-car.

He drove them off with much difficulty, and managed to get the car back on to the road by his own unaided efforts. Mr. Edge certainly can look back upon his exploit and say, "Alone I did it."

In 1900, when the Cup was first offered, the route was from Paris to Lyons, and the distance of 351 miles was covered by

M. Charron in 9 hrs. 9 min. 49 sec. on a 27-h.p. Panhard—the speed averaging a little over 38 miles per hour. Last year the winner was M. Girardot, on a 40-h.p. Panhard, the course, from Paris to Bordeaux (348 miles), being covered in 8 hrs. 47 min. 39 sec.—an average of $39\frac{1}{2}$ miles per hour. This year the course was in two sections, Paris-Belfort and Bregenz-Innsbruck, a combined distance of 385 miles, which was covered in 10 hrs. 42 min.—an average speed of about 36 miles per hour. The route was considerably hillier than in either of the two preceding years. Over the Tyrolean Alps the roads were not only dangerously steep, but were full of serpentine windings, and in execrable condition. Running down some of the hills there was almost like falling down stairs, and all along that dangerous stretch there were many accidents to other motorists—but fortunately the English champion escaped the fate of some of the competitors in the Paris-Vienna contest, upon which he is to be congratulated.



THE GORDON BENNETT CUP.

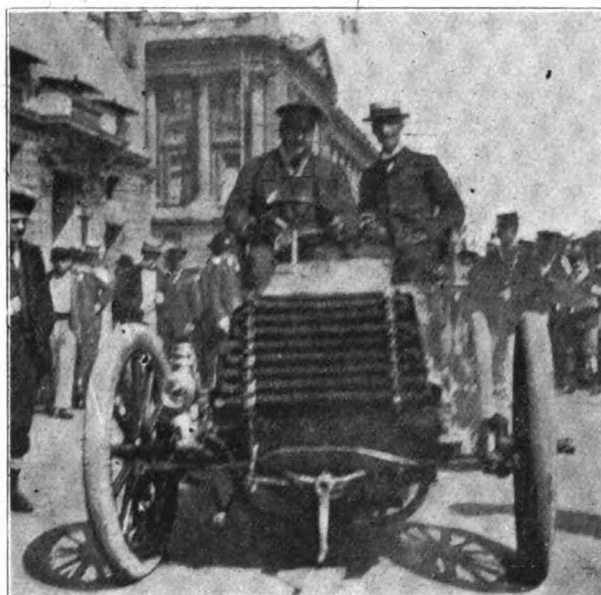
The Paris-Vienna & Gordon-Bennett Cup Race.



By AUTOMAN.



M. WALCKER ON CHENARD-WALCKER CAR.



BARON HENRI DE ROTHSCHILD ON THE NEW PASCAL CAR.

SOME OF THE RACERS AT THE AUTOMOBILE CLUB DE FRANCE.

THE weighing and marking of the racing cars began on Monday, June 23rd, at the premises of the A.C.F., Place de la Concorde, Paris, and from an early hour on that day, and until a late hour on Wednesday, a crowd of enthusiasts and sightseers gathered in front of the Hotel Pastoret, watching the various racers coming up to be examined and passed. The arrival of the big Panhards caused quite a sensation, but when Mr. Grahame White drove up on a 30-h.p. Wolseley with no exhaust box, the noise was little short of alarming. Both police and custom-house officers gave their assistance to the ceremony, the former having their work cut out to keep the crowds back, and to open a clear passage for the cars to go in and out of the Club yard. One of the tests to which the cars were subjected had the object of preventing exhaust boxes being so constituted as to create dust or injure the roads. With the object of testing this, handfuls of sawdust were thrown under the exhaust and then the motor was made to run at different speeds, and if the sawdust was blown away the car was sent off to have the exhaust box altered. In this test the Mercedes cars came out particularly well, for when requested to run the motor gently they were able to do so without any effort or noise, indeed, it was almost impossible for the bystanders to tell that the engine was running until, when told to increase the speed, the hum gradually developed into a roar of the powerful motor. The powerful Panhards, on the other hand, roared and puffed as if they were indignant at being forced to run so slowly.

The weather seemed to have made up its mind to favour the racers, and the sun became hotter and hotter as the day for the start neared. I met Mr. C. Johnson on the steps of the A.C.F., and had a chat with him on the prospects of the English team, and attracted by the thunder of artillery I saw Grahame White drive up and complete the English Wolseley trio—White, Austin, Callan, with the three rakish looking cars, grouped together. I could not help being struck, however, by their appearance, both cars and drivers showed unmistakeable signs of unreadiness.

The drivers looked as if they had just come in from trial runs and were not quite satisfied with the results, and I was not surprised to learn at Belfort on Thursday that only one started.

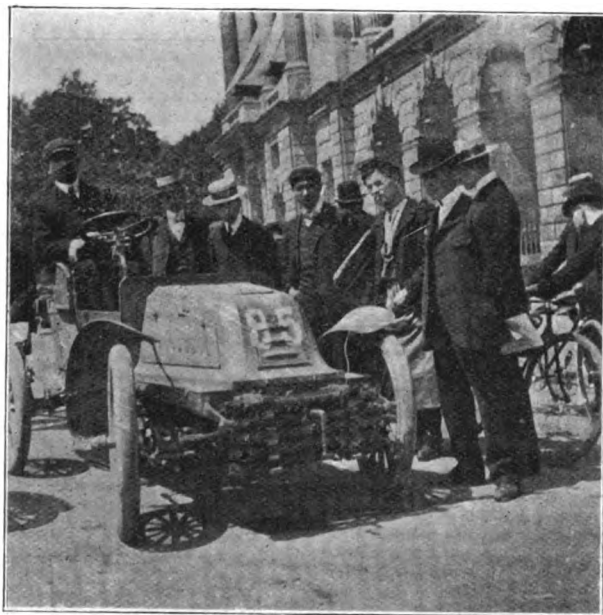
Wednesday evening was bright and clear, and as I was crossing the Place de la Concorde to gain my berth in the special train organised by the A.C.F. to follow the race, the moon was rising over the Tuileries Gardens, and the scene was quite enchanting. Already motor-cars and bicycles were beginning to stream out towards Vincennes, and on the Boulevards, as the night grew on, the blaze of the Bleriots as they rushed by was quite picturesque. On the platform of the Gare de l'Est I found Messrs. Emile Mors, Gaetan de Knyff, Darracq, Armand Peugeot, Falconnet, the Brothers Michelin, Serpollet, and quite a host of others whose names are household words in the motor industry in France.

At 2.45 a.m. on Thursday the train moved off and proceeded to Nogent-le-Perreux, where a stop was made to enable the passengers to see the first cars start. Here, however, the organisation of the train was at fault, for, to everyone's surprise, it was discovered that the starting place on the Champigny road was nearly two miles from Nogent, and at the top of a very steep and roughly paved hill; further, there were no conveyances to be hired, and only three-quarters of an hour to get there and back. However, we made the best of a bad job and used Shanks' pony to good effect. It was a lovely morning and the birds were just hailing the dawn when we set off on foot in the direction of Champigny. The cars were all drawn up in a long line on the road, with the Gordon-Bennett defenders and challengers in the front. At the last moment the Wolseley cars were withdrawn from the challenge for the Cup, on account of the coils for the sparking arrangements being faulty, and of the impossibility of replacing them by coils of English manufacture. The challenge for the Cup was therefore left in the hands of Mr. S. F. Edge on his Napier car, and the defence was in the hands of Fournier on a Mors, de Knyff on a Panhard, and Girardot on a Charron-Girardot-Voigt.

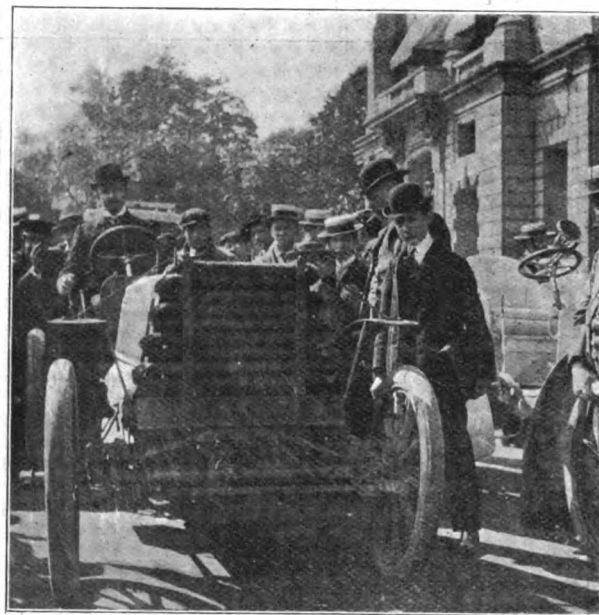
Girardot, being the holder of the cup, started first at 3.30, followed by Fournier at 3.32, Edge at 3.34, and Rene de Knyff at 3.36.

The first day's history of the Cup was short and sharp. Girardot was soon *hors de combat*, Fournier broke his starting gear beyond Chaumont, and left Knyff the lead, which he maintained throughout the run to Belfort. Edge fell back into the ruck, and had constant difficulty with his sparking coils, which were defective, but on account of the breakdown of two out of three of the defenders, he remained de Knyff's sole competitor for the Cup.

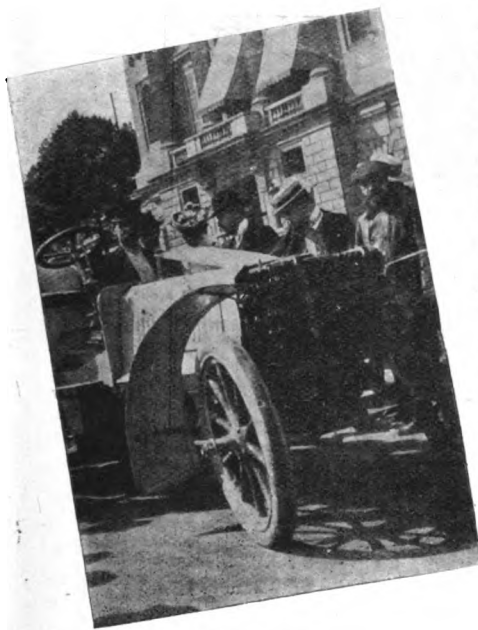
The Controle was situated about three miles out, and the road was most efficiently guarded by a battalion of the 35th line regiment, assisted by a force of gendarmerie. The Controle was at a spot well chosen on a slight rise at the foot of a steep hill, down which the cars came towards us. The road was quite straight and bordered by an avenue of trees; there was a full view of the racers dashing down the hill, and just enough rise to enable them to stop without too much effort on the part of the brakes. Along the road sentries and buglers were placed in such a manner



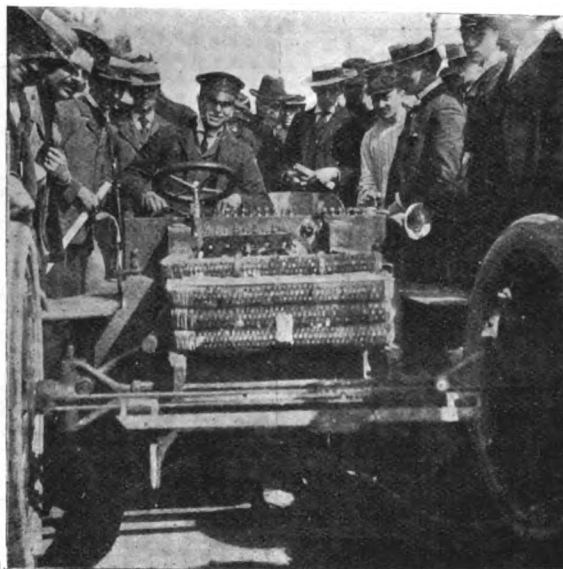
MR. D. M. WEIGEL ON CLEMENT CAR.



BARON DE CRAWHEZ ON PANHARD CAR.



M. Sabis Bey's PANHARD.



MR. GRAHAME WHITE ON ONE OF THE WOLSELEY RACERS.
SOME OF THE RACERS AT THE A.C.F.



ANOTHER OF THE WOLSELEYS.

As the special train sped on its way to Belfort we saw Fournier broken down, and he threw up his arms and made gestures to us which implied a serious difficulty. The weather could not have been more propitious, and we reached Belfort at 10 o'clock under a cloudless sky, with just enough breeze to make it pleasant. There was a rush for conveyances at the station, and I was lucky enough to get one, which was boarded immediately in a friendly manner by Gaeton de Knyff and the proprietor of *l'Illustration*.

that the cars were signalled when three or four miles distant, so as to give sufficient warning. The bugle calls were repeated along the road up to the Controle, the whole effect being quite impressive, followed by the appearance of the car as a black speck on the hill side, and then the rush down the hill and up the straight to the yellow flag.

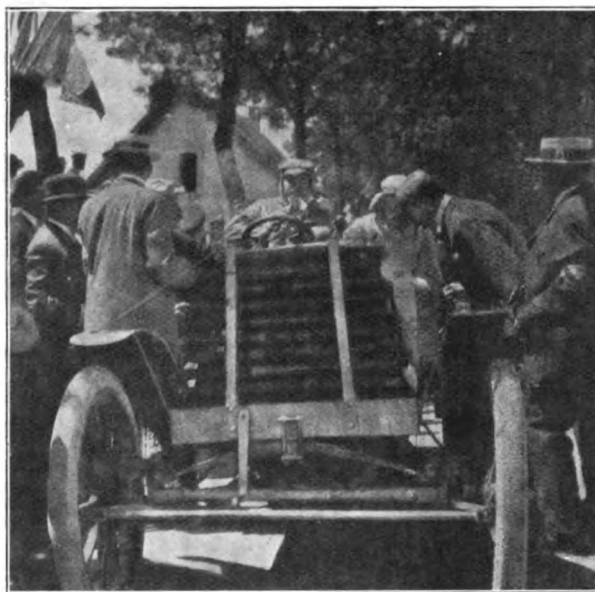
Rumours began to come in early about Fournier being in trouble, and the Mors brothers and Huillier showed signs of uneasiness, which was communicated to the bystanders, for Fournier is

a popular hero. No definite telegrams, however, came to hand, and at 10.40 the first bugle call gave notice that a car was in sight. The excitement was tremendous, and the shouts resembled those on the racecourse for horses as each one vociferated the name of his favourite. A few minutes later, at 10.47, Rene de Knyff dashed in an easy winner, and received quite an ovation. I believe that the 1902 Panhard is his conception, as far as its steel cylinders and copper water jacket are concerned, and if that is the case he thoroughly deserves congratulation, for the day's events proved it to be good practice. After nearly a quarter of an hour's

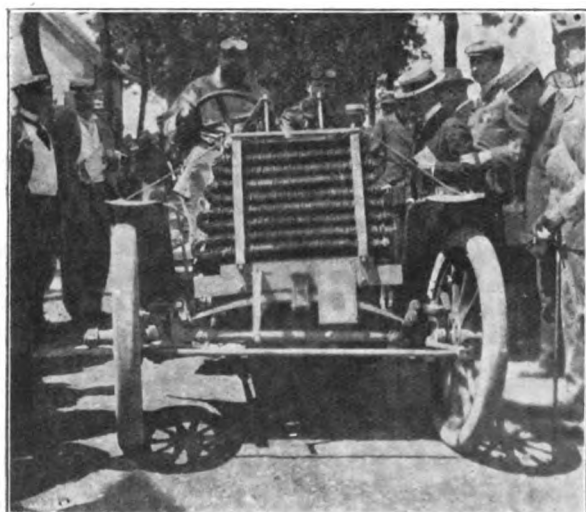
have representatives all along the road to assist and advise them. At 12.21 Baras came up on a light Darracq, and eleven minutes later S. F. Edge, with Cecil Edge as *mechanicien*, passed the Controle. Edge told me in passing that his sparking coils were giving him constant trouble and spoiling his running, which was none the less very creditable for a new car. It would take too long for me to go through the arrivals car by car, and I will therefore confine myself to giving a list of the arrivals up to 9.30 at night, and a hasty classification which I have made of the results of the day's racing, without taking into consideration the neutralisations.



LOUIS RENAULT (RENAULT).



MAURICE FARMAN (PANHARD).



R. DE KNYFF (PANHARD).



HENRY FARMAN (PANHARD).

THE ARRIVALS AT BELFORT.

pause Henry Farman came in, followed eight minutes later by his brother Maurice, on whose heels Jarrott pressed hard. Pinson and Teste came along nearly half an hour later, with only a minute between them, completing thus the solid block of six Panhards the first to arrive, and the first in the heavy category. A few minutes later Louis Renault turned up in his light four-cylinder car, and Edmond on a Darracq, though five minutes after him, beat his time by fifteen minutes. At 12.13 Zborowski turned up in his new Mercedes, having made a very good run, taking into consideration that he is running entirely on his own account and unaided by the makers, and is thus at a great disadvantage, as compared with the other makes of cars, who

RESULT OF FIRST DAY'S RACING.
PARIS TO BELFORT.

Order of Arrival.	Name.	Make.	Gross time.	
			H.	M.
Knyff	P. and L. ..	..	7	11
H. Farman ..	P. and L. ..	..	7	13
M. Farman ..	P. and L. ..	..	7	23
Jarrott	P. and L. ..	..	7	21
Pinson	P. and L. ..	..	7	47
Teste	P. and L. ..	..	7	40
L. Renault ..	Renault ..	..	7	56
Edmond	Darracq ..	..	7	41
Zborowski ..	Mercedes ..	..	7	56
Baras	Darracq ..	..	7	58
Edge	Napier ..	..	8	58

Order of Arrival.		Gross time.	
Name.	Make.	H.	M.
De Caters ..	Mors ..	8	45
Hemery ..	Darracq ..	8	09
Giraud ..	C. G. V. ..	8	41
Marcellin ..	Darracq ..	8	24
Rigolly ..	Gobron Brillie ..	8	48
Leys ..	P. and L. ..	9	08
Collins ..	Darracq ..	8	42
Wherle ..	Darracq ..	8	50
De Forest ..	Mercedes ..	9	04
Saleron ..	Georges-Richard ..	8	48
Tart ..	Clement ..	8	55
Berteaux ..	P. and L. ..	8	26
Dernier ..	Gobron Nagaut ..	9	07
Chauliaud ..	Serpellet ..	9	04
Thery ..	Decauville ..	8	43
Dechamps ..	Dechamps ..	10	08
Canard ..	Gobron Nagant ..	9	39
M. Renault ..	Renault ..	8	26
Stead ..	Georges-Richard ..	9	39
Max ..	Darracq ..	8	12
Oury ..	Renault ..	9	13
Bardeau ..	De Dion Tricycle ..	9	12
A. Fournier ..	Gobron Brillie ..	9	06
Grus ..	Renault ..	9	34
Le Blon ..	Serpellet ..	9	52
Gras ..	Dietrich ..	10	22
Osmont ..	De Dion Tricycle ..	9	27
Chauchard ..	P. and L. ..	9	21
P. de Crawhez ..	P. and L. ..	7	59
Ulman ..	Decauville ..	9	38
Mestayer ..	Decauville ..	9	38
Augieres ..	Mors ..	9	52
Axt ..	P. and L. ..	10	27
Merville ..	Dietrich ..	10	55
Camiot ..	Clement ..	10	24
Fouret ..	Fouret ..	11	27
Guillaume ..	Renault ..	9	18
Weigel ..	Clement ..	10	34
De la Touloubre ..	Decauville ..	10	22
Riviere ..	Georges-Richard ..	10	54
Lorraine Barrow ..	Dietrich ..	11	55
Heath ..	P. and L. ..	11	35
Marbay ..	Darracq ..	9	47
Vanderbilt ..	Mors ..	10	38
Lazon ..	De Dion Tricycle ..	10	34
Barberoux ..	Clement ..	9	21
Sabis Bey ..	P. and L. ..	9	23
Volatum ..	Clement ..	9	36
Jean de Crawhez ..	Pipe ..	9	02
Leger ..	Georges-Richard ..	11	51
Berrue ..	Gobron Brillie ..	10	47
Bucquet ..	Werner Bicycle ..	10	51
Coutart ..	Mercedes ..	9	9
Cozie ..	Dechamps ..	9	42
Cormier ..	Renault ..	10	34
Walcker ..	Chenard Walker ..	10	28
Labitte ..	Werner Bicycle ..	11	16
Cottard ..	Serpellet ..	12	02
Masson ..	Clement ..	12	23
Bibes ..	P. and L. ..	11	16
Georges-Richard ..	Georges-Richard ..	12	03
Riviere ..	Dechamps ..	10	28
Vernu ..	Delahaye ..	10	08
Gavaris ..	Gavaris ..	10	36
Bushillet ..	Corre ..	11	18
Rothschild ..	Mercedes ..	10	34
Durand ..	Corre ..	11	12
Podsednik ..	Laura-Clement ..	12	11
Nouquette ..	Peugeot ..	12	21
Legrand ..	Crouan ..	11	7
Page ..	Decauville ..	12	23
Bordin ..	De Dion Quad ..	12	38
Meyan ..	Dietrich ..	11	17
Deruy ..	Clement Autocyclette ..	11	23
Kirchheim ..	Eisenach ..	11	20
Olliver ..	Serpellet ..	11	38
Marot ..	Decauville ..	12	52
Gaste ..	Automotrice ..	14	22
Godard Demarest ..	Mors ..	14	01
Rutishauser ..	Serpellet ..	14	30
Passy ..	Passy-Thellier ..	14	35
Williams ..	Clement Bicycle ..	15	29
Lamy ..	Renault ..	14	29
Holley ..	De Dion Tricycle ..	13	13
Klement ..	Laurin-Klement ..	14	19
Kouplin ..	Gobron Brillie ..	14	33
Perrin ..	Delahaye ..	14	12
Savariaud ..	Motor-cycle ..	14	50

The great success of the day lies with Panhard and Levassor, who have regained, and with considerable interest, the advance which Mors took on the roads to Bordeaux and Berlin last year. To head the heavy class six times over, and to have three cars amongst the next dozen, is a record which will require some beating. Darracq takes the honours of the light cars in heading the class and having five cars amongst the first six. His whole stable of nine cars got in safely. Renault headed the voiturette class, and is second in the light cars. Bardeau, on a De Dion, heads the tricycle class. It is a Sedan for Mors, and the fates have been very unkind with this sympathetic firm. It is impossible whilst I am writing these lines to reconstruct the history of the day's racing, but the fact remains that out of nine cars only four turned up. Serpollet, as usual, got all his team in, in spite of a slight accident to the car driven by Rutishauser. At the last moment a little 6-h.p. vehicle of last year's make was entered by my friend Hubert Olliver, just to show that it could accomplish the journey successfully. Olliver only started, as No. 205, at 7.23, but he turned up smiling at one minute past seven, not having had an incident of any description. The Georges Richard Company got all their cars in, notwithstanding the fact that they have only just been put on the roads.

The scene in the town of Belfort on Thursday evening was one of the most animated, I should think, that Belfort has seen since the days of the Franco-German War. Hard by the town, and just beyond the river Savoureux, stands a most picturesque mass of rock, reminding one somewhat of that on which Edinburgh Castle stands. On the summit is a fort which held out right through the war, and was never conquered, although it was frequently bombarded. In order to commemorate the event a lion has been carved out of the rock by Bartholdi just facing the principal street, and down this street over the bridge leading to the Parc cars were rushing by all day. In the evening the streets were full of automobilists and *mecaniciens* from the hundred cars which had successfully accomplished the run from Paris. To add to these, which already numbered nearly 200, were the cargo of the special trains, about 100 in number, and twice as many fitters and helpers bringing relays of tyres, coils, accumulators, valves, etc. Add to these the automobilists who came from all quarters in their cars, and the local influx, and one will have an idea of the crowd on which the Belfort lion looked down on Thursday last week. All sorts of rumours of accidents are in the air, but I know by experience that they must be greatly discounted, as they increase in being passed from mouth to mouth.

Up to the present the only news I can get of Rolls is that his car has been seen a wreck by the roadside. Another story is to the effect that he had a collision with another car near a level crossing, and that he ran into and broke down the gates and stopped a train. One report gives him a broken wrist, but by the time this account is in print all anxiety on this subject will be allayed.

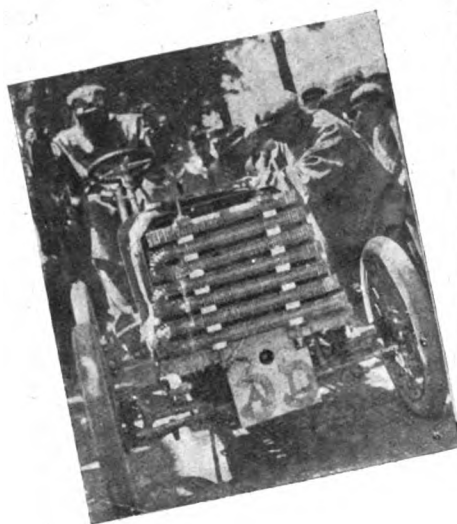
The Wolseley car, driven by Austin—the only one that started—seems to have disappeared. I have interviewed those who saw it start, and left after it, and arrived in Belfort without ever passing it.

The special train left Belfort at 11.50 on Thursday night, and crossed Switzerland during the darkness, landing us at Bregenz early on Friday morning to await the racers, who will have done a day's touring. Bregenz is situated on the eastern end of the Lake of Constance, not far from the Swiss frontier, and in Austria, in the midst of the most beautiful scenery.

The second stage of the motor race, from Belfort to Bregenz, in Austria, a distance of 120½ miles, was merely a promenade, as the run was over ground which was neutralised. The first start took place at 3.20 a.m. from the Champ de Mars park at Belfort. The cars went off with two minutes' interval between each, there being 105 starters. Baron Henri de Rothschild and

Mr. Vanderbilt retired at Belfort. De Knyff was first in at Basle, at 7.45 a.m. He was followed by Maurice and Henry Farman. At Zurich he still led, Henry Farman being second, and Maurice Farman third. The racers were stopped between Basle and Bruss, as the police of the canton considered that the cars were being driven at too high a speed. The Swiss authorities obstinately refused to allow any racing over Swiss territory. The motorists had to show almost acrobatic skill in climbing mountains, and also ran a great danger of falling over precipices. De Knyff easily maintained his position, arriving at Bregenz at 3.40 p.m., 12 hrs. 20 min. after the start. Right up to midnight cars kept on arriving, the first twenty-four being as follows:—

together that they had a collision, and both had to repair their machines. Innsbruck was the goal for the competitors for the Gordon Bennett Cup, which was held by M. Girardot for the French Automobile Club. Fournier and Girardot came to grief before reaching Belfort; and, with the collapse of M. de Knyff in the Tyrol, the race became a walk-over for Edge, who reached the capital of the Tyrol safely, after covering the 360 miles of the course for the Cup—Paris to Belfort and Bregenz to Innsbruck—in 10 hours 41 minutes. He was driving his new Napier. It is reported, however, that Mr. Edge drove his motor-car into the river near Bregenz, and obtained the assistance of a number of men to pull it out again. On this account a protest has been



M. BARAS (DARRACQ).

COUNT ZBOROWSKI (MERCEDES).
THE ARRIVALS AT BELFORT.

M. PINSON (PANHARD).

	h.	m.	s.		h.	m.	s.
Rene de Knyff ...	3	40	—	M. Renault ...	5	6	56
Henry Farman ...	3	42	12	Stead ...	5	14	—
Maurice Farman ...	3	42	13	Thery ...	5	24	54
Edge ...	3	44	38	Rigolly ...	5	28	40
Pinson ...	3	50	45	Chanliaud ...	5	31	25
Louis Renault ...	3	56	53	Dechamps ...	5	33	54
Teste ...	4	5	9	Le Blon ...	5	34	33
Leys ...	4	9	3	Chauchard ...	5	34	47
Zborowski ...	4	58	7	P. de Crawhez ...	5	44	20
Forest ...	4	59	1	Merville ...	5	59	5
Oury ...	5	4	1	J. de Crawhez ...	6	3	6
Grus ...	5	4	28	Weigel ...	6	7	1

One hundred and two cars started on Saturday morning for the third stage in the race. The course was from Bregenz to Salzburg, 211 miles, over the Alps at Arlberg. De Knyff was the first to start, getting away at four a.m., followed by Henry and Maurice Farman. Then came Edge. The run to Innsbruck was of importance owing to the Gordon Bennett Cup, which it was confidently asserted would fall to M. de Knyff. That motorist met with a mishap about 30 kilometres from Innsbruck. Part of his machinery broke down, and he had to retire. At Innsbruck the order was as follows:—Henry Farman, Maurice Farman, one minute later; and then MM. Pinson, Renault, De Caters, Baron Forest, and Count Zborowski. At the halting place at Innsbruck Louis Renault and De Caters were so close

lodged, as it is asserted that the rule against any but the occupant^s of a car moving it was hereby violated.

After leaving Innsbruck, Henry Farman still led the way for some distance, and passed Worgl first; but, in the meantime, the supremacy of the Panhards had been overthrown, as the two Mercedes cars, driven by Count Zborowski and Baron Forest had overhauled the other Panhards, and were now ahead of Maurice Farman, and consequently came in second and third, Maurice Farman's Panhard being now fourth. The fifth and sixth, also, were now no longer Panhards, but the light cars of

Marcel Renault and Edmond, a Renault and a Darracq respectively. At St. Johann, 65 kilometres from Salzburg, the two Mercedes cars had overtaken Henry Farman, Count Zborowski being now first, and Baron Forest second. During the last stretch, however, Baron Forest, on his Mercedes car, got ahead, and reached Salzburg first. The Baron, who is an adopted son of the late Baron Hirsch, was driving in a race for the first time. Henry Farman arrived second, but he still remained the leader on the whole race, as he had done the Paris-Belfort section quicker by one hour and forty minutes than Baron Forest. Third to arrive was Marcel Renault, on his light Renault, and everyone was surprised to see that so small a car had done so well. Fourth was Count

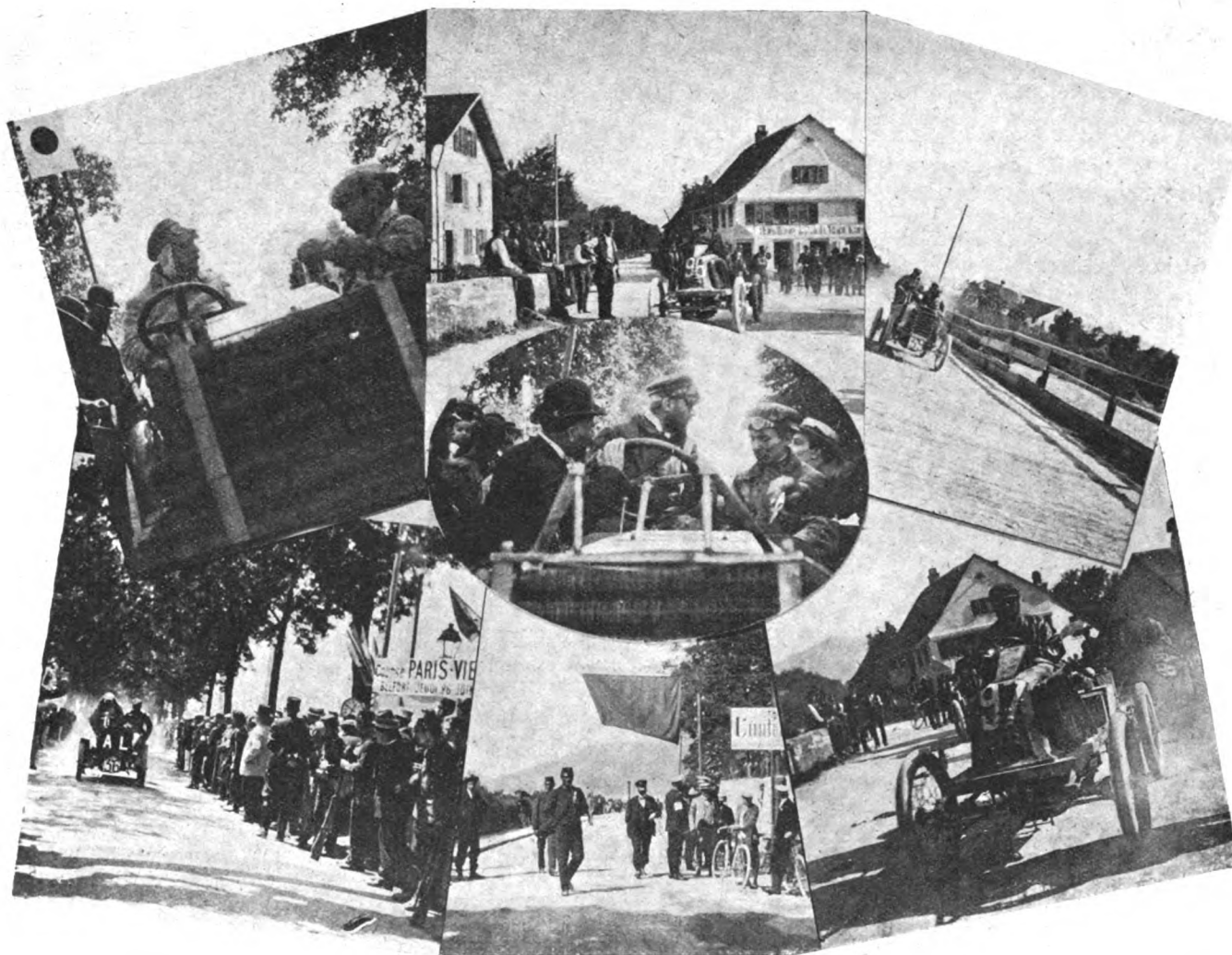


MR. EDGE ARRIVES AT BELFORT.

Zborowski, on his Mercedes, who, however, on the whole race so far, had only the second place. Mr. Edge arrived twenty-first, and was loudly cheered by the Englishmen present. About seventy motor-cars, or more than half of the 137 which started from Paris, had reached Salzburg by ten o'clock on Saturday night. The arrival of the motorists were observed by the Archduke Louis Victor, brother of the Emperor Francis Joseph, with whom were the Archdukes Leopold and Joseph Ferdinand, Count Saint Julien Wallsee, and also the Burgomaster of Salzburg and the officers of the garrison. Accidents were rather numerous on the road to Salzburg. M. Max broke down at a bridge in the Arlberg district. His car was smashed, and he was severely contused. Count Zborowski's vehicle caught fire, but he was able to extinguish the flames, and to proceed, being the fourth

		h.	m.	s.			h.	m.	s.
Hemery	...	3	52	45	Perrin...	...	4	13	40
Barbaroux	...	3	58	40	Augieres	...	4	16	25
Edge	...	4	—	—	J. de Crawhez	...	4	18	32
Dechamps	...	4	4	35	Grus	...	4	19	10
Ullmann	...	4	6	35	Rouquette	...	4	29	20
Oury	...	4	13	25	Gadars	...	4	38	35

The last day's run took place on Sunday from Salzburg to Vienna, a distance of 210 miles. An early start was made, and at Linz (eighty miles out) Maurice Farman was leading, with Forest and Edmond half an hour behind. At Melk, Edmond led the way almost neck and neck with Marcel Renault. As far as can be learnt the only accident in the day's race occurred fifty-three miles from Vienna, at St. Poelton, where Oury, on a Renault, on a perfectly straight road, ran into a field, wrecking the car and



M. PINSON (PANHARD).

M. MARCELLIN (DARRACQ).

M. GRUS (RENAULT).

M. R. DE KNYFF (PANHARD).

THE CONTROLE AT BREGENZ.

M. HEMERY, (DARRACQ).

M. OURY (RENAULT).

to reach the town of Salzburg. Fouré got into trouble with a cart at Bludenz, and other unlucky motorists were Bellamy, Jarrott, Axt, and Thery. The following list shows the first twenty-four competitors to arrive at Salzburg, the hour of arrival being also given:—

		h.	m.	s.			h.	m.	s.
Forest	...	1	34	20	Maurice Farman	...	3	12	40
Henry Farman	...	2	17	50	Koechlin	...	3	23	10
Renault	...	2	18	50	Guillaume	...	3	25	25
Zborowski	...	2	25	25	Savariaux	...	3	25	30
Edmond	...	2	33	15	P. de Crawhez	...	3	26	30
Berteaux	...	3	10	50	Tart	...	3	45	30

breaking his shoulder-blade. M. Marcel Renault passed the winning post at two o'clock precisely, closely followed by Count Zborowski, on a Mercedes. Renault, however, will probably be disqualified, having failed to stop at the controle station at Florisdorf, the suburb of Vienna on the other side of the Danube, where the final racing time was taken. Baron Forest, on a Mercedes, was the next to arrive at the outward Controle, but he ran out of petrol and was towed in. Then followed Maurice Farman's Panhard, Baras on a Darracq, Edmond on a Darracq, Collins on a Darracq, Henry Farman's Panhard, Berteaux's light Panhard, Chauchard's Panhard, M. Tart's Clement, M. de Crawhez's Panhard, and Teste's Panhard. At last a Mors arrived,

driven by M. de Caters, then a Dechamps, next a Renault, a Clement, another Mors, two Darracqs, and then Edge on his Napier. Count Zborowski, although second in the final stage, is believed to have been too heavily handicapped by his performances on the previous day to win the first place, and it is expected that Maurice Farman will attain the coveted honour, his brother Henry coming second. The decision will probably be delayed for three days owing to the complicated nature of the calculations arising out of the speed restrictions imposed in Switzerland and other places along the route. The Austrian Automobile Club received the racers in the Prater, where many thousands cheered the racers. The band consistently played the Marseillaise on each arrival, including the Belgian cars driven by Belgians, and even an English car driven by an Englishman. M. Renault, who arrived first, was crowned with an enormous laurel wreath. Count Zborowski, who arrived second, also had a wreath placed round his neck. Out of the one hundred and thirty-seven competitors who left Champigny seventy-three reached Vienna.

At a banquet given on Sunday night by the Austrian Automobile Club the French Ambassador, the Marquis de Reverseaux, in the course of a graceful little speech, made the following remarks—"Automobilism, which shortens distances, also brings peoples' hearts closer together, and cements their union. Such will be the result. I doubt not, of the present occasion, which will increase the mutual confidence and intimacy of our two nations, already characterised by so much sincere cordiality."

The following is the preliminary classification for the complete race:—

HEAVY CARS—650 to 1,000 KILOS.					
No.	Driver.	Make.	h.	m.	s.
1.	Zborowski	Mercedes	15	51	20 2-5
2.	H. Farman	Panhard	16	6	12 3-5
3.	M. Farman	Panhard	16	12	15
4.	Forest	Mercedes	16	23	57 3-5
5.	Teste	Panhard	17	4	46 2-5
6.	P. de Crawhez	Panhard	17	38	5
7.	Chauchard	Panhard	18	12	46
8.	Pinson	Panhard	18	16	34 1-5
9.	Edge	Napier	19	15	3 3-5
10.	De Caters	Mors	19	39	18
11.	Augieres	Mors	19	58	29
12.	J. de Crawhez	Panhard	20	15	23
13.	Jarrott	Panhard	20	15	52 3-5
14.	Leys	Panhard	20	26	38 3-5
15.	Sabis-Bey	Panhard	21	18	33
16.	Chanlaud	Serpellet	22	10	50 4-5
17.	Gavaris	Panhard	23	45	40
18.	Le Blon	Serpellet	23	53	23 1-5
19.	Merville	De Dietrich	24	6	32
20.	Rouquette	Peugeot	24	21	38
21.	Guders	Panhard	26	34	27
22.	Rutishauser	Serpellet	27	15	2
23.	Olliver	Serpellet	28	40	59

LIGHT CARS.					
No.	Driver.	Make.	h.	m.	s.
1.	M. Renault	Renault	15	38	32 2-5
2.	Edmond	Darracq	16	12	32
3.	Baras	Darracq	17	17	52
4.	Berteaux	Panhard	17	18	14 2-5
5.	Hemery	Darracq	17	28	28 3-5
6.	Marcelin	Darracq	17	45	18
7.	Tart	Clement	18	27	50 3-5
8.	Barbaroux	Clement	19	18	29
9.	Colin	Darracq	19	19	35 3-5
10.	Dechamps	Dechamps	19	41	26
11.	A. Fournier	Gobron-Brillie	20	10	4 2-5
12.	Dernier	Gobron-Nagant	20	13	40 3-5
13.	Weigel	Clement	21	14	16 1-5
14.	Mestayer	Decauville	21	29	42
15.	Rigolly	Gobron-Brillie	21	30	14 2-5
16.	Conrad	Gobron-Nagant	21	46	28 1-5
17.	Ullmann	Decauville	21	49	25
18.	Louis Renault	Renault	22	7	25 2-5
19.	Ribes	Panhard	22	3	36
20.	Leger	G. Richard	23	5	10
21.	Pirmez	Delahaye	23	25	11
22.	Cozie	Dechamps	24	9	11
23.	Stead	G. Richard	24	43	55 1-5
24.	Koechlin	Gobron-Brillie	24	54	50
25.	Perrin	Delahaye	25	4	30
26.	Comiot	Clement	25	45	3
27.	Kirchheim	Eisenach	26	12	45
28.	Lorraine-Barrow	De Dietrich	26	14	5

VOITURETTES.

1.	Guillaume	Darracq	18	54	50
2.	Grus	Renault	20	37	20
3.	Cormier	Renault	22	59	39
4.	Durand	Corre	26	2	52
5.	G. Rivierre	G. Richard	26	23	21

MOTOR-TRICYCLES.

1.	Osmont	De Dion	24	26	16
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MOTOR-BICYCLES.

1.	Bucquet	Werner	25	35	8
2.	Labitte	Werner	27	42	12
3.	Rieger	Laurin-Klement	31	5	29

[BY TELEGRAPH.]

VIENNA, Tuesday Night.

Marcel Renault has been declared the winner of the Paris-Vienna motor-car race. Henry Farman being second. The other placed men are—Edmond, third; Maurice Farman, fourth; Count Zborowski, fifth; and M. Teste, sixth. The decision has been received with great dissatisfaction everywhere outside French circles. Lively proceedings are anticipated to-morrow, when the judges meet to decide the result of the contest for the Gordon Bennett Cup.

THE Belgian Automobile Club is organising a "Circuit des Ardennes" to be held three weeks after the Paris-Vienna race.

MR. W. A. CROWDUS, who has been in the United States for some years, is again in London with one of his latest electric vehicles.

AMONG recent registrations of companies is that of the Motor Manufacturing Company, Limited, with a capital of £80,000 in 5s. shares.

MR. W. A. McCURD, the maker of the McCurd motor-cycle stands, has removed from Clapton to new works at 263, Stanstead Road, Forest Hill, S.E.

It has been decided that the next Liverpool Cycle and Motor Show shall take place from the 3rd to the 7th February, 1903, and will be held in the St. George's Hall.

We hear that a good list of entries has been received in the motor-bicycle section of the Catford Hill climb, which is to take place to-day (Saturday), and some keen competition should result.

At the recent Cycle Carnival at Liverpool the marshal of the procession was mounted on a 10-h.p. Rochet car, which headed the parade. Although the motor was run for more than four hours, while the car moved at the rate of about three miles per hour, with frequent stops, it did not overheat.

As already announced, the Colonial Premiers and other distinguished visitors from the Colonies are to be taken for a motor-car trip to-day (Saturday). It is proposed to drive these distinguished gentlemen to Crabtree Park, Three Bridges, Sussex, where they will be the guests of Mr. Wilfred and Lady Anne Blunt. A start will be made at 10.30 a.m. from the Hotel Cecil.

At the Scottish championships meeting on Saturday last, a three-miles motor-bicycle handicap against time was included in the programme, with the following results:—Section 1, for machines under 2-h.p., W. R. Garside, 1½-h.p., 750 yards; time, 3 min. 12 secs. Section 2, for machines over 2-h.p., C. M. Farrow, 2½-h.p., scratch; time, 5 min. 17½ secs.

At Lincoln, on Friday last week, in a two-miles race for motor-bicycles, W. H. Stones, on a 1½-h.p. Rex, won from scratch in 5 min. 7 secs.; G. J. Wilkinson, on a 1½-h.p. Stonebow, was second; and F. L. Baines' 1½-h.p. Floss was third. In a four-miles race G. J. Wilkinson did the distance (twice round Lincoln racecourse) in 8 min. 16½ secs., beating Stones by about three-quarters of a mile.

In connection with the International Tramways and Light Railways Congress, a parade of heavy motor-wagons is taking place on the Victoria Embankment. The wagons were announced to assemble at 5.30 p.m. on Friday; the 4th, opposite De Keyser's Royal Hotel, proceeding to Westminster at 6 p.m., and returning via the Embankment to the hotel, where, after an interval for inspection, they will disperse.

The Nottingham Automobile Club.



AFTER an existence of just over two years the automobilists of Nottingham and district may congratulate themselves on the good work already done by their local organisation and the prospect of an excellent season for the current year.

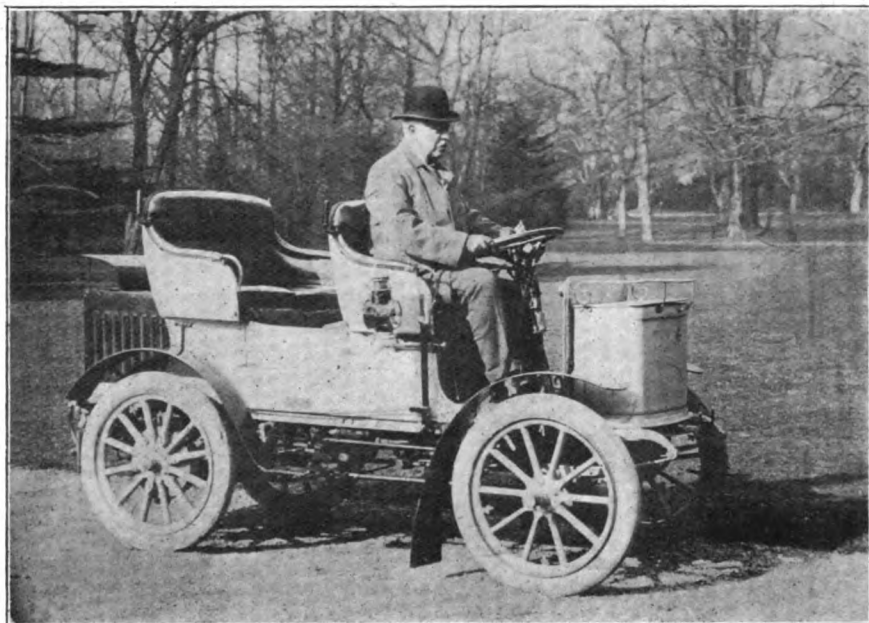
Eleven gentlemen attended a meeting held at the George Hotel, Nottingham, on October 10th, 1900, when it was proposed,

In addition to organising functions of a pleasant social nature, the committee of the Club has devoted a great amount of time to matters of importance to automobilists generally. The toll levied upon motor-cars crossing Gunthorpe Bridge has been reduced, owing to action taken by the Club, from 2s. to 1s. for the return journey, while the legal defence of three members was undertaken by the Club's solicitor, Mr. C. E. Welles-Lucas, and in two cases with successful results.

Since the inaugural meeting the membership of the organisation has grown from eleven to sixty-six. From a rough calculation, rather under-estimated than otherwise, it would appear that the members of the Club have invested no less than £15,000 in motor-cars, and this amount is being added to every month.

In conclusion we may mention that the headquarters of the Nottingham and District Automobile Club are at the Black Boy Hotel, Nottingham, and that it now numbers among its members the Earl of Harrington, while the committee consists of Messrs. M. Ross Browne, R. Cripps, R. Harbidge, S. Harvey, H. Rimington, T. Sharp, W. D. Wells, and B. W. Winter.

It is very satisfactory to know that the members of the Nottingham Automobile Club get along extremely well with the police. In fact, as Mr. A. R. Atkey wrote to the Press a few days ago, "The thanks of all automobilists are due to the Notts police authorities for the great consideration and kindness shown to them as long as they drive their vehicles with regard to the safety of those using the highways, and there have been no vexatious proceedings taken by the Notts police such as have justly annoyed and exasperated automobilists elsewhere."



THE PRESIDENT, MR. R. MILLINGTON KNOWLES, J.P., ON HIS SERPOLLET.

seconded, and unanimously resolved "That an Automobile Club be formed in Nottingham." No time was lost; by the 6th of the following month rules had been drafted and submitted to a meeting of members. Mr. R. Millington Knowles, J.P., was elected President, and has continued to serve the automobile movement in that capacity ever since. In addition to being a J.P. for the county of Nottingham, Mr. Knowles represents his district on the County Council. It was equally fortunate for the Club that Mr. A. R. Atkey was selected as the first Hon. Secretary and Treasurer of the Club, for he has been assiduous, tactful, and progressive in his efforts, with the result that, supported by a good committee, he has been able to do useful work and secure a steady advance in the strength and influence of the Club.

In January, 1901, the first annual dinner was held, and that was followed by a useful series of lectures and discussions. Mr. E. P. Hooley, the surveyor to the Nottinghamshire County Council, suggested a demonstration to the Incorporated Association of Municipal and County Engineers, whose annual conference was held at Leicester in May, 1901, and the result attained exceeded the sanguine hopes of the promoters of the trip. Several capital trips have been held under the auspices of the Club, the more notable including a run to Ringwood Hall, by invitation of Mr. T. Bayley, M.P., one of the vice-presidents of the Club; a hill climb at Kettleby Hill, near Melton Mowbray; and a visit to Colston Bassett Hall, by invitation of the President.

A NEW automobile club has just been formed at Nice. It will be known as L'Auto Democratique.

THE triumph of the Serpollet steam car in the recent Nice contests recalls the fact that the first automobile race ever run in France was won by a steam vehicle in 1894.



THE HONORARY SECRETARY, MR. A. R. ATKEY, ON HIS DARRACQ.

CONTINENTAL NOTES.

ROYALTY in every country in Europe are becoming fervent devotees of the motor-car. The accompanying illustration shows the Prince Royal of Hohenzollern in his Cudell light car, on which he recently made a tour from Potsdam to Spandau and other parts of Germany. The Prince was present at the dinner given in connection with the late automobile exhibition in Berlin, and in the course of a short speech expressed his firm belief in the great future the automobile industry has before it.

THE Association Generale Automobile, of Paris, has decided to take part in the 650-miles trial which is to be held by the A.C.G.B.I. in September next.

A STATUE to the memory of the late Herr Gottlieb Daimler has been erected in the garden in front of the Daimler Villa in

VIENNA was reached by the tourists' section of Paris-Vienna on Saturday last. The motorists had some compensation for the rain in the early part of the run, as the weather became fine, and they were able to enjoy the splendid scenery of Switzerland and the Tyrol. Before getting in Vienna they stopped for a *dejeuner* at Semmering, where they fraternised with the members of the Austrian Automobile Club.

ENGLISH motorists contemplating a tour on their cars in Germany would do well to procure a copy of the "Automobil Reisehandbuch fur Deutschland," which has lately been issued by Herr Carl Bohl, of Eisenach. The work, which has been compiled with great care, does not claim to be a guide-book to the places of interest to be visited. This information can be gathered from the ordinary guide-books; its purpose is to afford the touring motorist information as to the hotels, motor repairers, and depots where petrol and lubricating oils are stored in all towns—large and small—in Germany. There is no difficulty in referring to any town, they being given in alphabetical order.



THE PRINCE ROYAL OF HOHENZOLLERN ON HIS CUDELL CAR.

[Allgemeine Automobil Zeitung.]

Cannstatt by the Wurtemberg Engineers' Society. The statue, which was uncovered with some ceremony a few days ago, consists of a granite block, in which is set a bronze relief of the "father of modern automobilism."

THE municipal authorities of Spandau, near Berlin, have lately established a plant on the banks of the River Havel for the charging of the batteries of electric motor-cars and launches. The station will be open day and night.

ON the return from Vienna M. Serpollet will visit the Shah of Persia at Carlsbad, in order that he may inspect a steam vehicle of the "Easter Egg" type.

THE Military Budget of Switzerland for 1903 includes a sum of £800 for the purchase of a motor-car to be used in instructing officers in the driving of automobiles.

in bold type, the list extending to over 500 pages. The work, which includes a list of the various automobile clubs in the country and a map of Germany showing the main roads, should form a useful addition to the reference books of the touring motorist. If I might make a suggestion, it is that in future editions a useful page might be added showing the Customs regulations with regard to the admission into Germany of the motor-cars of foreign tourists.

ON Tuesday motor-cycles were admitted to Hyde Park for the first time, and a good many motor-bicyclists availed themselves of the new regulations.

SEVERAL roads in South London are to be avoided just now by motorists having respect for the condition of their tyres. Stamford Street, Lambeth, and Bedford Road, Clapham, are two thoroughfares which are in a very bad state, and there is a similar stretch of abominable surface on the road running by Kennington Park.

A MOTOR CHAT WITH AN ENGINE-DRIVER.

THE other evening, while waiting for a train at one of the London termini, I spent a few minutes in chatting with the driver of a locomotive which had just come to rest after a non-stop run of about eighty miles. The conversation was begun while the driver was down with his lamp examining the lubricators of the bearings of the wheels of the huge tender, by my putting the question as to whether the bearings ever ran hot. "Run hot! You should see them fire sometimes," was the ready response. Between the bearings of a locomotive and those of a motor-car there is much affinity, and the latter always occupying a prominent place in our minds, it was not a difficult matter to turn the conversation on to the subject of automobiles, and I was agreeably surprised to find the engine-driver ready and willing to talk "motor" as long as time would permit.

"If there is one thing I wish for," said he, "it is that some day I shall be able to own a motor-car. Only yesterday, when running my engine in a district—a long way from London—where the road lies for a mile or so parallel with the line, a motor-car came along, and its driver apparently tried to race me?"

"Did he pass you?"

"No, but he had a powerful machine, and I had to put in all I knew to keep the locomotive ahead."

"What is your top speed?" was my next question.

"On certain parts of the line I can do eighty miles an hour, but this is only for short distances. My longest non-stop run is about 110 miles. The tender, however, holds sufficient water for 150 miles."

Having had a short innings at questions, it was the driver's turn, and he opened the ball by asking, "How far can a motor-car run without a stop." And when I mentioned that a motor-car had just been driven from Edinburgh to London, over 400 miles, without a stop, his eyes sparkled with delight as he remarked, "I should have liked to have been on that trip. That is something like a run! By the way, what is this big race in France that the daily papers are making such a lot of?"

"Do you mean the Paris-Vienna race?"

"Yes; I hear that some of the cars can run at 75 miles an hour. Is that so?"

"A motor-car has been driven for a short distance at a speed equal to that rate, but although some fast times are expected in the race it is hardly possible that the average speed will be so high."

"They must be beautiful pieces of work, those fast racing-cars, and the drivers must have plenty of nerve," was his next remark, which, curiously enough, was made in a somewhat envious sort of tone.

"Beautiful is hardly the word, but you engine-drivers have the advantage over even the expert motorist."

"Why?"

"Because you can make all your little adjustments, see to the lubrication, etc., without having a gaping crowd around you, whilst the poor motor-car man has often to do his in public, amid such exclamations as 'Another motor-car broken down!'"

"Oh, don't talk about the British public," was his quick response. "I have no patience with it."

"You have another great advantage over the motor-car driver?"

"What is that?"

"Well, while keeping an eye on the signals you can let your engine have 'full steam.' On the other hand the poor motorist has to keep his eye for men in blue hiding behind hedges."

"Yes, I know all about that. Every week, when I read that long list in the *Motor-Car Journal* of people fined for furious driving, I say to myself, 'What a beastly shame!'"

And then the engine-driver let himself "go" on a variety of topics.

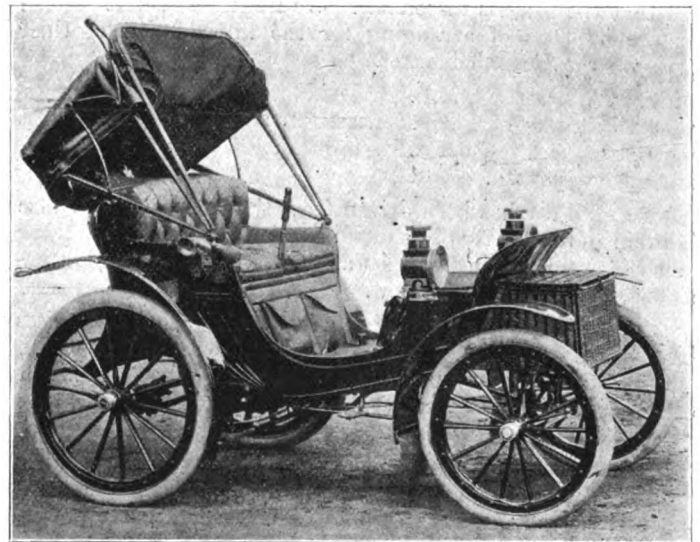
"I never saw such a conservative lot of people. If I had a motor-car, and saw a clear country road, I should let her 'go all out!' And why not? I don't agree with fast driving in busy towns, but in the country what harm can be done in running fast if you want to? The King does, and why can't everybody else. You can never satisfy everyone. Even in engine-driving there may be three or four hundred passengers on the train who like 'speed,' and yet I often find that there is one nervous body who thinks it his duty to write to headquarters to complain of my driving too fast!"

Just then the signal dropped, and the driver had to clamber up on to his engine and steam away. As it ran slowly by me, he leaned over the side, wished me "Good night," and added as a final leave-taking, "I hope to have a motor-car some day."

PHANOMEN.

THE DUST NUISANCE.

NOW that we have once more a sight of the sun, the dust nuisance is again making itself felt. Various suggestions have been made with a view to overcoming it, so far as the occupants of the car are concerned, and it is generally conceded that something in the nature of a screen is required which will cut off the passengers from the cloud of dust which follows the car, and many devices of a certainly not elegant order have been fitted from time to time. The accompanying illustration shows a dust-preventing arrangement which is now being fitted upon all Duryea Power phaetons. All these cars are provided with a light folding top or hood, and the device consists



in the insertion of a folding stiffener in the rear section, so that the hood may be folded back with the top half up as shown, thus providing a screen higher than the passengers' heads between them and the dust. When not required, the hood may be folded right down in the ordinary way. By putting on the detachable side curtains—not shown in the illustration—the sides may be also closed in, and a still more perfect bar to the dust provided.

IN consequence of the death of a near relation at Scio, Putney, Mrs. Mark Mayhew's "at home," which was to be held on Wednesday last, was postponed.

ON Friday last week, the employees of the Wolseley Tool and Motor-Car Company, Limited, took their annual outing, over 400 travelling by special train to Ashbourne (Derbyshire), where a very enjoyable day was spent.

MOTORING visitors to Henley next week for the Regatta will be interested in the knowledge that Mr. J. A. W. Ratty, of Duke Street, has arranged for the storage of motor-cars by the river.

HERE AND THERE.

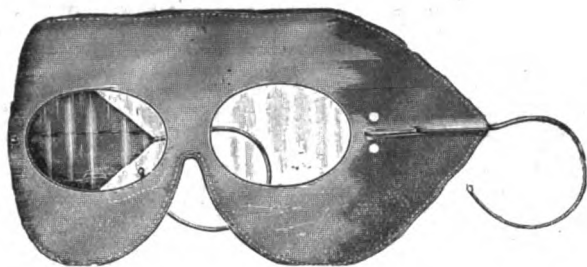


WE understand that the Raglan Cycle Company, of Coventry, have decided to place a motor-bicycle on the market.

WE learn that a 2½-h.p. Aster motor, specially designed for use on motor-bicycles, is about to be put on the market.

MR. A. DUNHILL, of Euston Road, N.W., and 2, Conduit Street, W., has been appointed sole British agent for the motorists' clothing made by Messrs. Strom, of Paris.

MESSRS. MERZ BROTHERS, of Bockenheim, Frankfort am Main, who are manufacturing spectacles and goggles for motorists and cyclists on a large scale, have sent us a sample of their special motor goggles, of which an illustration is given herewith. The metal frames, which are nickel-plated, are provided with a half-



mask of drab-coloured silk, which fits close to the face, while the supporting ends, which fit over the ears, are rubber covered. Altogether the goggles appear to be well made, and it may be added that the price is reasonable. We understand that Messrs. Merz are desirous of arranging for the introduction of their goggles on the English market.

MR. F. W. WILSON, M.P. for Mid-Norfolk, is the latest accession to the ranks of Parliamentary motorists, he having just purchased a De Dion car with tonneau body from Mr. A. F. Garnham, of Ipswich.

AN Argyll car has been driven from the General Post Office at Edinburgh to the City of London in 21½ hours, a start having been made from the Scotch city at 2.30 a.m., and the destination being reached at midnight.

IN the outside decoration of the Automobile Club's premises in Piccadilly, over 200 Bleriots were used with much effect. These have now been removed, but will be put back again when the general illuminations take place.

WHAT is probably the largest motor vehicle ever built in America has just been completed by the White Steam Vehicle Company, Indianapolis, Ind. The vehicle has a carrying capacity of about five tons, and has engines of thirty-five horse power. The platform is 25½ feet long and eight feet wide.

Punch has a rival in *John Bull*, the new comic paper edited by Mr. A. W. à Beckett. Evidently with a desire to be up-to-date a picture of a lady driving a motor-car is given, as well as one of a lady in the sedan chair of a couple of centuries ago. *John Bull* is anticipatory; and "Her Highness Woman!" in an air-ship is a pictured prospect of some merit. That woman was angelic has often been told; probably her travel in an air-ship will give confirmation to this rumour, which has had a wide circulation since the days of Eve.

WELL printed and interestingly written comes a guide to Evesham from Messrs. W. and H. Smith, Ltd., of the local *Journal* Office. Within a hundred and twenty pages the author, Mr. William Smith, gives a synopsis of the history of the locality, and points out the many delightful districts within an easy distance of the place. A valuable feature of the book, which is embellished with some really artistic photographs, are the routes given to Cheltenham, Winchcombe, Stratford-on-Avon, Moreton-in-Marsh, Worcester, Tewkesbury, Malvern, Henley-in-Arden, and the pleasure towns in the vicinity.

THE formation of an Ulster Motor Club is the latest suggestion for Ireland.

MOTORING officers in the Italian army have now been officially authorised to wear leather coats.

MANY of the Derbyshire roads are now under repair, a fact of interest to motorists touring the Peak district.

FROM the Ateliers Linon, of Ensival-les-Verviers, Belgium, we have received a copy of the catalogue of Linon cars, which range from 3½ to 16 h.p.

THE Motor Traction Company inform us that they are now making room for new Boyer stock, the new cars being fitted with a motor of the Herald type.

WE hear that Dr. Lehweß and Mr. Kennard—the latter being the gentleman who took the place vacated by Mr. Morgan-Browne—have reached Cologne with *La Passe Partout*.

MESSRS. A. DOUGILL AND CO., LTD., of Leeds, are the Yorkshire agents for the Dechamps and Lux cars, and are now making a feature of petrol motor drays for furniture removers and other trades.

W. R. McTAGGART, Ltd., has been registered with a capital of £5,000 to acquire the undertaking of Mr. W. R. McTaggart, motor-car agent, etc., at Grafton Street, Dublin. That gentleman and Mr. H. Nicholls, of Handsworth, Staffordshire, will be the first directors of the concern.

THE War Office is steadily acquiring quite a stud of motor-cars, and has just placed an order at Lowestoft for a Brooke car. This has been fully described and illustrated in our columns, and attracted much attention when shown at the Motor Car Exhibition at the Agricultural Hall.

THE Regent Street Garage, Limited, which has opened a garage having a capacity of 150 cars at 151A, Regent Street, London, W., has sent us a copy of the list of charges it has just issued. The storage terms range from 1s. 6d. per day to £30 per year. A staff of washers and repairers is employed, while a large stock of petrol is kept on hand.

THE accompanying illustration shows Mr. Raymond Dennis, of Guildford, driving one of the Dennis 8-h.p. cars to the Hog's Back, for its test run. All the vehicles turned out from the



Guildford Works have to carry a full complement of passengers up this hill, which has a gradient of 1 in 8, and are afterwards tested for four hundred miles before being passed into the paint shops for finishing.

CORRESPONDENCE.

MOTOR-CARS FOR SOUTH AFRICA.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As this country settles down after the war there is sure to be a demand for motor-carriages and public service vehicles. To our mind, one of the main difficulties will prove to be the trouble experienced even now in the importation of petroleum spirit. We are importing this from New York by steamer, paying freight at 115s. 6d. per ton of forty cubic feet (deck cargo rate). With duty and other charges added, the landed cost is about 2s. per gallon. By the last mail our New York agents informed us they were experiencing considerable difficulty in making shipments, one of the steamship lines refusing to ship petroleum spirit at any rate. If this is going to be the policy of the shipping companies there will be little scope for the motor-car out here. It may, however, provide an opening for the introduction of a good steam-car using ordinary petroleum as fuel, for there is no difficulty whatever in obtaining this fuel at any town or village in the country.—Yours truly,

A HARGREAVES AND Co., Limited.

Port Elizabeth, South Africa.

DOCTORS AND MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In order to answer a question that is constantly asked me by my friends, I venture to send you some details of my experience with motor-cars. I am using a light petrol car of last year's make, and since September 16th until the middle of May I have run it 2,600 miles. I have used the car in my daily work, and it has been out nearly every day except for one month while I was in ill-health and not able to use it. My total expenditure for this time has been £26 15s. This includes an extra tyre that I still have, and that has not been on the vehicle; also the repairing of the front of the car after I was run into by a horse-drawn vehicle. Subtracting these last two items from the total leaves £20 6s. for the actual running expenses for 2,600 miles, or 1·87d. per mile. I have used 120 gallons of petrol, 2 gallons of cylinder oil, and 1 pound of cup grease.

I bought my car without a guarantee of any kind, yet I have never had any difficulty in having parts supplied by the manufacturers. I have had my troubles—so will everyone—but more of them were my own fault than the fault of the car.

The last year I used horses in my business I kept an account of every penny spent, and I find by comparison that my car has done the work of two horses at an expense of about two-thirds of what it cost me to keep one horse. So that in my work it has been a success financially as well as enabling me to do my work in about half the time I did when using a horse.—Yours truly,

MEDICUS.

THE UCKFIELD INJUSTICES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I shall be glad to know if the possibility of forming an Auto mobilists' Protection Society has occurred to any of your readers. The sole object of the society would be to defend its members from police persecution and unjust fines. Competent lawyers should be appointed to uphold the interests of the society and watch all cases brought against members. If satisfactorily proved that any member was unjustly fined the society would pay the amount and costs (or as much as funds will permit). If the majority of automobilists will give their support sufficient funds should be forthcoming to meet all expenses, and the yearly subscription need not be excessive.

I think this may be the means of dealing with the Surrey magistrates and those of that ilk, as the infliction of heavy fines on a few unfortunate individuals will not be so severely felt if we all combine together. Of course, the society would in no way countenance desperate or dangerous driving, and any member convicted of same (not on police evidence alone) should receive no further assistance from the society. I do not suggest that actions other than those brought by the police should be dealt with. I think until the twelve miles an hour speed limit is removed this society would considerably help to mitigate the present unreasonable actions and fines inflicted under a vexatious Act. I shall be happy to subscribe towards any such society formed on these lines, and should like to have the opinion of your readers.—Yours truly,

FAIRPLAY.

TO VIENNA ON A TOURING CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As you may be aware, I am taking part in the touring section of Paris-Vienna on a 12-h.p. Ader car. Except that the weather was beautifully fine the journey yesterday (June 23rd) would have been horrible, as we had no less than three mountains to climb—one 1,004 metres, another 826 metres, and the third 712 metres. Between each there was a big descent, that from the Brunig being from 1,004 metres to 437 metres at Hergisval (Lucerne). The cars, however, behaved well, and had not an excess of speed been indulged in by some of the drivers it would not have

been necessary to report that a Panhard was smashed up in a collision and that a Mercedes collided with a farmer's waggon and turned over on the road side.

It is a striking sight to see the cars as they ascend the winding mountain roads. Lake after lake is passed, and the country, with its ever varying aspect, is superb. On the next stage we shall make the conquest of the Arlberg at a height above sea level of 1,802 metres, and from all accounts we shall find the road still deep in snow.—Yours truly,

Ragatz, Switzerland.

JULIETTE LOCKERT.

LEAVING HORSES UNATTENDED.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Last Tuesday I went with Mr. Hewetson for one of his fifty runs of 100 miles. On the way home, coming through a part of the country where police vigilance on the road is becoming notorious, I took the trouble to count the horses that were left unattended on the road, the majority, as usual, being at public-houses. This was the result:—First half-hour, seven; second, six; third, seventeen; fourth, four; fifth, six; sixth, fifteen; seventh, seventeen; eighth, twenty-one; ninth, thirty-five; total, 128. It is interesting also to record that not a single constable was to be seen at or near where these breaches of the law were being committed.

On the road not one horse in a hundred took any notice of the motor-car, and of those left standing on the road not one looked up or moved. Had their drivers been there, instead of drinking at the bar, they would probably have succeeded by nervous fuss in working up their animals to demonstrations of fear.—Yours truly,

J. H. A. MACDONALD.

HORSES v. MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Permit me once more to point out the great risks we motorists run from damage caused by young and uncontrolled horses being allowed on the highways before being trained to motors. On the evening of the 27th ult. I was driving a motor-tricycle with a friend in a trailer, between Ilkley and Addingham, when we had the misfortune to overtake a young horse and rider. No sign was made by the latter that the horse was different from the rest of his kind, and we were close up when the horse stopped suddenly and commenced to back on to our side of the road, its rider seemingly making no effort to prevent it. By this time we had almost stopped, still the horse backed into the tricycle; no sooner did it touch the front part than it lashed out, one hoof catching the saddle down tube and the other the mudguard. This sent the tricycle over, throwing me violently on to the footpath; the trailer remained upright and my friend was unhurt. The rider of this brute coolly informed me it was my own fault, as I ought to have seen it was a young horse, etc. He confessed it was out for the first time and had never had a motor pass it from behind. What good these facts would have been to me supposing the kick had been delivered a second earlier, or to my friend if two seconds later, I leave to the imagination. Motorists are often accused of rushing off after they have done any damage; in my case the man rode away without offering the slightest assistance. In conclusion, I would warn fellow motor-cyclists to be extremely careful in overtaking horses with a tendency to occupy the whole road.—Yours truly,

YORKSHIRE MOTORIST.

THE GORDON BENNETT CUP.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—To most persons interested in motoring the name of Mr. S. F. Edge stands out prominently as that of "the pioneer" of British enterprise in the motor-car trade. After Mr. Edge's great success on the Continent in winning the Gordon-Bennett Cup on a car of British manufacture, I would suggest that some recognition of the benefits his performance will confer on the British motor-car industry might be made by according him a fitting reception or banquet on his return to England.—Yours truly,

J. B. KING.

MOTOR-CYCLE RACING AT PLYMOUTH.

THE two days' motor-cycle race meeting at Plymouth last week proved highly successful, and every credit is due to the Argyle Athletic Club for their enterprise. The speed and skill shown by the riders were a revelation to most of the spectators. On the Friday the two races, a scratch and a handicap of five miles for motor-bicycles under 112 lbs., drew large entries, each event being divided into four heats. The five miles scratch was won by S. T. Watson on a 2½-h.p. Chapelle, who passed the tape a quarter of a lap ahead. Leonard, on a 2-h.p. Werner, was second, and Bert Yates, on a Humber, third—time, 8 mins. 4 2-5 secs. The five miles handicap was won by Garrard, on a Clement, Arnott second, Leonard third—time, 7 mins. 35 secs. On the Saturday exhibition miles were ridden by Rigal, the French record rider, and H. Martin. Rigal covered the mile from a standing start in 1 min. 37 secs., which claims to beat the previous world's record (track) of 1 min. 45 3-5 secs. Martin also covered a mile, flying start, in 1 min. 25 3-5 secs., breaking his own world's record by 1-5 sec. Rigal won the five miles' scratch race after a most exciting struggle with Martin. Time, 7 mins. 39 secs. Martin secured the five miles' handicap.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	FINES.
Reading	J. Parrott, Mongewell (Oxon).	25 m. p. h.	11s. and 9s. costs.
Hareham	D. Weigel, Long Acre	Above legal limit.	£10 and costs.
"	J. Hare, Oxford St., W.	" "	£10 and costs.
Winchester	J. Orchard, Upper Norwood	" "	£5 and 15s. 6d. costs.
Salisbury	H. Cuff, Waterford	" "	1s. 6d. and 18s. 6d. costs.
Derby	T. Lewin, Twickenham	16 m. p. h.	10s. and costs.
Chepstow	W. Graham, Barry Dock	20 to 30 m. p. h.	Dismissed.
York	E. de Wilton, Bayswater	16 m. p. h.	£5 and costs.
Malling (Kent)	F. Sergerwait, Dover	25 m. h. p.	£1 and 10s. 8d. costs.
" "	E. B. Carpenter, Shoreham	Above legal limit.	£1 and 12s. 8d. costs.
" "	A. Batchelor, Frindsbury	25 m. p. h.	£1 and 11s. 8d. costs.
" "	E. W. Whitburn, Addington	Above legal limit.	Adjourned.
Huntingdon ...	T. Tutton, Coventry	22 m. p. h.	£3 and costs.
East Grinstead	Miss Schiff	28 m. p. h.	£2 and 8s. costs.
Llangollen ...	D. Knox, Llangollen	Above legal limit.	10s. and costs.
Guildford	A. H. Kilby	21 m. p. h.	£3.
"	A. Campbell Swinton	Above legal limit.	£2.
"	A. Goodwin	" "	£3.

When fined at York for alleged furious driving Ernest de Wilton said he would appeal, as he was not driving at more than 8½ miles per hour.

At the Chepstow Petty Sessions Wm. Graham, manager of the Tyne Engineering Works, at Barry Dock, has been summoned for driving a motor-car at a greater speed than twelve miles an hour at Tintern on Whit Monday. Police-constable Love stated that the motor-car passed him at a moderate speed, but afterwards shot off at a rate of from twenty-five to thirty miles an hour. For the defence Mr. Graham and Mr. Maclaren (superintendent engineer to Houston Bros., Liverpool) gave evidence to the effect that it was impossible for the car to travel at the pace alleged, as it was only geared to twelve miles an hour, and, as a matter of fact, only went eleven miles an hour. The case was dismissed.

At the Huntingdon Divisional Police Court, Thos. Tutton, of Coventry, has been summoned for driving a motor-car at a greater speed than twelve miles an hour at Brampton on June 3rd. Defendant pleaded not guilty. Police-constable Bailey said about 4.30 p.m. on June 3rd he was standing on the Brampton Road and saw a motor-car coming from the direction of Huntingdon. Witness timed it with his stop-watch, a distance of 490 yards, which was covered in 45 seconds. Witness stopped defendant, and he said the car was made to travel at eighteen miles an hour, and he was travelling at middle speed. Mr. Maule said the rate was twenty-two miles 480 yards an hour. Defendant called F. J. Birch, of Grunisborough Hall, Woodbridge, Suffolk, who said the car was one of 4½ h.p. It was delivered on January 1st, and since then witness had been fighting the makers, of whom defendant was a servant, because the car would not go. Witness had threatened the company as it had been absolutely impossible to make it go, and the company sent defendant down from the works. Defendant's object would be to show that the car could do its work, it being geared to eighteen miles an hour. If defendant could have got that car to have gone twenty-two miles an hour down the hill in question he would have given him £10. The defendant had nothing to do with witness, but he knew he was an exceedingly careful driver. The car absolutely could not go twenty-three miles an hour, and witness had never got more than a mile in three minutes out of it. The Bench, after retiring, convicted, and fined defendant £3 and costs.

ACTION FOR DAMAGES.

At the Hythe County Court, before Judge Sir W. L. Selfe, Allan Murdoch, medical practitioner, Hythe, has sued the Folkestone Motor Car Company, Ltd., for £20 for damages arising out of an accident in the High Street, Hythe, on March 31st last, whereby the plaintiff, who was riding a bicycle, was knocked off, and received certain injuries, while his bicycle was absolutely wrecked. Mr. G. W. Haines, solicitor, of Folkestone, appeared for the plaintiff, and Mr. Rutley Mowll, of Dover, for the company.

After hearing evidence on both sides the Judge said the motor-car was in fault for coming too close behind the plaintiff, and the driver admitted being only one cycle length behind, whereas he could only pull up in the length of his own car. The fact that the plaintiff was only going three or four miles an hour should have shown the driver that he was preparing to stop, and the driver should have kept a sufficient distance behind. He gave judgment for ten guineas and costs.

NO LIGHT.

At the Lincoln City Police Court, William Gilbert has been fined 5s. for driving a motor-car in that city without a light.

SOCIETE MORS v. FRISWELL, LIMITED.

In the King's Bench Division of the High Court, a few days ago, the case of the Societe d'Electricite et d'Automobiles Mors v. Friswell and Co. was heard by Mr. Justice Grantham and a special jury. This is an action brought by the plaintiff company to recover £600, the balance of an account due from the defendants for two Petit Duc motor-cars and one dogcart motor-car supplied by plaintiffs to defendants' order. The defence was that the cars were not delivered to the time arranged in the contract, and that they were not up to the proper standard of construction. There was a counter-claim for £100. Mr. Rufus Isaacs, K.C., and Mr. E. Pollock appeared for the plaintiffs, and Mr. T. Terrell, K.C., and Mr. E. Grimwood Mears for the defendants.

Mr. Rufus Isaacs, after reading the correspondence, said that the question for the jury was whether the plaintiffs were entitled to deliver the cars after June 13th, 1900. As a matter of fact, all through the year 1900, and, indeed, up to June, 1901, the defendants were giving directions as to how they wanted the cars painted, etc., therefore it was quite out of the question for them now to raise the defence they did. In reply to his Lordship, Mr. Terrell, for the defendants, said that he should rely on the pleadings for his defence.

Mr. Rufus Isaacs said that on the other point raised as to construction he should call the Hon. C. S. Rolls, who was well known in the motor-car world, and who would speak as to the completeness of the cars. Mr. Haarbleicher, general secretary of the plaintiff company, was then called, and gave evidence as to the contract made with the defendants for the cars in question. The motor-cars were up to the proper standard of construction. Cross-examined: He was not aware that Mr. Friswell had tried the two Petit Duc cars in Paris. Mr. Friswell had made from time to time complaints as to the construction of cars delivered to him.

Mr. Chas. Martin, examined, said he was foreman of the plaintiffs, employed in testing the cars. He tested the last two cars supplied to the defendants. He tested the last dogcart in July, 1900, by running it on the road between Versailles and Paris, a distance there and back of twenty miles. The dogcart ran most regularly. The starting movement and reversing gear were quite satisfactory. The brakes worked perfectly well. He tested the last Petit Duc car in November, 1900. It worked satisfactorily. Cross-examined: Mr. Friswell never tried the dogcart in question nor either of the two Petit Duc cars. The Hon. C. S. Rolls said he had taken a considerable interest in motor-cars from the commencement of their use. He examined two cars of the defendants' in Paris, one a Petit Duc and the other a dogcart. The latter started straight away, and the Petit Duc, after some dirt on the sparking plug had been removed, started immediately. Both cars ran satisfactorily. The speed of both was about fifteen to twenty miles an hour. Cross-examined: He only drove the cars for about a quarter of an hour. Mr. Alfred F. Bird, who accompanied the last witness on the trials of the cars, gave evidence as to their running well and satisfactorily.

Mr. Charles Friswell was then called, and, examined by Mr. Terrell, said he drove the dogcart in question in July last in Paris. Everything went wrong, and they had to push the car back to the works, and then witness told plaintiffs he refused to take the car. He tried the other cars in June last, and finding they were old, worn-out machines, he said he would not take them. Counsel having addressed the jury, and his Lordship having summed up, the jury returned a verdict for the plaintiffs on the claim and counterclaim. Judgment was entered accordingly.

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COMMENTS.



THE annual meeting of the Liverpool Self-propelled Traffic Association has been held at the Exchange Station Hotel, under the presidency of Mr. S. B. Cottrell. The report by the Council stated that they had approved amended terms of affiliation under which members of the Association obtained the advantages of membership of the Motor Union, in accordance with a resolution passed by the Automobile Club. They were strongly of opinion

that the Association should continue its special work on behalf of automobiles for heavy traffic. At the same time they saw no reason why, having assisted in bringing that section of the movement to a stage where it was powerful enough to develop commercially, the scope and aims of the Association should not include the interests more generally associated with the pleasure or light carriage branch. It was, therefore, recommended that arrangements be made to provide the nucleus of a club-house, and this proposal, as already announced in the *Journal*, has been advanced to a practical stage. In conclusion, the Council expressed their regret at the resignation from the hon. secretaryship of Mr. E. Shrapnell Smith, who will, however, continue to serve as a member of the Council. The report was adopted. Office bearers were afterwards appointed, the Earl of Derby being re-elected president, Sir Alfred Jones vice-president, and Professor Hele-Shaw chairman of the Council.

Motor-Vans.

RARELY have Londoners seen such a parade as took place on the Thames Embankment on Friday, the 4th inst., when a score of motor-vehicles for heavy traffic were drawn up at the Blackfriars end of the Thames Embankment, and subsequently sent as far as Westminster to demonstrate their running powers—even over such a surface as is presented by a roadway that ought to be kept in better order. The assembly of these vehicles was made to demonstrate to the foreign tramway experts who have been visiting these shores in connection with the Light Railway Congress the progress that British manufacturers are making. The huge vehicles showed no refractoriness, and they answered the call of their drivers with the dignity of a team of Clydesdales. As to their reliability there was "no sort of shadow of doubt."

Thornycrofts.

Of the score of vehicles present exactly half were of the Thornycroft type, and Sir John Thornycroft, who viewed the long row of heavy vans from the driver's seat of his Panhard car, must have felt a proud man. In fact, in the few minutes' chat we had with him he spoke as though well pleased with the show made by his firm, for not only were three new motor-wagons there direct from the works at Chiswick, but many of the vehicles sent by owners had been constructed on the Thornycroft system.

Variety in Loads.

THERE is infinite variety in the loads which motor-vans are destined to carry. That was evident as we walked along the line of vehicles drawn up on the Embankment. The firm of Whiteley sent two great furniture-removing vans—by Thornycroft and Coulthard respectively. The latter firm was also represented by a builders' lorry, belonging to Messrs. Foster and Dicksee, contractors, of Rugby, and a van owned by Messrs. Ingall, Parsons, Clive and Co., Ltd., of Wealdstone. The Motor Power Company had a motor-van splendidly finished, but presenting a rather overhung appearance at the rear, while the Foden wagon of the Ingestre Estate Works, which was on view at the Motor-Car Exhibition, was of the number on the Embankment. A firm of flour millers at Mildenhall sent their Mann's wagon; the Val de Travers Company their three motor-wagons with trailers that are so familiar in the streets of the City, and Dewar's whisky, Allsopp's ale, the Kent Jam Company's specialities, and the products of the Associated Portland Cement Manufacturers were all conveyed by motor-wagon. Messrs. Jesse Ellis, of Maidstone, sent two motor-vans, one laden with market baskets, and altogether the heavy vehicles made a brave show.

For Municipal Work.

STANDING before Big Ben half-an-hour before the procession made its way from the other end of the Embankment we saw the son of Mr. H. J. Lawson on a Motor-wheel and walking towards Blackfriars two ladies passed us driving motor-cars. Just before the heavy vans set off Mr. H. J. Lawson sped by on one of the German Daimler cars with which he once familiarised Londoners. So much for the incidental features of the display. Combination dust and water carts, owned by the cities of London and of Westminster, were a popular feature of the little exhibition, and apparently attracted most attention. This is a department in which great headway is being made, and from all we can hear we are on the eve of a great development, so far as the employment of mechanical traction for municipal work is concerned.

Adoption in the North.

THE Sanitary Committee of the Bootle Town Council have brought forward a proposal to substitute steam motor traction for horse traction in the removal of ashpit refuse and the cleansing of the streets, and at the last meeting of the Council recommended the purchase of two wagons at a cost of £672 and £835 respectively. Alderman Cain proposed an amendment that it be referred back on the ground that the time was inopportune. Councillor Bell said the committee had carefully considered the matter, and if their proposal was approved the work in question would be done much cheaper, cleaner, and better than had been possible under the old horse traction system. They asked sanction to purchase a motor-wagon capable of carrying five tons of refuse, and a street-sweeping machine, which could also be used for watering the streets. The amendment was lost by fifteen votes to seven, as was also a further amendment, moved by Alderman M'Murray, that the word electrical be sub-

B

stituted for steam motors in the recommendation. The original minutes were then confirmed; also a resolution, proposed by Councillor Bell, that the Finance Committee be directed to apply to the Local Government Board for their sanction to a loan of £1,552 for the purposes mentioned.

Llandrindod Wells.

THOSE who are contemplating a tour in Wales will find the district around Llandrindod Wells full of interest. The local District Council have just issued an attractive little guide, which shows the place to possess advantages equal to the leading Continental spas. Apart from its mineral springs, the reputation of which is steadily extending, Llandrindod is the centre of a most charming country, as a glance at the illustrations in the booklet referred to proves. Already motorists are being looked after in the town, Mr. T. Norton, of the Great Western Motor Works, being well equipped to undertake repairs of all kinds, keeping also a stock of petrol and motor accessories. Mr. Norton is also catering for the visitors to the Welsh spa by running a Daimler wagonette every afternoon to the Elan Valley, where are located the Birmingham waterworks.

The Scottish A.C.

ON Saturday the members of the Eastern and Western sections of the Scottish Automobile Club had a joint run to the Bridge of Allan, a pretty little watering place in Stirlingshire. The roads were perfect, and the weather all that could be desired. Mr. J. H. Paterson drove from Aberdeen



—a distance of 125 miles—on his Peugeot, and the Lord Justice Clerk of Scotland was present on his Delahaye. Our photograph shows the cars drawn up in front of Philp's hotel at the Bridge of Allan.

The Westerham Hill Climb.

ON Saturday, the surface of Westerham Hill (Kent) was in good condition, and interesting contests were indulged in under the auspices of the Catford Cycling Club. Of the twenty-seven motor-bicyclists who entered twelve reached the summit. There were two classes, one for machines not exceeding $1\frac{1}{2}$ h.p. and one for those exceeding $1\frac{1}{2}$ but not exceeding $2\frac{1}{2}$ h.p. E. Perks finished first in both classes, winning the first on a $1\frac{1}{2}$ -h.p. Singer and the second on a $2\frac{1}{2}$ -h.p. Singer, his respective times being 2 min. 16 2-5 sec. and 2 min. 7 3-5 sec. H. Martin, on an Excelsior $2\frac{1}{2}$ -h.p., rode up in 2 min. 9 sec., and J. Leonard, on a Werner $2\frac{1}{2}$ -h.p., in 2 min. 10 1-5 sec. The gold medal offered by the *Motor-Car Journal* in connection with the contest for the lower-powered machines thus goes to Mr. Perks.

Cab Accidents to M.P.'s.

WHEN we wrote last week calling attention to the fact that within recent years no fewer than five members of Parliament have been seriously injured by accidents with horse-drawn cabs (three of them dying from the effects of the accidents), we did not anticipate that a sixth mishap would have so early to be added to the list. But the accident to Mr. Chamberlain on Monday, owing to the horse of the cab in which he was riding slipping in Whitehall, gives point to the fact that we have so often emphasised, namely, that the dangers of horse-drawn traffic in the streets of London are far greater than those associated with automobiles.

The Reading A.C.

SO rapid has been the growth of the Reading Automobile Club that the committee have decided to take a part of the new buildings recently erected in Friar Street, known as Laud Chambers, and these will be fitted up for the convenience of members. The removal will take place on Monday next, and as the new club rooms are located in a modern building in the centre of the town, and in close proximity to the principal clubs, hotels, and railway stations, they should be largely availed of by members. The Club will be open from 9 a.m. to 10 p.m., except on Sundays, and doubtless a great acquisition of strength will take place in consequence of the new movement, upon which the committee are to be congratulated.

The Motoring Season.

WITH the return of warm weather those automobilists who use their vehicles for pleasure purposes only venture out on the road again. The really warm breezes and sunny days of summer are productive of an unusual enthusiasm for all sorts of outdoor sports, and motor-cars and cycles seem to multiply spontaneously when one observes the country roads on a pleasant day at this time of the year. The passion for motoring that thrives particularly during the pleasant days of summer is not confined to those who already own cars. Many have ordered vehicles, and are now anxiously awaiting their arrival, while still others who have been contemplating the purchase of a car for some time are stirred to action by the arrival of pleasant weather, and are now placing their orders.

For Parochial Visitation.

THE clergy are taking kindly to the automobile. Recently we recorded a Sunday trip by a Bishop, and in the present issue we publish the observations of a well-known London clergyman, who has had a trial spin of a hundred miles, and is evidently a convert. There is no doubt that in the widely-scattered parishes of the country the automobile provides a useful method of locomotion, which will facilitate the parochial work of many a parish worker. Probably in a few years the motor-car will be regarded as essential to the country parson and a motor-house provided to every rural rectory.

Lincolnshire Automobile Club.

THE members of the Lincolnshire Club had a most successful run on Saturday afternoon to Asgarby, near Heckington, where Mr. George Godson—himself a keen automobilist—entertained a numerous company in his picturesque grounds. About a dozen cars took part in the spin, and some travelled long distances. Sir Hickman Bacon, Bart., of Thonock Hall, Gainsborough, the President of the Club, drove over on his Panhard. Others present were Captain J. A. Cole, Roxholm Hall (Daimler), Dr. Bridgeman, Woodhall Spa (Mabley), Mr. Cyril Nelson, Lincoln (De Dion), Mr. Holland, Boston (Progress), Mr. Cyril Greenall, Willoughby Hall (Daimler), Mr. F. W. Allbones, Grimsby (Progress), Mr. C. W. Pennell, Lincoln

(Durkopp), Mr. W. Tomlinson, Sleaford (Bardon), Mr. Richard-son, jun., Lincoln (Darracq), Mr. Coombes, Lincoln (De Dion), and Mr. W. R. Pennell, Lincoln (De Dion quadricycle). Tea was served in the shady recesses of the lawns, and between thirty and forty members and friends, including several ladies who accompanied the motorists, partook of Mr. Godson's hospitality. The weather being fine, and the roads in excellent condition, the outing was much enjoyed.

Lost Property.

A LAD has been charged at the Greenwich Police-court with feloniously appropriating a pair of field glasses found by him in the Woolwich Road. It appeared during the hearing of the case that the glasses had fallen from a car, and that the boy had run after the vehicle, but could not catch up to it—which is not surprising. Under such circumstances the lad was discharged. Many things are lost from motor-cars during the course of the year, and motorists should be careful that all such small articles as field glasses, etc., are secured to their cars or placed where they cannot jostle out.

Story of the J.P.

WE recently heard a good story instancing how one of the austere upholders of the majesty of the law was hoist by his own petard. A magistrate had recently occasion to make a hurried journey from the town in which his court was held to a neighbouring place some two dozen miles away. There was no

parts in Great Britain have reached a net total of £462,524, representing over 1,800 cars and cycles. As regards the exports of automobiles of home manufacture, the shipments during the past month amounted to twenty-four vehicles of a value of £9,573. Of parts the exports attained a value of £940, making a combined total for June of £10,513, as compared with £14,584 in May last. It is satisfactory to find that, so far as the year has gone, that is to say, during the six months ending with June, 147 British-built motor-cars and cycles have been exported, their value being roundly £60,000.

Electrical Vehicles.

COLONEL CROMPTON, having been taken to task for giving evidence against the laying of tramrails across the Hammer-smith Suspension Bridge, has vigorously defended himself in a way that all good motorists will appreciate. While there are several solutions of the problem of street traffic, not the least interesting one is that of the development of electrically-driven cars or omnibuses to take the place of our present horse-drawn vehicles. Thanks to the efforts of a few electrical engineers who have in the face of great discouragement persevered with their work, we already see considerable numbers of these vehicles running satisfactorily in the streets, and next year will see an enormous development of this use of electrical power. It is needless to point out how important it is to the electrical industry that this movement should have full scope and every possible chance of success given to it. Our electrical supply undertakings

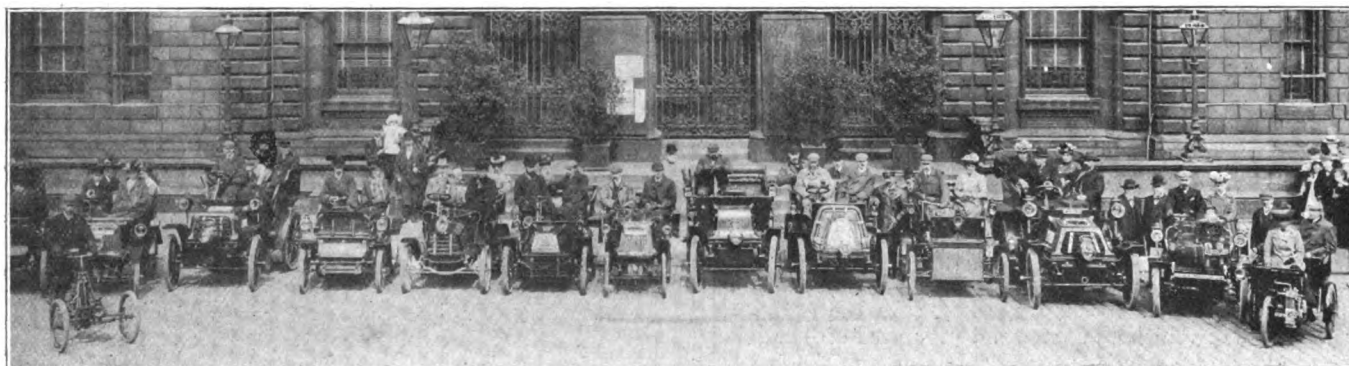


Photo by]

THE FIRST MEET OF THE NORTH-EAST LANCASHIRE AUTOMOBILE CLUB.

[Wyatt, Blackburn.

train available, so the gentleman called at a motor-car depot and asked how long it would take a motor-car to cover the distance. "Two hours and a half," was the reply. This took the magistrate by surprise, as he gave expression to the thought that the distance could be done in an hour or a little under. "Well," replied he of the motor-cars, "no doubt I could, but you fined me 40s. and costs the other day for furious driving."

Motor-Car Imports and Exports.

THE returns just issued relating to the British imports and exports of motor-cars and cycles during June last show a small falling-off in both the imports and the exports. To deal first with the imports, no less than 339 cars and cycles were imported into this country last month, the value of the same being returned at £88,446. The value of the "parts thereof" is given as £6,671, so that we get a combined total of £95,517, as compared with £104,375 in May last. Some of these imports were only of a temporary character, being re-shipped to foreign destinations. Thus last month the re-shipments comprised thirteen vehicles amounting in value to £4,000, and £250 of parts, bringing down the net imports in June to £91,264. During the first six months of the current year imports of foreign automobiles and

will benefit by the charging of these accumulator cars, which can be carried out at fixed hours of light load. The construction and simplification of the cars themselves, in the means for charging and maintaining them at the lowest possible cost, will give a wide field of employment for electrical engineers.

The Centre of England.

Now that the touring season is in full swing notes for those motorists who add to the enjoyment of their excursions by the increase of knowledge will be of more than passing interest. Much controversy has arisen with respect to many points of topography, but it is fairly well established that Land's End and John o' Groat's are the extreme points of Great Britain, and that the large oak tree at Lillington—a pleasant suburb of Leamington—is the centre of England. Warwick is, of course, the most centrally-located English county; hence it is often called the "heart of England," and it provides an opportunity for dwelling with the past that is unrivalled within an equal area elsewhere. Warwick Castle is a glorious link with the Middle Ages; Charlecote, Kenilworth, and Edge Hill are all reminiscent of stirring scenes in our national history, while the roads present such a surface that motorists should be delighted to spend days

in that county, away from the rush of busy life and with only such a companion as Ward, Lock and Co.'s lucid guide to Leamington and Warwick. This has lately been revised, and, with the plans of Warwick and Kenilworth Castles, makes antiquarian rambles easy and interesting to the average mortal whose studies are of other things than ancient stones and legends.

Burns.

MOST of us have suffered at one time or another from burnt fingers after some necessary adjustment to a hot motor. A good way of minimising the chance of this is to cover the exhaust and water pipes, in such places where the hand or arm may touch them when groping after valve-springs, lifters, and the like, with a lagging of asbestos. This may be easily applied by wetting a strip of asbestos card, cut to suitable size, and coiling it round the pipe; when dry, it will adhere sufficiently. Of course, it is inadvisable to cover the pipe more than absolutely necessary, and an alternative which is equally effectual is an open coil of stout asbestos string. While on the subject of burns it may be useful to mention a valuable remedy, perhaps not universally familiar, namely, a strong aqueous solution of picric acid. This at once removes pain and to a great extent prevents blisters, at the expense merely of dyeing the affected part, for several days, of a colour that will probably match the wheels of the car.

Ladies and Automobiles.

Now that lady motorists are becoming familiar figures in the streets and parks of the great cities, some particulars of the licensing of the fair drivers of the United States may be of interest. In Chicago, where a public examination and a license are required of automobile drivers, most women who go to take the examination are accompanied by male escorts. The applicant for license goes first to the Health Department, where the health test is imposed. This examination is to determine chiefly whether the applicant has a weak heart, and whether she may be colour blind. When a woman has passed the Health Department's test she appears at the office of the City Electrician at the appointed hour to take the mechanical examination. In such case she mentions the type of automobile which she is to run; whether it is to be steam, petrol, or electrical. Perhaps she may take the examination for all classes of vehicles, but it will be required of her that she name the kind of machine that she is to run, and the license will be issued for that kind only. If for any reason she chooses to change to any other style of automobile, she may have another license on application, at which time she will surrender the old one. Of the thirty-five women who hold automobile licenses in Chicago, about half are single women, and almost without exception all are young.

The Cart before the Horse.

SOME time ago *Punch* drew a picture of a horse proceeding solemnly behind a motor-car, as though ready to tow it in case of accident. It was regarded as somewhat of a libel by many ardent motorists, but the humour contained an element of truth, after all, for there is a vehicle in Baltimore, U.S.A., used for advertising purposes, in which the horse trots behind as though that were a position of utility instead of senseless inanity. As will be seen from the illustration we gave recently, the animal is apparently engaged in pushing the carriage, whereas in reality there is a petrol motor hidden away under the dilapidated seat of the vehicle which furnishes the power which causes the whole affair to progress. All the horse does is to occupy his foolish, useless position in the rear and submit, as best he may, to the smell of unconsumed petrol gas. The steering wheel is nothing but an ex-buggy one with the fellow ripped off. As a practical joke the vehicle is an unqualified success, but its progress through the city must be regarded as a demonstration of the foolishness of man.

Dust.

WHEN will some ingenious inventor and enterprising manufacturer combine to solve the dust question as it occurs to automobilists? If on a fine dry country road the motorist ventures to run his course fully up to the legal limit the cloud of dust which he causes is unmistakeable and annoying. There is no escape and often a pleasant automobile trip is spoiled by the travel-stained appearance of the motorists at the end of the journey. If we had a well-designed motor-car track some experiments could easily be made as to allaying the dust on roads; but in the absence of such a desideratum we suppose we must be content to go along unprotected and still assailed by the dust of the highway.

Vertical and Horizontal Motors.

ONE of the arguments frequently advanced against the horizontal form of motor is that the weight and movement of the piston cause the cylinder in time to wear oval. It would appear, however, that there is less in the argument than is generally supposed. M. Heirmann, a Belgian engineer, by simple mathematics has recently shown that in an actual small petrol motor the component normal to the cylinder surface of the reaction of the crank and the piston through the connecting rod, at a certain point of the stroke, reaches a value ten times greater than the weight of the piston. The wearing effect due to the weight of the piston is therefore negligible as compared with the wear due to the crank reaction. He states that the two effects, crank reaction and weight of the piston, bearing against the lower cylinder surface, may, in a horizontal motor, be caused to add to each other or to partly neutralise each other, according to whether the crank "turns over" or "turns under," and the tendency for the cylinder to wear oval may therefore be actually smaller in a horizontal motor than in a vertical motor.

MR. CECIL BRUNNER is now the chairman of Messrs. Foden, Ltd., of Sandbach, Cheshire.

A MOTION for an injunction to restrain motor-car races at Bexhill is now before the Courts.

DURING the months of May and June the Hozier Engineering Company, Ltd., delivered fifty-four Argyll cars.

THE International Commission in connection with the Gordon Bennett race has upheld the claim of Mr. S. F. Edge as the winner of the Cup.

THE superintendent of police at Sittingbourne has had his attention called by the local District Council to the speed at which motor-cars are driven through the town.

ON Tuesday the Duke of Connaught, accompanied by the Duchess, Prince Arthur, and the two Princesses, drove from London to the Indian Camp at Hampton Court on his motor-car.

MESSRS. JAMES AND BROWNE, the makers of the Bromn car, have now installed at their new premises at 342, King Street, Hammersmith, where in future all communications should be addressed.

AN action against Mr. W. D. Burton, of Lilford, in the Thrapston County Court, for damages to a horse and cart, caused by the animal shying at the defendant's motor-car, has been dismissed.

TO-DAY (Saturday) the members of the eastern section of the Scottish Automobile Club will hold a run from Edinburgh to Jedburgh, where afternoon tea will be taken at the residence of Dr. Blair. Among those taking part in the run of the Scottish Club referred to on a previous page were the Right Hon. Sir J. H. A. Macdonald, Professor Dawson Turner, M.D. (Delahaye), Mr. Ballantine (Daimler), Mr. Sanderson (Waverley), Mr. T. R. Outhwaite (7 h.p. Daimler), Mr. Inglis (Benz), Mr. Naismith (Stirling Parisian), Mr. Salman (Daimler), Mr. Drummond (Motor Tricycle), Mr. Adam (Albion), Mr. Norman D. Glen (Albion), Mr. Wm. Weir (Wolseley), and Mr. H. Prosser (Wolseley).

MOTOR-VANS AND THE POST OFFICE.

NOW that motor-vans are proving their value in connection with the night mail service between Liverpool and Manchester the extension of the principle ought to be speedily made. But the Circumlocution Office has not quickened its ways very greatly since Dickens ridiculed the delay of Government Departments, and an interview I have just had with one well in touch with our postal system has not convinced me of much improvement in St. Martin's-le-Grand during recent years.

"You see," he said, "we live and move and have our being in red tape; and I suppose it must be so. If an error occurs in one branch of the service its correction is a matter of perambulation from one department to another until in about a week it is remedied. Everything is made the subject of written report, and that necessary method of doing things is responsible for much."

"In the event of its being satisfactorily proved that motor-vans are economical and reliable for the conveyance of mails and parcels, how long would such a fact be in travelling from official to official until it reached headquarters?"

"That depends much on the persistency of the local authorities, but the difficulty would be to get beyond the permanent officials, who are so averse to change that it was not until two

from London to Edinburgh than it would for one from London to Brighton, so that while it may be well paid for some parcels it gains nothing on others."

"True, but surely, in the interests of the country, the Postmaster-General should consider whether he could not work the shorter distances more economically by his own motor-wagons. The principle of the Post Office carrying its own parcels over short distances was accepted by Mr. Raikes when he was Postmaster-General in 1890, for he then established the system of mail coaches running nightly from London to Brighton, Colchester, Bedford, Oxford, Reading, and Guildford. The only provincial service was between Liverpool and Manchester. For carrying 1,400 cwts. six nights a week, the contractor receives about £1,400 a year. The average speed is about eight miles an hour, and surely it would pay some enterprising motorists to make some comparison between the cost of horse and motor haulage based on the figures I have given."

Certainly, the idea is a good one, and the *Motor-Car Journal* would welcome suggestions on the subject from its readers, not only with regard to estimates of cost, but also as to towns not too distant from each other where experiments might be made. It certainly does seem strange that the Post Office people have not proved more alert in watching the progress of the automobile industry and in bringing their service to a greater effi-



D. M. WEIGEL LOOKS AHEAD.



RIGOLLY CROSSING THE BRIDGE.



OSMONT AND HIS MOTOR-TRICYCLE.

THE PARIS-VIENNA RACE.—THE ARRIVALS AT BREGENZ.

days before it was hoped the Coronation would take place that they realised no flag had been run up from St. Martin's-le-Grand. They have got into grooves, and even an automobile can hardly worry them out of their laggard ways."

"But still there must be a way of demonstrating to the chiefs of the Post Office that horse traction is expensive, and that the carriage of parcels by the railways is more remunerative to the owning companies than to the Post Office? As a matter of fact the postal authorities in Lincolnshire had arranged with a Lincoln firm of motor-car agents to convey letters by motor-car in some of the remote villages on June 26th, and had the Coronation taken place such a method would have been adopted."

"Yes, and I believe if some of the automobilists in Parliament were to unite and start a crusade in favour of the adoption of motor-vans by the Post Office, it would be the best way of securing such a desirable end. Just fancy, the Post Office collects parcels, despatches them to the railway termini, receives them and delivers them at the other end—doing, in fact, all the handling for only 45 per cent. of the postal charges, the railway companies taking the other 55 per cent."

"Yes, but that 55 per cent. is taken irrespective of the length of the journey. The company receives no more for a parcel taken

ciency while studying the economy of the department. The automobile will prove useful not only for the carrying of parcels but also for the delivery of mails in widely-scattered parishes. Under such circumstances the provision of a motor-bicycle might considerably facilitate delivery, provided the machine were given out with some sort of discretion—a quality not always associated with Government Departments. Anyhow, the idea thus mooted is worth consideration, and to draw attention to the comparative neglect of modern methods by an important branch of the public service have these lines been penned.

LOLLIUS.

A MOTOR-CAR is to be offered as a prize in connection with a bazaar raffle in Dublin early next year. In addition the winner will be taught to drive the vehicle by Messrs. Hutton and Co.

MR. E. V. WILBERN, of Cincinnati, talks of touring the world on an automobile. Travelling to New York the vehicle will be shipped to Havre. Across Europe the journey will be made to Vladivostok, from whence it will be transported to Yokohama. Thence by way of San Francisco Mr. Wilbern hopes to return home.

AN OBSERVATION.

WELL, I'm bothered. This was not the only observation that I was to make that day, which, peeping out with sleepy eyes, I discovered to be a disappointingly moist one in place of the bright yesterday that had promised so well for my self-imposed duty of the current date. For this occasion I had been accepted as the "observer" destined to travel 100 miles on the plucky little Benz car that Mr. Hewetson is driving day by day its allotted century of miles until 5,000 have been totalled. I can tell you I felt important as the volunteer chosen to represent the automobile world in its critical consideration of the staying powers of the up-to-date car that is. And this was the day surely of all others when reliability would be called in question. Here it was drizzling at 7 a.m., and evidently a day "with a past" in the night behind it. Already a vision of saturated roads and "heavy going" oppressed me. It was the day to cry off, if ever there was one. But not for me. The importance of my responsibility drew me on. To the Carlton I would go. Nine was the fateful hour. I would not fail it. Three minutes to the hour saw sloppy and deserted streets, but ne'er a car. I became a trembler for the nonce. But not for myself. For mine host I trembled lest "the native hue of his resolution were sicklied o'er with the pale cast of thought" of what a day 'twas going to be, and "lose the name of action."

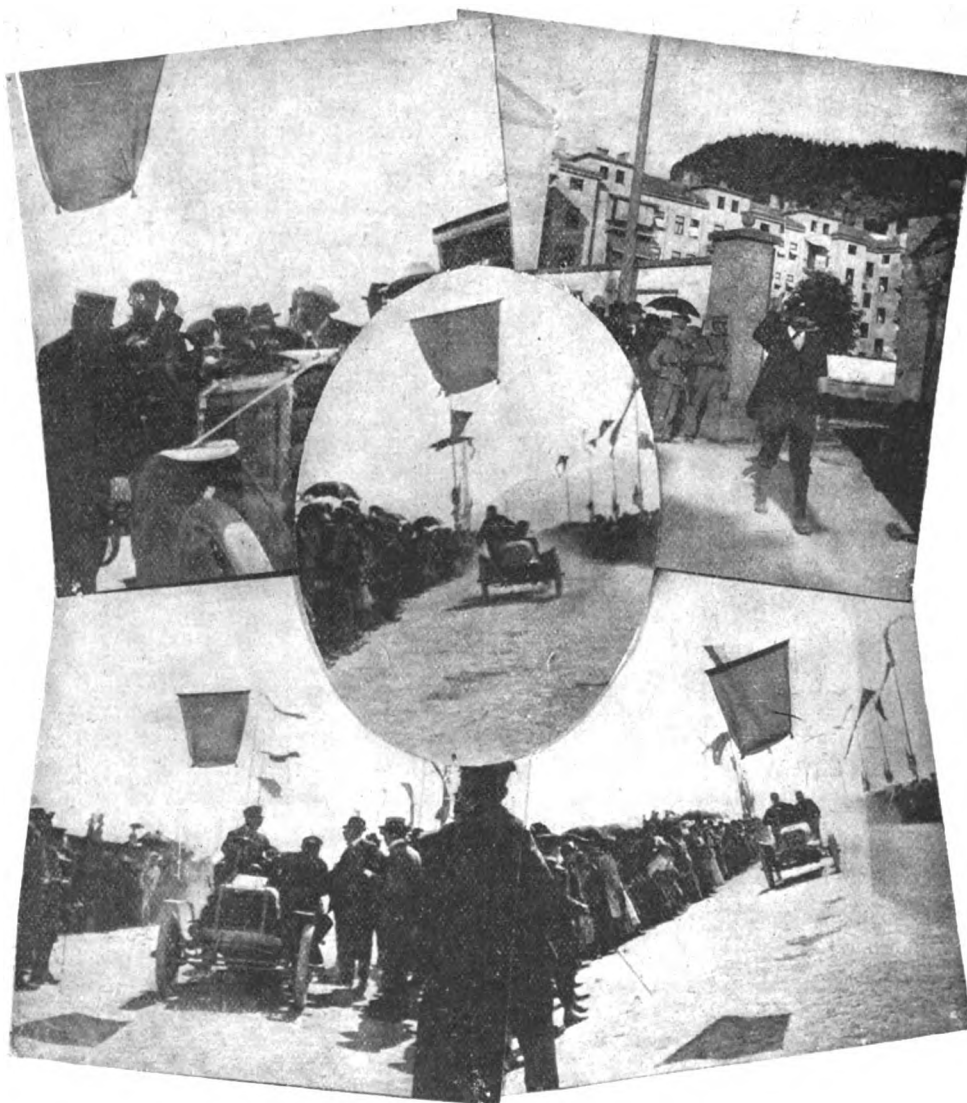
My meditation, tintured doubtless by the proximity of Her Majesty's Theatre, flies to the winds—and rain—assuddenly, silently, I open my eyes upon the vision of the little Benz car which has stolen up noiselessly alongside the curb at the striking of the hour—and here is my host. A stranger until this moment, I recognise in the cheery look of determination with which I am greeted that this is not the man to be easily daunted. There will be no "wind and weather permitting" until Mr. Hewetson sees this journey through. He has come provided, too, for the worst. In a moment I am arrayed in a mackintosh hat—own cousin to a dustman's—and then, equipped in waterproofs and ready for anything, we sally forth.

Well, I am not a professional motorist, though the ownership of an early Werner has taught me my own limitations, and the uses of adversity; but this I can say, that in the car of to-day you have (judged by experience) a carriage in which you can

ride in comfort in the foulest weather—an economical car, too, as I gathered a run of 44½ miles can be done on a gallon of petrol. However, let me briefly summarise my field of observation. We tripped merrily enough on our journey, following the route that took us through Putney, Kingston, Hampton Court, and off to Staines, thence through Bagshot and Camberley, over Hartford Bridge Flats and so to Odiham, which we made the end of our somewhat roundabout journey, and where we refreshed the inner man. Leaving again about a quarter past three p.m., without forcing the pace, we came homeward through Crondall and Farnham, over the Hog's Back (where for a while the rain ceased, leaving something of the fine view to reward our progress), and down to Guildford. Staying here a quarter of an hour to refill our petrol tank, and to have a chat, we resumed our jaunt *via* Ripley home

again, arriving in London a few minutes after seven, where, bidding my host farewell and with all good wishes for the remainder of his trips, I returned a man convinced of the reliability of the motor-car for daily usage, as exemplified in the Benz, and with a mental resolution to save up my shillings and buy one.

ARC.



THE PARIS-VIENNA RACE—SOME ARRIVALS AT SALZBURG.

THE American Automobile Association have refused a license to the promoters of the race meeting proposed to be held on Brighton Beach Track, and anyone who participates in this race will be disqualified for all races held under the rules and auspices of the Association.

THE American Society for the Prevention of Cruelty to Animals has purchased an American Daimler motor-van.

THE Sports Trading Company, Limited, Dublin, are now keeping a stock

of all motor accessories, such as petrol, lubricating oil, accumulators, batteries, sparking plugs. They are also able to undertake repairs, and have room to store two or three cars.

THE Steam Boiler Inspector of the State of Minnesota, U.S.A., has published notice that the boilers of all steam automobiles must be inspected by his department.

AFTER several months of satisfactory experiment the French Government has given exclusive rights for carrying the mails between Susa and Sfax, and between Gabes and Graiba, to the Societe des Automobiles Tunisiennes.

THE Beckenham Urban District Council is communicating with the authorities of Scotland Yard as to the alleged necessity for providing better police regulation for the motor-car traffic in the locality.

THE End of the Paris-Vienna Race.



De Knyff conferring with Bertaux.
Count Zborowski's arrival.
Leger overhauls his Georges Richard Car.

Baron Forest and his Mercedes.
C. Jarrott and H. Du Cros.
The Presidents of the French and Austrian
Automobile Clubs settling a knotty point.

Count Zborowski's welcome.
Henery's arrival.
L. Renault contemplating his wheel with five
broken spokes.

SNAPSHOTS AT VIENNA.

C

CONTINENTAL NOTES.

BY "AUTOMAN."

IN connection with the Automobile Exhibition at Turin, a hill-climbing competition was held on the road between Sassi and Superga a few days ago. The course was 2.78 miles long, and the average gradient 1 in 10. In the heavy car section, Lancia, on a 24-h.p. Fiat, was first in 6 min. Osterero, on a 12-h.p. Fiat, was the winner in the light car section, time 7 min. 7 sec. In the voiturette class the winner was Ceirano, on a 9½-h.p. car of his own make, time 9 min. 32 sec. Finally, in the motor-cycle class, Rosselli, on a 2-h.p. Rosselli motor-bicycle, came in first in his class in 9 min. 43 sec. It is worthy of note that although the competing cars included well-known French and German makes, all the winning vehicles were of Italian construction.

THE Paris-Vienna motor-car race is a thing of the past, and the hopes and fears and dangers have been realised or otherwise as the fates decreed. There are, amongst the competitors, those who are happy in success and those who are sick and sorry



HOW SOME PEOPLE PICTURED THE PARIS-VIENNA RACE.

(Des Schnaufferl, Munich.)

in failure, but it is with great pleasure that I record not a single accident to life, and hardly what may be called a serious accident to limb. A broken collar-bone at the worst—and one may judge how serious it was on learning that I saw the patient walking up and down the ring in Vienna within twenty-four hours of his accident. I refer, of course, to Oury.

AS for Max, the hero of the adventure on the Arlberg, it is true that he required a little help to get him to the special train, but I hear that he is now quite recovered. There is, however, in his case a peculiarity which I will not pass over. The question is, did Max fall over the precipice or not. Max says he did, and gives a blood-curdling account of finding the carriage first under him and then over him, but an eye-witness of the accident assures me that the car went down alone, and I am rather inclined to believe that it is an hallucination on the part of Max rather than on the part of my informant, who was a disinterested witness.

MR. S. F. EDGE deserves the most hearty congratulations on having taken the Gordon Bennett Cup across the Channel, and it is entirely due to his pluck and perseverance that this important event in the annals of British motoring has taken place. England, it was thought, was far behind France in the manufacture of motor-cars, and this was the sole reason why so many French cars were sold in England, and in other countries, and so much trade lost to England. I have pointed out again and again that until England came to the International racing field its manufacturers of automobiles were like ostriches with their heads in the sand, and would remain hopelessly behindhand, allowing the trade to pass them by.

LAST year, after the Paris-Berlin race, I strongly advised Mr. Edge in these columns to make a light car, and to abandon the heavy design with which he made plucky efforts to gain success in 1901. Continental automobilists never took the 50-h.p. Napier seriously, but I can inform Mr. Edge and Mr. Napier

that their present car has earned for itself a reputation, and for them a respect amongst Continental automobilists which will, if carefully handled, very soon be turned into £ s. d. It must be clearly understood that I am speaking purely from a Continental point of view, entirely irrespective of insular ideas and trade, which is a matter that of course does not concern me in these columns. It is certain that the Napier car is recognised since the Paris-Vienna race as a dangerous competitor to be reckoned with in the future, and should Napier bring out, as I have now not the slightest doubt he will, a light powerful 1903 type, he will find amateurs here in France prepared to purchase them. In fact, he would be able to take a place here such as is held by the Mercedes car if he continues in the direction he has begun to follow.

I HAD the great satisfaction of being the first to announce to Mr. S. F. Edge, at Salzburg, that he had won the Cup, and the first congratulations he got were from an Englishman, and I can assure him those congratulations were thoroughly hearty. I must not, however, forget the mechanician, Mr. Cecil Edge, and I think it is a great triumph of the two cousins unaided by anyone out of a workshop to have taken a new and untried car, and with it to achieve such a result.

THE A.C.B., together with the A.C. of Namur and Luxemburg, have organised a race, which will take place on Friday, August 31st, and which will be in some respects an unique competition. It is to be called the Circuit des Ardennes, and will consist of about 318 miles of good road without any considerable hills, and without any towns or villages or level crossings necessitating neutralisation. It will therefore be a race from start to finish with complete freedom and no controls except at the start and finish. The course lies through the Ardennes from Bastogne to Longlier, Habay-la-Neuve, Martelange, and back to Bastogne, a total length of about 53 miles, which will be executed six times over. The start will take place at five o'clock in the morning, with two minutes' intervals between the cars, and from the cross roads of Arlon and Neufchateau. The Control will be closed at eleven o'clock at night. There are four categories of cars, namely:—1. For cars weighing less than 1,000 kilos with two seats side by side. 2. Light cars up to 700 kilos in weight, with two seats side by side. 3. Voiturettes under 400 kilos, one or more seats occupied. 4. Tourist cars weighing less than 1,000 kilos, and with four seats occupied. Cars must be weighed before or after the race, and the weight is taken empty, without water or petrol, tools, spare parts, or ignition accumulators. The entrance fee are 100 francs in Classes 1 and 4, 75 francs in Class 2, and 50 francs in Class 3. There are prizes varying from 1,000 francs to 75 francs, and various medals of gold and silver. Should competitors wish to try the road beforehand, they must go over it at a legal rate of speed, or they will expose themselves to the danger of disqualification. The entries, with single entrance fee, closed last Saturday, but will still be received up to to-day at midnight with a double fee. Should there, however, be more than eighty competitors, the authorities reserve the right of refusing further entries, or they may perhaps decide to run the race on two days; say, for instance, one day for the heavy cars and another for the light ones. Some combination of this kind will have to be made if the entries are numerous, for, as the road is only 53 miles in length, eighty cars would make one and a-half to the mile, which will be quite sufficient from a dust point of view. There are already about forty entries, and these include Panhards, Mors, C.G.V.'s, and Dechamps. Jarrott, Edge, and Heath are entered, as also Jenatzky. The organisation of a motor-cycle class is in contemplation, but this race will be held on another day.

ON July 20th the hill-climbing trial of Laffrey in the Dauphine will take place. It is the second year of this trial, and the hill is of exceptional interest. It is situated close to the town of Vizille, and extends for 7 kilometres straight up the Alps, with a very steep gradient maintained nearly the whole way, and without any dangerous turns; there is not a single yard of level road in it, the average gradient being 9½ per cent.

MR. AUSTIN, of the Wolseley Company, must think that the fates have been particularly unkind to him. Of the three cars which were sent over to wrest the Gordon Bennett Cup from its French holders, one was shed at Paris, another a few miles along the road to Belfort, and the third in the hills of the Tyrol. Is it, however, the fates that have been thus unkind, or is not rather a warning to adopt the vertical engine? The Wolseley Company has had a run of success, and no doubt their cars have been well designed and well made, but this is the first time they have come into the open racing field, which is, I contend, the only real test of the virtue and capabilities of a motor-car, and what has been the result? Gripped pistons and broken shafts. Hurtu, Peugeot, Rochet-Schneider, De Dietrich, and others can tell the same tale,

SEVEN of the special prizes for the Paris-Vienna race have been awarded by the International Committee as follows:—The Emperor Francis Joseph's Prize: M. Marcel Renault, as driver of the first French motor-car. President Loubet's Prize: Count Zborowski, as driver of the first non-French motor-car. Ladies' Prize: Mr. Henry Farman, for having made the second-best time. This prize is the one marked No. 3 in the illustration. Prince Furstenberg's Prize: M. Marcel Renault, as the first to arrive in Vienna. Count Schonborn's Prize (No. 6 in illustration): Mr. Maurice Farman, as driver of the second heavy motor-car to reach Vienna. The Margraf Pallavicini's Prize (No. 5 in illustration): M. Edmond, as driver of the second light motor-car to reach Vienna. Only a few places in the final order



SOME OF THE PRIZES FOR THE PARIS-VIENNA RACE.

[Allgemeine Automobil-Zeitung.]

and all without exception have come to the vertical motor, and the Wolseley Company will come to it too, and the sooner they make up their minds to it the cheaper it will be in the end. Peugeot, rich, powerful, intelligent, and old-established, obstinately stuck to horizontal cylinders, much to their regret to-day, and now they have to make up for the lead that the other houses have got, for in France the question is thoroughly understood and the difference appreciated.

THE authorities of the State Engineering Works at Thoune, Switzerland, are at present inviting offers for the hire of several motor-cars, a quadricycle, and a motor lorry required for use during the forthcoming manoeuvres.

of the competitors have been, so far, officially fixed, and it may take some weeks to complete the list.

THE number of motorists in Paris is steadily increasing, one of the last *permis* lately granted bearing the number 10,010.

THE Bordeaux Automobile Club is organising a tour to Northern Spain. The start will be made on the 20th August, Bordeaux being again reached on the 26th August.

FOLLOWING the example of the A.C.A., the Chicago Automobile Club is holding a 100 miles non-stop endurance contest on the 12th instant, from Chicago to Waukegan and back.

E

MECHANICAL FLIGHT UP-TO-DATE.*

BY SIDNEY H. HOLLANDS.
CHAPTER IX.—CONCLUSION.

IT is a source of much satisfaction to the author of the foregoing chapters, as an exponent of the gospel of flight, and as one having the promotion of practical aviation sincerely at heart, to find the subject now happily attracting general and intelligent attention. It has been my purpose and earnest endeavour herein to indicate truly how we now stand in relation to matters aeronautic, and what prospect we have of further advancement, as well as to indicate generally (as far as practicable in a work of this limited scope) all that has been done worthy of note for the past twenty years or so, during which time by far the greatest practical progress has been made since the fascinating problem was first seriously thought of.

Besides these things I have, to some extent, shown the way "how not to do it," a branch of education not to be despised, particularly in that it is the outcome of experience bought and paid for. In allusion to the random talk, the extravagant deductions, the sensational "wonderment," which characterise not only the now proverbial "man in the street," but also a large section of the non-technical press, when letting "themselves loose" in the wide field of aerial navigation, a recent writer has well said:—"Fiction has supplied another factor in stimulating such speculation into one of the most fascinating departments of applied mechanics. To those, however, in possession of the natural caution which is associated with scientific habits of thought, and which is so pronounced in those who have had the advantage of an engineering training, investigation of a practical character in aeronautics has acted as a curb on the imagination, and has revealed the difficulties which encircle any such solution of the problem as that imagined by the irresponsible dreamer."

Professor Thurston, in a paper entitled "Aeronautic Engineering Materials" (written ten years ago he it noted) said:—"The problem of aviation to-day is no longer one of weight and power of motor, although it would be folly to assert that there is not much to be done in that direction. Should it prove ultimately possible to construct the air-ship and its various accessories, we may now feel sure that it will not be that hitherto apparently greatest of visible obstacles—excessive weight of motor machinery, as compared with that of the birds, which will impede progress. The problem of the hour is now, for aeronaut and aviator alike, that of the construction, and especially of the management, of the hull, and of the propelling wings or screws of the floating or the self-supporting air-ship."

It is expedient to add to the foregoing dictum of Professor Thurston, that the most pressing problem—of the sub-problems of aviation—is that of aerial stability, *i.e.*, the attainment of a practically safe degree of *automatic* stability (in both vertical planes) under all atmospheric exigencies; indeed, it may be truly said that this alone remains to the consummation of practical aviation as an every-day pursuit. We are happily well advanced in the solution of even this knotty point. I need scarcely remark that it has not been helped forward in the slightest degree by the recent inflated "airship" practice. We have had a demonstration lately (as also on previous occasions) of that vessel's playful tendency to stand on end under slight provocation.

Mr. Lawrence Hargrave, through his "cellular-kite" system, has probably done more towards the attainment (and maintenance) of stability in aerial machines than any other one man. The very encouraging success of Professor Langley in actual steam flight on a comparatively large scale; the not less well-earned successes of Mr. Hargrave with his large machine, as well as with his numerous models; and of that veteran authority and exponent of "wave-action" flight, the late Mr. F. W. Brearey, together with the very interesting and valuable experiments of Mr. Maxim (now Sir Hiram); furthermore, and although last-

named, not least, the more recent exceedingly valuable experience and practical data bequeathed to us by the late Otto Lilienthal, an intrepid able man, the sacrifice of whose promising life was a great loss to the cause, after a host of instructive and successful gliding flights, under all sorts of aerial conditions; and the work of his English disciple and successor, the late Percy S. Pilcher; also of Messrs. Chanute and Wright in America—the truly practical and painstaking work of these gentlemen collectively has served to define a new era in practical aviation.

With further reference to the recent experimental work of Messrs. Hargrave, Chanute, and Wright with their respective motorless soaring and gliding apparatus, it is more than probable that they will between them eventually, and ere long, learn sufficient about the phenomena of passive flight to be enabled to apply it practically.

Reverting to the article by Professor Thurston ("Aeronautic Engineering Materials") previously quoted from, he says further:—"Of the rarer metals, aluminium has been expected to give a great advantage, but we find it far inferior, both in itself and in all its known alloys, to the best steels."—"Steel is for general use the most promising of all the metals yet known." I would again remind the reader that these remarks of Professor Thurston are ten years old.

An alloy of 94 per cent. aluminium and 6 per cent. copper, of which a torpedo boat was constructed a few years ago, had an absolute tensile strength of only 14 tons per square inch of section, and cost 4s. per lb. Only a few years earlier than that, being then possessed with the popular belief in *pure* aluminium as a constructive material, I bought a few ounces (for which I had to pay 7s. 6d. per oz.) to make two light model motors, and I was disillusioned when I finally made a lighter structure of the model frames in thin sheet steel with equal strength. Now, however, the cost of aluminium is not only greatly reduced, but, which is of more importance in this application, much superior (lighter and stronger) alloys of it have been produced, notably the alloy with magnesium, which is actually lighter than pure aluminium, while being many times stronger. The foregoing dictum of Professor Thurston might now, therefore, well be modified. Castings of this alloy will be simply invaluable in many details of aerial machine construction.

(To be continued.)

TO-DAY (Saturday) the Irish Automobile Club will hold a run from Dublin to Blessington.

MR. J. TODD, of Brayton, Cumberland, has just made a run from John o' Groat's to Land's End on his 5-h.p. Wolseley car.

THE six Wolseley motor-cars which were to have been sent out to South Africa will now be utilised at home, chiefly in connection with searchlight experiments.

THE Massachusetts Automobile Club, of Boston, U.S.A., is establishing a country clubhouse at Heard's Island, seventeen miles distant from the city. It will have spacious grounds and include golf links and a large boathouse.

SINCE they opened their large show room at 50, Albert Gate, S.W., the Speedwell Motor and Engineering Company have found it necessary to erect larger works. These are now almost complete. The area of the ground floor is about 4,500 square feet, with an inspection pit the full length.

AT the last monthly meeting of the Aeronautical Institute and Club, held at St. Bride's Institute, London, on the 4th inst., papers were read from Dr. Charles Zimmerman, of Maryland, U.S.A., who explained his Cycala Flying Machine, and also from Mr. Alex. Adams, of Sydney, New South Wales, who laid down several formulæ for the calculation of surfaces for beating wings. At the next general meeting, on Friday, August 11th, a lecture by Mr. T. C. Blanchard is promised, dealing with "Wing Flapping Machines and Personal Flight."

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WITH THE COLONIALS.

SATURDAY last was the occasion of Mr. Wilfred Blunt's fourteenth annual sale of Arabian horses at Crabbet Park, near Three Bridges, Sussex. This is always one of the great social functions of the year, and the interest of last Saturday's event was increased by the announcement that the Colonial Premiers now in England would be driven from town to Crabbet Park by motor-car. The trip was organised by the British Empire League, at whose suggestion the Automobile Club arranged for several motor-vehicles to be at the disposal of the Colonial statesmen. In response to their appeal, many well-known motor-cars appeared in the courtyard of the Hotel Cecil on Saturday morning, including Mr. Midgley's 16-h.p. Napier, Mr. W. J. Crampton's Decauville, Mr. W. H. Kitto's 12-h.p. Gobron-Brillie, Mr. R. E. Phillips' Rochet-Schneider, and Mr. Kenealy's Delahaye. Mr. Henry Edmunds rode in on "Antrona," quickly followed by Mr. W. J. Peall on his well-appointed 12-h.p. Daimler and Mr. C. Cordingley on his 9-h.p. Napier. Mr. R. M. Knowles, whose portrait appeared in last week's *Journal*, came on his Serpollet, Captain Locock on his Wolseley, Mr. G. D. Barnes on his 6-h.p. M.M.C. voiturette, Mr. Kenyon on his Panhard voiturette, and Mr. Hewetson on his Benz car.

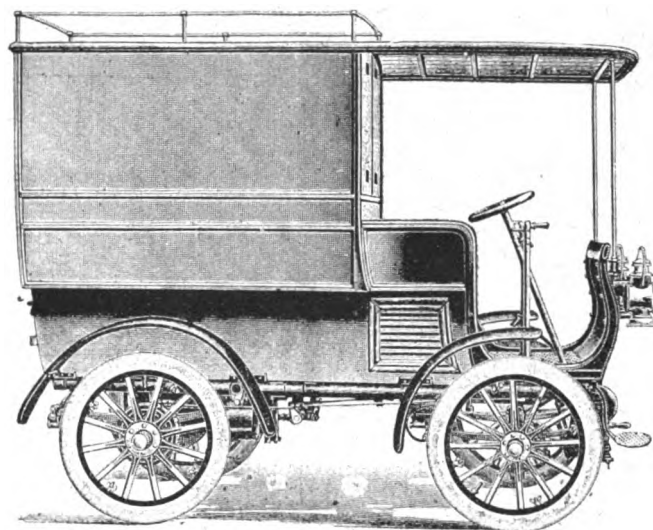
With so many seats available, it seems a pity that those responsible for the arrangements did not see to it that there were sufficient guests to accept the hospitality so readily afforded. As for the Premiers themselves, they were conspicuous only by their absence. Sir Wilfrid Laurier, Sir Albert Hime, Mr. Seddon, and others whom it was hoped would have thus become acquainted with the touring possibilities of the motor-car, were not present. The great Dominion of Canada found one solitary representative in the Hon. G. W. Ross, Premier of Ontario, who seemed rather faint-hearted as he took his seat behind Mr. Kenyon for his trip. The Sultan of Perak, with his interpreter, was accommodated on Mr. Midgley's Napier. Of other distinguished guests there were few, and not even the gentleman who seemed to be acting on behalf of the British Empire League had any idea, so far as our conversation with him revealed, of the people who were likely to be present.

Shortly after half-past ten some of the drivers, seeing that there were not enough present to fill their cars, made off without passengers; as did those who remained to the end in the hope of being of service to some of the representatives of our Empire beyond the seas. A pleasant run was enjoyed by the Sultan of Perak, who recognised that even the pleasures of motoring are often accompanied with the inconveniences of punctures, for on arriving within a mile of Merstham the front off side tyre was blown to pieces, and the car had to proceed slowly on the rim. The party would have been stranded but for the fortuitous arrival of ourselves. The Sultan and his suite were taken aboard the 9-h.p. Napier, and an enjoyable trip was indulged in to Mr. Blunt's place, where he, with other distinguished guests from India and the Colonies—who had gone down by train—soon began to be engrossed with the good points of the splendid animals on view.

After an enjoyable afternoon and a *recherche* luncheon, made doubly interesting by the speeches of Mr. Blunt and his friends, we set out on the return journey, bringing with us the Sultan of Perak, who enjoyed his second trip through this delightful district of the south. All went well until we reached Merstham, when, alas! tyre troubles again delayed progress, and promised to give our distinguished passengers further opportunities for seeing, at their ease, the delightful scenery round about. But Mr. Midgley was about, his tyre having been renewed in the meantime, and so, playing the part of the good Samaritan, he invited the Sultan and his friends to again occupy the seats they had vacated in the morning, and thus they came to town; while we repaired the tyre and afterward paid a short visit to London before proceeding to Ockley, in the pleasant seclusion of which pretty little village we have been enjoying the cooling breezes that come so refreshingly these hot days.

THE DE DION-BOUTON DELIVERY VAN.

IT is gratifying to note that the number of motor delivery vehicles in use is slowly but surely on the increase. Those firms who have adopted these vehicles are naturally among the most progressive and alert, and they are fully aware of the fact that perfection cannot be attained in a day. In a year the motor delivery van will be more perfect than it is now, and each succeeding year will add to its practicability, until a state of perfection is reached which will compel the adoption of this form of delivery for economical reasons. At the same time the supply of experienced and competent drivers and repairers will increase, and both the cost and delays caused by necessary repairs will be reduced. The construction of light delivery vans has lately been taken up by Messrs. De Dion, Bouton and Co., the accompanying illustration showing an 8-h.p. vehicle. Except



that the motor is located under the front seat, the arrangement and equipment of the van is identical with that of the now well-known light car. The body of the vehicle is so arranged that the goods may be withdrawn either from the front or rear.

THE United States consul at Valetta, Malta, believes that a motor-bus service would succeed there.

REPAIRS to motor-cars are undertaken by Mr. E. A. Chard, of Bradpole Road, Bridport, who also stocks petrol and spare parts.

MESSRS. LEWIS AND LEWIS, Limited, has been formed with a capital of £10,000 to acquire the business of engineers and makers of motor-cars carried on by Mr. H. L. Lewis at Townmead Road, Fulham, S.W.

THE necessity of keeping in the line of traffic in City streets has been brought home to Dr. North, of New Southgate, who has been fined in the City of London Summons Court for failing to do so while driving in a motor-car last week.

MESSRS. DENNIS BROS., of Guildford, are, we hear, at present building a 40-h.p. racer. They have also now completed the patterns, and are open to book orders for 16-h.p. four-cylinder Dennis cars. As illustrating the rapid progress that is being made by the firm we may mention that they have orders on hand for no less than ninety-eight cars.

MR. NEVILLE GRENVILLE, J.P., returning home from the meeting of the Somerset County Council last week on his motor-tricycle, collided with a cyclist, with the result that both riders fell. The magistrate was on the wrong side of the road, and with business-like promptitude adjourned to a local cycle establishment, where he defrayed the expense of rebuilding the damaged cycle with which he had collided.

SOME ELEMENTARY REMARKS ON BRAKES.

POWERFUL, reliable, and well-constructed brakes are of great importance in motor-cars, for reasons which are obvious. In vehicles for city use, such as electric carriages, only a single mechanical brake is provided, as a rule, but touring cars are generally equipped with at least two brakes. Brakes used on automobiles are classified, according to the part of the vehicle on which they act, as tyre brakes, hub brakes, differential gear brakes, and motor brakes. They are further grouped,

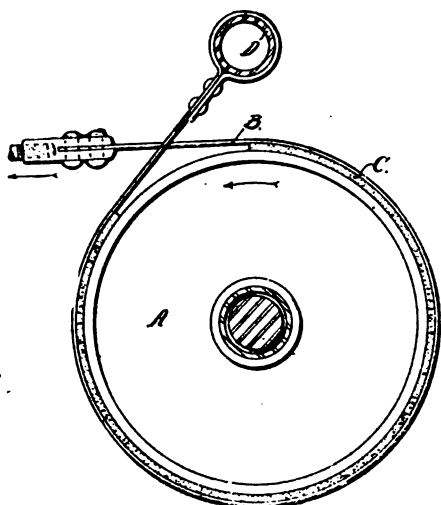


FIG. 1.—SINGLE-ACTING BAND BRAKE.

according to the means of operation, as foot brakes and hand brakes. They are also classified, with respect to the construction of the brake proper, as band brakes, shoe or block brakes, and expanding ring brakes.

Band brakes are at present the most common form in use on motor-cars. A simple band brake (Fig. 1) consists of a brake drum A mounted on one of the revolving parts of the vehicle, to

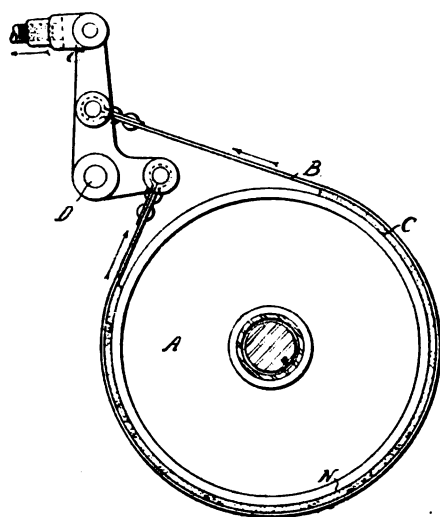


FIG. 2.—DOUBLE-ACTING BAND BRAKE.

which a friction band B may be applied. This band is usually a steel strip, and is, as a rule, lined with leather, C, to increase the friction between it and the drum surface. One end of the band B is fixed to some other stationary part D of the vehicle, and to the other end the operating effort of the driver is applied. The band thus drawn tight retards the motion of the drum by the friction at the drum surface and so causes the vehicle to stop. When the drum rotates in the direction indicated by the arrow in Fig. 1 the friction between the band and drum is in the same direction

as the effort of the operator applying the brake. The force of application is thereby automatically increased. In actual brakes this direction of rotation of the brake drum always corresponds to forward motion of the vehicle. It is at once apparent that when the drum rotates in the opposite direction, *i.e.*, for backward motion of the vehicle, the friction between the band and drum is opposed to the operating effort impressed on the band by the driver, and the band tends to unroll. The power of such a brake is, therefore, much less for backward motion than for forward motion, and such brakes are called single acting. The difference in power for the two directions of motion depends upon the friction coefficient between the band and the drum and upon the angle of contact; it is greater with a leather-lined brake-band than with a plain steel-strip brake-band, and greater when the band completely encircles the drum than when it only partly encircles it.

Various forms of double-acting band brakes have been placed upon the market, which are claimed to hold equally well for either direction of motion of the car. The general principle of these brakes is that, instead of having one end of the band fastened to some stationary part of the vehicle, both ends thereof are fastened to lever arms so proportioned that when the operating effort is applied to the band the point on the length thereof at the middle of the angle of contact is a neutral one N—that is, has

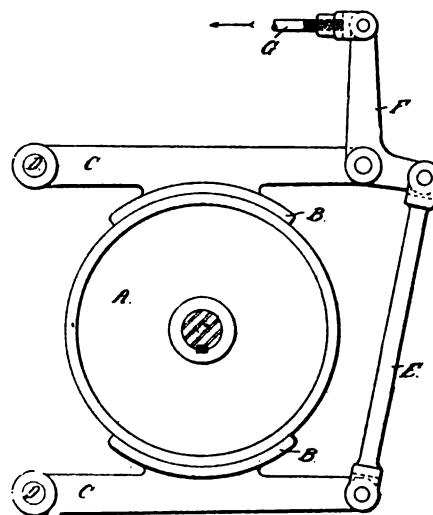


FIG. 3.—BLOCK BRAKE.

no tendency to move one way or the other—when only the operating effort is applied. A brake on this principle is shown in Fig. 2.

The characteristic feature of shoe or block brakes is that the operating effort is applied perpendicularly to the friction surface. Since the friction is parallel with this surface, it cannot influence the operating effort, and hence shoe and block brakes are always double acting. Tyre brakes are always shoe brakes, the shoes being metallic and developed in the form of spoons, with the convex side towards the tyre to prevent their digging into the rubber. These brakes are, however, only rarely used, on account of the bad effect on the tyres, which are very expensive. A related form of brake is the rim brake, in which the wheel rims are provided with brake flanges to which brake shoes are applied. In tyre or rim brakes only a single shoe is usually employed on each wheel, but when shoe or block brakes are applied to other parts, double oppositely-arranged shoes or blocks are employed, which construction avoids extra pressure on the shaft bearings due to braking, and, consequently, abnormal wear of such bearings. A form of block brake of this kind is illustrated in Fig. 3, in which A is the brake drum, B B the two blocks, which are fixed near the middle of two single-armed levers C C, with fixed pivot supports at D D. The free ends of the levers C C are connected by means of the link E and the bell crank F, the operating rod G being fastened to the other arm of the bell crank.

(To be continued.)

THE FIRST LOCOMOTIVE MADE IN ENGLAND.



THE other day at the London depot of Messrs. Tangyes, Limited, we had an opportunity of inspecting an historical relic of the greatest interest and importance—no less than the first locomotive ever made and run in England. It was invented and constructed by William Murdock, the well-known assistant to James Watt, who, second only in importance to Watt himself, invented numerous devices in connection with steam engines, amongst others the “D” slide valve, and the “Sun and Planet Motion.”

The date of construction is not definitely known. Mr. Murdock's son, when living at Handsworth, informed Dr. S. Smiles that this model was invented and constructed in 1781, but, after perusing the correspondence of Boulton and Watt, Dr. Smiles has inferred that it was not ready for trial until 1784. The engine had been continuously in the possession of the Murdock family till 1883, when it was purchased from Murdock's great grandson by Sir Richard and Mr. George Tangye. A copy has been made by students at South Kensington and placed in the museum there. A note referring to this in the South Kensington Catalogue reads as follows:—

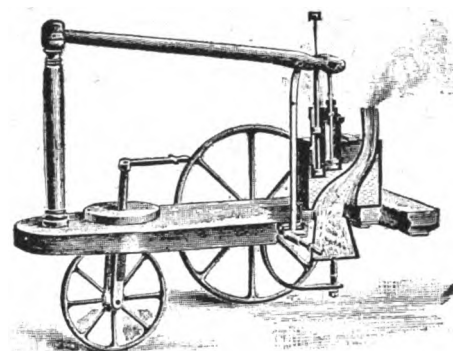
“This is a copy of the original experimental model made by William Murdock in 1781-6. At the time, Murdock was at Redruth, erecting pumping engines for Messrs. Boulton and Watt, and in August, 1786, the firm's agent writes: ‘William Murdock desires me to inform you that he has made a small engine of $\frac{3}{4}$ in. diam. and $1\frac{1}{2}$ in. stroke, that he has apply'd to a small carriage, which answers amazingly.’ In September of the same year, Boulton in writing to Watt says that Murdock ‘had made his steam carriage run a mile or two in River's great room, making it carry the fire shovel, poker, and tongs. William uses no separate valves, but uses the valve piston, something like the 12-in. little engine at Soho, but not quite.’ There is good evidence that, altogether, Murdock constructed three locomotives, the last of considerable size; but, under pressure from Boulton and Watt, he ultimately abandoned the invention.”

James Watt had, ever since he was twenty-three years of age, when Dr. Robison, of Glasgow University, called his attention to the subject, given much thought to the application of his steam engine to road locomotion, and in 1769 he took out a patent describing a locomotive, but being busy upon other work and experiencing troubles respecting the validity of his previous patents, he did not follow up the matter. William Murdock had doubtless heard of Watt's original speculation, and at Redruth, during his leisure hours, proceeded to construct a model locomotive after a design of his own—of small dimensions, but sufficiently large to demonstrate the soundness of the principles on which it was constructed. The result of his labours was the engine illustrated herewith.

An attentive examination of the model well repays one, and reveals many beautifully simple contrivances, showing Murdock's genius for the adaptation of simple means to secure his desired ends. The height of the small locomotive is about 14 inches, its length 19 inches, and the extreme width over the driving wheels is 7 inches. It consists of an oblong board, mounted upon three wheels—two driving wheels at the rear attached to a cranked axle, and one steering wheel in front arranged under the board, and running in a swivelling fork, which can be set by a tiller handle above. Behind the driving wheels is the boiler, which is a rectangular vessel, $3\frac{3}{4}$ inches high, $4\frac{1}{4}$ inches long, and $3\frac{1}{2}$ inches deep, constructed of brazed copper. Through the boiler a flue passes obliquely, contracting from a circular chamber forming the firebox to a small funnel in the top of the boiler, which serves to carry off the products of combustion from a spirit lamp, arranged to burn within the firebox. The steam-cylinder of the engine is mounted on the top of the boiler, and the lower part passes into it, and is surrounded by steam. The piston-rod passes upward, and is attached to the end of a vibrating beam;

this beam passes to the front of the carriage, and is pivoted in an upright pillar. The little engine is worked by the expansive force of steam only, which is discharged into the atmosphere after it has done its work of alternately raising and depressing the piston in the cylinder. The diameter of the piston is $\frac{3}{4}$ inch, and the length of its stroke is about 2 inches. As the piston moves up and down, it causes the beam to rotate the driving-wheels, by means of a connecting rod attached to the cranked axle. The steam valve is very ingenious, and it is driven from the beam by a projecting rod, so arranged that the valve is moved at the termination of every up and down stroke by the last portion of movement of the beam upwards and downwards. It is a piston valve with two pistons, ground to work easily, but pressure proof, in the valve cylinder. The space between the pistons is in constant communication with the boiler, and the steam is admitted by two ports—one at the top and one at the bottom of the cylinder—so arranged that when the piston valve is up, the steam enters the upper port, and drives down the piston, while the exhaust steam from the under side discharges from the cylinder by the lower port into the air through a tube connecting the two pistons of the valve.

This is probably the earliest (piston) slide valve used in a steam engine, as at the date of its construction, Boulton and Watt did not use Murdock's “D” slide valve in their engines—



the patent for the latter not being taken out by Murdock till 1799 (Patent No. 2,340), about fifteen years later. In this model the idea of the slide valve had certainly entered Murdock's mind.

The safety valve is let into the boiler near the steam cylinder, and it is held down by a little tongue of metal—a very efficient and simple contrivance. A leaden weight is placed above the steering wheel to balance the machine, and to prevent it tipping over when the water is in the boiler. The wheels are constructed of brass tube brazed together. Every part of the engine is both well designed and well made. It is interesting to notice that at some time the wood under the boiler has been on fire, and it still shows the marks of charring. It has evidently been pieced and protected by an iron plate to prevent a similar mishap.

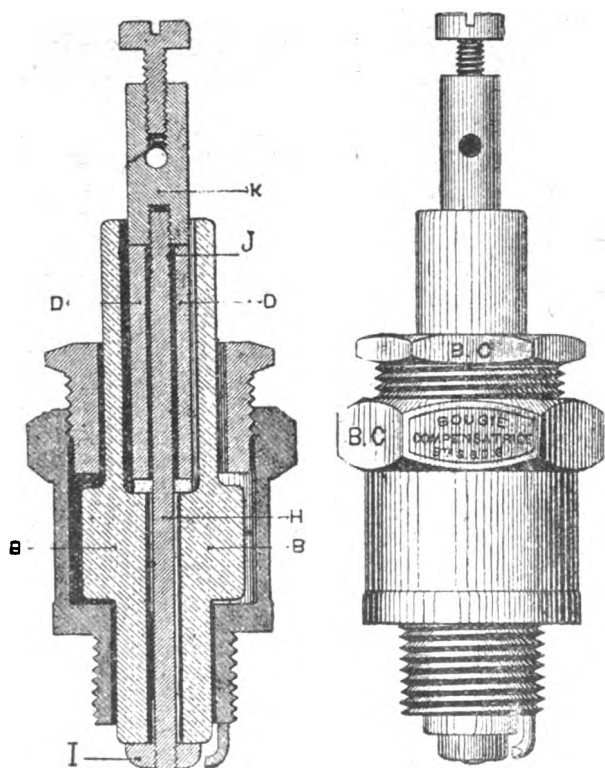
In Dr. Smiles's “Men of Invention and Industry,” published in 1884, he gives interesting accounts of two experiments with the locomotive. “The first was made in Murdock's own house at Redruth, when the little engine successfully hauled a model wagon round the room.” The second experiment was made in the lane leading to the church, and in front of the house afterwards inhabited by the parents of Messrs. Tangye. This trial is thus recounted by Dr. Smiles in the book just mentioned: “Another experiment was made out of doors, on which occasion, small though the engine was, it fairly outran the inventor. One night, after returning from his duties at the mine at Redruth, Murdock went out with his model locomotive to the avenue leading to the church, about a mile from the town. The walk was narrow, straight and level. Having lit the lamp, the water soon boiled, and off started the engine, with the inventor after it. Shortly after, he heard, distant shouts of terror. It was too dark to perceive objects, but he found on following up the machine, that the cries had proceeded from the worthy vicar, who while going

along the walk had met the hissing and fiery little monster, which he declared he took to be the Evil One in *propria persona*."

When Watt was informed of Murdock's experiments he feared that they might interfere with his regular duties, and advised their discontinuance. He afterwards said that if Murdock was resolved to continue them, the firm of Boulton and Watt would advance £100, and would establish a locomotive engine business with Murdock as a partner, if within a year Murdock succeeded in making an engine capable of drawing a postchaise carrying two persons beside the driver, with fuel for four hours and water for two hours, at the rate of four miles an hour. From 1786, however, Murdock, as well as Watt, dropped all further speculation on the subject of road locomotion, although persuaded of its practicability, and left it to others to work out the problem of the locomotive engine. Murdock's model remained but a curious toy which he took pleasure in exhibiting to his intimate friends, and after his death it was kept by his descendants until it came into the hands of Sir Richard and Mr. George Tangye, as before mentioned.

THE "B.C." COMPENSATING SPARKING PLUG.

A NEW sparking plug specially designed to allow for the unequal expansion of the central rod and the porcelain, and thus prevent damage to the latter, has lately been put on the market by M. Bezille, of Moulins-Engelbert (Nievre), France. Referring to the illustrations, it will be seen that the



plug comprises (1) a central rod, *H*, of iron, threaded at one end and fitted at the other with a knob. (2) A copper tube, *D*, which slips over a part of the central rod. (3) A porcelain, *B*, having for half its length a hole through which passes the copper tube, and for the other half a small one through which passes the central iron wire. (4) A terminal, *K*, screwed to the central wire. Asbestos joints are placed between the porcelain and the socket, between the copper tube and the porcelain, and between the copper tube and the terminal. As the co-efficient of expansion of copper under the action of heat is greater than that of iron, by choosing a tube of suitable length the excess of expansion of the iron over the porcelain can be allowed for.

AUTOMOBILE LITERATURE.*

THE motor-car has already a literature of its own and writers on the subject are becoming fairly numerous. Sir Henry Thompson's addition to our bookshelves is somewhat slight when compared with Mr. Worby Beaumont's standard work, but it has its advantages in appealing more directly to the novice who has not yet learned to drive one car, without seeking to know the mysteries of many. Sir Henry's acquaintance with automobiles began in June, 1901, when, with a 6-h.p. Daimler car, he made Boxmoor his headquarters and thoroughly explored Hertfordshire, Buckinghamshire, and Bedfordshire. Then in the autumn of last year he inaugurated a correspondence with the *Times* on the management of motor-cars, which formed the subject of a sympathetic leading article in that journal, and attracted considerable attention elsewhere. All these interesting matters are reproduced in the little volume just published, the value of which is increased by the publication of twenty routes from London on the chief roads to the most important cities and towns of the United Kingdom. There are also the routes for several short runs, each occupying about three hours or so to and from town. With regard to the effect of motoring on health Sir Henry Thompson has found that "the opportunity it affords for filling the lungs with pure air during some hours daily is a valuable and health-promoting exercise, aerating the blood, and enabling it to eliminate waste matters. At the same time it is necessary to recollect that the motor-car affords practically no movements for the legs, and is inferior to saddle exercise in that respect."

The Badminton book on Automobiles has already been referred to in these columns, and the names of the authors of its various chapters are sufficient recommendation as to the practical nature of its contents. Whether it would have proved a more useful guide had it been the work of one man or of two in collaboration is a question we will not answer; but it is interesting, as showing the enthusiasm of motorists, that so many experts—including professional journalists—should have given their services in the compilation of a book which may do much to further the pastime of motoring. At the same time we wish something more had been done in the volume to show the value of the motor-car to the middle class. Mr. Scott Montagu's article is rather overlaid with praise of the automobile from the sportsman's point of view, and with regard to one or two other articles we are inclined to agree with our contemporary, *Engineering*, in suggesting that they indicate a luxuriousness that may prove appalling to the ordinary average purchaser.

While the Badminton book will appeal to sportsmen, Mr. Worby Beaumont's standard volume has a practical value to the engineer and to the motorist anxious to know much about the mechanism of his car. At the time of the publication of the first edition we spoke highly of the work, and the fact that it has so quickly got into a second edition is evidence of its value. The book has been carefully revised, and in a prefatory note the author remarks:—"The greatest advances have been made in the voiturette and light car classes, the former having shown the way to carry more and more power per unit of weight of vehicle, and the latter having developed from the grown-up voiturette. Most of the improvements shown in the recent cars are those which are derived from a development of the Renault car and more and more compact forms of Panhard gear, with interposed pinion for reversing, as, for instance, in the Cannstatt car and the Turrell car, instead of the bevel wheels. Great increase in speed of rotation of motors has been adopted for obtaining higher power. Heavy lorry and waggon designs remain very much the same in principle as those herein given, detail improvements being considerable." A second volume is promised by Mr. Beaumont; meanwhile, that now before us may be regarded as the best work of the class that has been published.

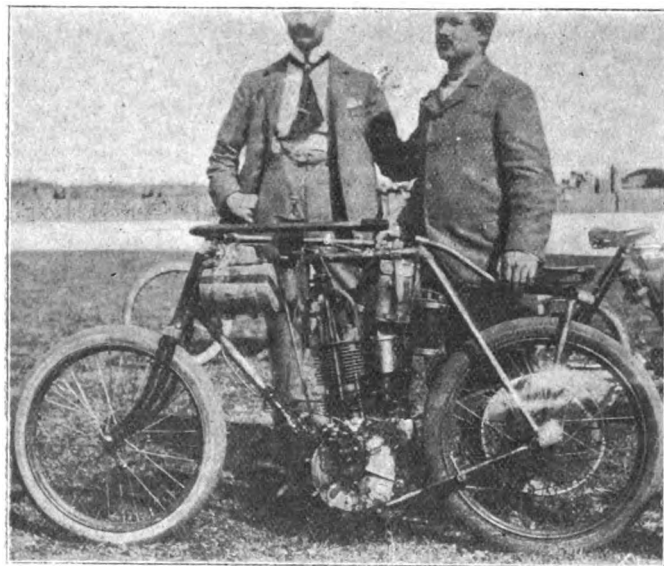
* "The Motor-Car," by Sir Henry Thompson & Bart. London: F. Warne and Co 1902.

"Motoring," edited by A. C. Harmsworth. London: Longmans, Green, and Co.

"Motor Vehicles and Motors," by W. Worby Beaumont, M.I.C.E., M.I.M.E. London: A. Constable and Co. 1902.

HERE AND THERE.

M. RIGAL, whose portrait is here reproduced, is willing to race any English motor-cyclist on any English or French track on which it is possible to travel at a speed of sixty-five miles per hour.



THE PLYMOUTH MOTOR-CYCLE RACE MEETING—RIGAL (TO THE RIGHT) AND HIS SPEEDY MACHINE.

(Photo by)

[Mr. H. Sayer

MR. FREDERICK HARRISON, of the Haymarket Theatre, is about to become an automobilist.

BOTH the Bexhill and the Redhill District Councils have rejected proposals to follow the lead of Reigate in persecuting motorists.

TWO motor-cycle handicaps are included in the programme of the sports to be held at Harrogate on August 4th in connection with the cyclists' camp.

MR. E. E. BAGULEY has left the Castle Engine Works at Stafford to take up the management of the new motor-car works to be established at Burton-on-Trent.

THE Progress Motor Company are, we learn, now fitting an anti-vibratory arrangement to the seat pillar on their motor-bicycles, and will soon fit a spring handle-bar.

AT Frome a man has been fined 10s. and costs for throwing a stick at a motor-car which was being driven through the Market Place, Frome, by Mr. H. A. Gliddon, the local manager of the Capital and Counties Bank.

ONE of the features of the garden party which the Countess of Jersey gave at Osterley Park on Tuesday was the large number of guests who arrived by motor-car, the electric landaulet being the vehicle chiefly in favour.

REPRESENTATIVES of the automobile, cycling, road-driving, and truck-owners' associations met in New York recently, and completed the organisation of a permanent union to be known as the Associated Road Users.

INCLUDED in the programme of the West Ham United Football Club Sports Carnival to be held at the Memorial Recreation Grounds, Canning Town, E., on Saturday the 19th inst., is a ten-mile motor-cycle handicap.

BEFORE delivery to purchasers the Ormonde motor-bicycles are sent for a road trial of at least fifty miles, and the Ormonde Motor Company inform us that they have completed arrangements for considerably increasing their output.

THE Doherty Motor Accessories Company have removed to larger and more commodious premises at Trafalgar Works, Upper Well Street, Coventry. They have laid down an extensive plant for the manufacture of radiators, and are now in a position to execute orders for engine-bonnets, tanks, carburettors, silencers, &c.

AT least one party of American gipsies have adopted the motor-van as a substitute for the old-fashioned horse-drawn caravan.

MR. WM. ATKINSON, of Lancaster, informs us that he is now in a position to supply petrol, grease, garage, etc., at his depot in Highgate, Kendal.

THE Birmingham Motor Manufacturing and Supply Company, Limited, will in future be known as the Rex Motor Manufacturing Company, Limited. Extensive alterations at the works are in progress.

SHEFFIELDERS have just had an opportunity of seeing a wedding party drive up to the church gates in a motor-car. The vehicle was driven by the uncle of the bride, Mr. William Watts, of Upperthorpe Road, Sheffield.

MR. O. P. DORMAN, of the Salmandrine Boiler Company, of New York, is at present in this country arranging for the introduction of the Salmandrine boiler for light steam cars and launches to the European market.

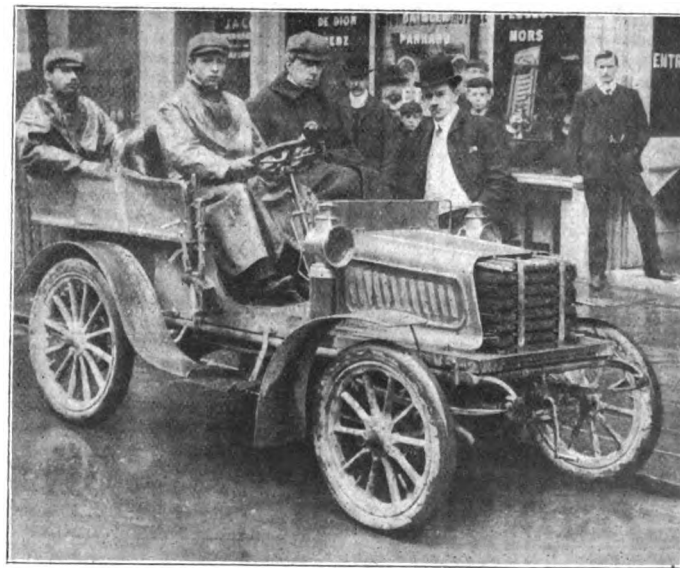
THE County Court Judge of Salford says it is the duty of drivers of horse-drawn vehicles to assist the electric tramcars to travel at a reasonable speed, and not hinder their progress. Such a hint should apply to motor-cars as well.

To make "automobiles and other horseless carriages" is one of the objects of Messrs. H. Cooper and Co., Limited, of 78, King Street, Manchester, and Howell Croft, Bolton, a company just registered with a capital of £12,000 in £1 shares.

AMONG our visitors this week has been Mr. Alden L. McMurtry, vice-president of the Adams McMurtry Company of New York, which is agent for the Packard automobile. Mr. McMurtry intends to include a visit to Germany and to France in his travels before returning home.

A SUMMER motor wrap for ladies and gentlemen, in waterproof cloth or Garbette, is being introduced by Messrs. Holding and Son, who have also brought out the Holding patent apron, in dust proof shades, unlined. An article which is worthy the attention of motorists is the light waterproof and windproof summer "Ayrshire" driving coat, which attracted much notice at the last Motor-Car Exhibition at the Agricultural Hall.

IN the Paris-Vienna race, tyres manufactured by the Continental Caoutchouc and Guttapercha Company gained striking successes. In Class 1, for heavy cars, the first, third, fourth, and fifth places were taken by cars fitted with "Continentials."



THE 10-H.P. DECAUVILLE CAR WHICH RECENTLY MADE A NON-STOP RUN FROM EDINBURGH TO LONDON.

The success of Mr. Chas. Jarrott was very marked on the first day, when he covered the distance in 4 hours 26 minutes 9 2-5 seconds, on his Panhard-Levassor fitted with Continental tyres.

THE entrance fee to the Automobile Club is to be raised to ten guineas.

MESSRS. HEDLEY S. HUNT AND CO. have removed to 29 and 30, College Street, Cannon Street, E.C.

A HEAD office and warehouse has been opened at 60, Brook Street, Manchester, by the Universal Electric Supply Company.

MOTORISTS had better avoid the Gloucester to Tewkesbury road for a few days, until it has been completely mended.

ACCORDING to the San Francisco *Trade Journal*, there are now more than 600 motor-cars in California, two-thirds of which are in San Francisco.

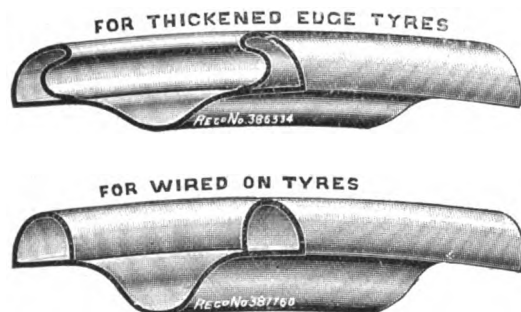
THE Prussian military authorities have decided to take a census of the motor-cars in the country which would be available in time of war.

AT the Wolverhampton Exhibition, Messrs. Stern Brothers are showing dust-proof lubricators for motor-cars, and their special lubricating oils for such vehicles.

IN Japan the import duty on automobiles is twenty-five per cent. *ad valorem*, and the principal importers at Yokohama are Messrs. Bruhl Brothers, 22, Lamashita Cho.

A NEW garage is shortly to be opened in connection with the Old Ship Hotel at Brighton, the proprietors of which are able to offer all necessary assistance to motorists.

MR. J. T. JAMES, of Loveday Street, Birmingham, has just brought out two new 2-inch rims for the wheels of motor-cycles, one pattern being for tyres having thickened edges, and the other for wired-on pneumatics. The triangular corners at the sides are claimed to give the rims about 50 per cent. more



strength against buckling strain as compared with the usual rounded sides, without any additional weight. There is also much more area for the shoes of rim brakes to grip than usual, and in the case of the rim for thickened-edge tyres it is much easier to fit tyre covers on owing to there being an absence of raised sides over which the cover must be stretched.

M. HENRY DEUTSCH who followed the Paris and Vienna race and then went on to Buda-pesth in a motor-car is now at Henley.

SIR RUDOLF SLATIN believes that the introduction of motor-cars in the Soudan would assist materially in the development of the country.

TYRES of the patent Buffer rubber type, as made by the Sirdar Rubber Company, Ltd., have been fitted to His Majesty's new State carriage.

WE understand that the post office authorities are making a claim for damages to their property against the undergraduates whose antics while motoring have lately occasioned so much discussion in Berkshire.

A MOTOR-BICYCLING club is being formed at Leeds, and Mr. H. W. Elworthy, 8, New Station Street, Leeds, will be pleased to hear from local riders of motor bicycles.

MR. GEORGE HOCKING, who was recently convicted at Guildford for an assault on Mr. Campbell Muir, has appealed to the Quarter Sessions. The appeal will probably be heard in October.

ALTHOUGH the illness of the King prevented the Royal progress by motor-car that we had hoped to see, the automobile played a useful part in connection with the King's dinner to the poor of London. Nine motor-cars were requisitioned to convey the artistes who gave their services at the various entertainments.

CORRESPONDENCE.

GRAVITY v. PUMP CIRCULATION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In the article in your issue of the 28th ult. on the above subject the pump system is credited with faults it does not possess. When the pump is driven from the motor shaft, as it generally is, the faster the motor runs the more water is circulated at the time it is most wanted, and *vice versa*.—Yours truly,

ENGINEER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I was very pleased to read your article in the *Journal* for the 28th ult. on "Gravity v. Pump Circulation," and the opinion of Mr. C. E. Duryea on the subject.

I have just had constructed for me a bonnet, for which I have obtained provisional protection, and which I claim will overcome the objections mentioned in your article.

Besides doing away with the pump, radiator, and separate tanks for the water, petrol, and lubricating oil, special arrangement is made for cooling the water, and thus obviating the frequent refilling of the tank.

Moreover, the warmth of the water is utilised for the purpose of raising the temperature of the petrol before it enters the carburettor, thus increasing the efficiency of the latter, and thus consuming some of the heat of the water, apart from the special cooling arrangement.

I am fixing this "bonnet" to a special car, with other novel features, and which I am about to place on the market, and shall be glad to show it, by appointment, to Mr. Duryea or any other of your readers who may be interested in the subject.—Yours faithfully,

VERNON DOUGLAS DE WET.

MOTOR-BICYCLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to my article on "Motor-Bicycles" in the *Speaker*, you point out in a recent issue that it would be worth while to record the consumption of petrol averaged during the 3,000 miles of my motor-bicycle run. Fifty miles for 6d. is about the cost of petrol with 1½-h.p. bicycle-motors with surface carburettors (petrol at 1s. per gallon).

Nevertheless, in actual practice the cost of petrol is more nearly double the above figure, for the following reasons:—1. There is the increase in price owing to petrol being bought in small quantities on the road. It is not unusual (nor very unreasonable, when the trouble given is taken into consideration) to pay the price of a gallon for little more than a quart. 2. There is petrol used for cleaning. 3. The petrol wasted because it has become stale through waiting in the carburettor.

I suppose, therefore, that my 3,000 miles cost me 30s. in petrol.

My present machine, which is 2-h.p. and has a spray carburettor consumes double the above quantities. I ascribe this chiefly to the wastefulness of the spray carburettor, and this wastefulness I attribute to the fact that the minute petrol consumption of bicycles has caused the matter to be somewhat neglected.—Yours faithfully,

MERVYN O'GORMAN.

STEAM v. PETROL CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Can any of your readers tell me if a steam car is as good as a petrol car, when required by two persons of average weight to replace a dogcart, and for light work only, such as visiting friends, with an average run of ten miles, and not exceeding thirty miles? Which type of car is the simpler to learn to drive and look after without a *chauffeur*. Which is the least expensive to run? What is the average cost of a steam car per mile, and are they lasting? Which car would most probably cost least in repairs?—I remain, yours faithfully,

L. B. C.

THE PURCHASE OF MOTOR-CARS.

C. H. CONING has brought an action against Messrs. Harris and Duck for alleged misrepresentation in regard to the sale of a motor-car by the defendants. Plaintiff, who is at present staying at the Old Ship Hotel, Brighton, said on December 6th, 1901, he saw a car painted red in the window of the Sussex Automobile Company which took his fancy. He wanted to change his car, which was a 6 or 6½-h.p. Boyer, for one possessing a higher rate of speed. He inquired about the red car. He went in and spoke to Mr. Harris and asked him what the car was and also as to the price. He was told it was a 7-h.p. car, and the price was £450. Witness knew it was a Panhard machine. He knew nothing about a 5-h.p. Panhard, and he would not have bought one. About an hour afterwards Mrs. Coning joined witness, who signed an agreement promising to buy the machine if it proved satisfactory in a trial trip. The trial trip took place, and they went to Rottingdean. The car behaved well, and witness came back and paid cash for it. He kept the car for some time, and at the end of about two or three weeks he had occasion to have some slight repairs done to it by another Brighton firm, and he was then informed that it was not a 7-h.p., but a 5-h.p.

Eugene Coning, wife of the plaintiff, said both Messrs. Duck and Harris distinctly said the motor-car in question was a 7-h.p. Panhard. J. S. Critchley said that the machine in question was a 5-h.p. Panhard car. The value of the car was about £300; now it would be difficult to dispose of it for £300. W. Duck, carrying on business with Mr. Harris as the Automobile Company, said he had known a Mr. Jacobs for some time. Mr. Jacobs said he would sell his car, which was the one in question. It was a miniature Panhard, painted red. Witness put it in his window, but he had no instructions to sell. When the plaintiff came into the shop he asked if the machine was a Panhard and could they sell it him. Witness replied that he did not know that he could, but if plaintiff would come back in an hour he would tell him. He mentioned that the price of the car would be £450. Plaintiff said, "I suppose this is a 7-h.p. Panhard, is it not?" Witness said, "It will develop about 7-h.p. on the brake, I believe." They had only had the car on their hands for a few hours, and had had no opportunity of looking it round. Plaintiff went for a trip on it and expressed himself satisfied, saying it was a much faster car than his own. The car in question was a 5-h.p. "nominal," but a 7-h.p. "brake." He distinctly told plaintiff that the car was a 7-h.p. "brake" machine. H. C. Harris, Mr. Duck's partner, said he had no conversation with the plaintiff about the car. They gave £370 for the car themselves. Cross-examined: They bought the car after they had offered it to Mr. Coning. His Lordship: If you had got the car to sell for Mr. Jacobs, would not it have been better to have told Mr. Jacobs that you had sold it, and have taken the commission? The jury found for plaintiff for the sum of £50.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	FINES.
Hythe	J. Broom, Folkestone	14 m. p. h.	Dismissed.
Tonbridge	E. Speakman, Tonbridge	40 m. p. h.	£3 and costs.
Chertsey	Capt. Locock, Cobham	20 m. p. h.	20s. and costs.
Chislehurst	H. Webster, Chislehurst	Above legal limit.	20s. and costs.
Lancaster	J. Clapham, Keighley	Above legal limit.	Dismissed on payment of costs.
Derby	T. Bolton, Oakamoor, (Staffs)	25 m. h. p.	30s. and costs.
King's Heath (Birmingham)	B. May, Moseley	17 m. p. h.	10s. and costs.
"	H. Hall, Moseley ...	" "	10s. and costs.
Stratford, E. ...	W. West, Bow, E. ...	" "	40s. and costs.
St. Neots	A. Brown, Luton ...	22 m. p. h.	£5.
Bakewell	T. Thompson, Sheffield	25 m. p. h.	£1 and £2 9s. 6d. costs.
Uckfield	W. Dewing, East Hoathley	28 m. p. h.	£1 and 6s. costs.
Bradford	W. Nicholson, Leeds	Above legal limit.	£5 and costs.
York	E. de Wilton, Bayswater	30 m. p. h.	£5 and costs.
Godmanchester	Rev. J. R. P. Smith, Pewsey, Wilts	23 m. p. h.	£2 and 3s. costs.
Conway	H. M. Bates, Conway	20 m. p. h.	20s. and costs.
Birmingham ...	J. Arkenfield, Birmingham	16 m. p. h.	20s. and costs.
Haywards Heath	W. Glass, Croydon ...	22½ m. p. h.	£2 and 10s. costs.

ERNEST DE WILTON did not appear at York on Saturday, excusing himself on the ground that he was going to lunch with the Colonial Premiers. A measured mile was used as evidence against him.

At the Lancaster Borough Police Court, John Clapham, Fern Cliff, Keighley, was summoned for riding a motor-cycle on the wrong side of the street on the 16th ult. The case was dismissed on payment of costs, the defendant's solicitor pleading guilty through his not being acquainted with the bye-laws.

H. M. BATES, who was fined at the Conway Police Court, is motor-car driver to the Marquis of Anglesey. The chairman of the bench made the fatuous observation: "The world now appeared to be divided into two classes—those who drove motor-cars and those who were run over." Several in court laughed outright at such an observation; others merely smiled.

WILLIAM GLAS, of Croydon, who was summoned for driving a motor-car at a greater speed than 12 miles an hour, pleaded not guilty. P. C. Ormond said he was on duty in plain clothes at the Slaugham cross-roads when defendant came along on a motor-car in the direction of Brighton. Witness timed him over two furlongs, which he covered at the rate of 22½ miles per hour. When stopped and shown the watch, defendant replied: "I am in a hurry; the top speed that the car can make is only 25 miles an hour." He was fined £2 and 10s. costs.

A LABOURER giving evidence against T. Thompson in the case heard at Bakewell for alleged furious driving of a motor-cycle, said the rider of the motor-cycle attempted to pass between a traction engine and a trap, but collided with the traction engine waggon, with the result that he was rendered insensible and had to be carried into a field. In witness's opinion the defendant was travelling at a speed of twenty-five miles an hour. On the other hand, a Sheffield cycle agent and an architect from the same town testified that the speed was not more than ten miles an hour.

THE defendants at King's Heath were motor-tricyclists, and it was alleged that they did not pull up in response to the police command.

IN the case of W. West, who was summoned for alleged furious driving along the Woodford Road, Mr. Staplee Firth gave notice of appeal.

OBSTRUCTION.

JOHN KEMP BRIDGES, electrical engineer to the Corporation of Eastbourne, was summoned at the Eastbourne Police Court for obstructing Upper Avenue by leaving a motor-car there for two hours and five minutes, on June 22nd. Defendant stated that the width of the road was 30 ft. 2 in. and of the car 4 ft. 2 in. The car was out of order, and he was unable to move it for some time. He was fined 10s.

A DISMISSAL CASE.

At the Southwark County Court, before Judge Addison, K.C., C. K. Lampton, an engineer, of Pepys Road, Wimbledon, sued Mr. Southee, of the Wholesale Tobacco Supply Company, Limited, of London Road, Southwark, to recover £1 14s., being one week's wages as a motor-car driver, in lieu of notice, and 4s. money paid for and on behalf of the defendant. After hearing the case, his Honour said that the disobedience of the plaintiff of an order to attend on a Sunday morning entitled the defendant to dismiss him without notice, but as to the four shillings which the plaintiff had paid, he was entitled to recover that. He had, no doubt, acted very stupidly, but it required very gross stupidity to rob a servant of his claim to money paid on behalf of his employer. His Honour gave judgment for the plaintiff for 4s., with costs on that scale.

MOTOR-CAR ACCIDENT.

At Hampstead Police Court, Percy Frederick Moseley, 25, a motor-car driver, living in Medina Road, Holloway, has been charged with furiously driving a motor-car at Edgware Road, Cricklewood, on the afternoon of Friday, June 27th, and causing bodily harm to May Mortlock, aged nine years, of Laurel Terrace, Cricklewood.

From the evidence it appeared that the prisoner was driving in the direction of London. A few yards on the London side of the Windmill public-house the child ran into the road in front of the car, and was struck by the front part of it. The opinion of one or two witnesses was that the driver could not have prevented the accident even if he had seen the child, and it was thought he did not see her, as he was engaged in conversation at the time with the man who was sitting next to him. Anyhow, he continued on his way up Shoot-up-Hill; but a cyclist, Samuel Scott, happened to be standing near the spot with his machine at the time, and, as soon as he became convinced that the driver did not appear to have any intention of stopping after the accident, he mounted his bicycle and rode after the car. Immediately he got within speaking distance he asked the driver why he had not stopped and returned to the spot where the accident occurred; but the prisoner said he was not aware of any accident, and added that he had no time to stop, as he was in a hurry to get to London. Scott then said that if the driver did not stop he should ride along with them until they came to a constable, when he would give them in charge. This had the desired effect, for the driver pulled up and went back to Laurel Terrace. Meanwhile Dr. Cruden, of Cricklewood, had been sent for to attend to the child. On his arrival he found her in a very critical state. She had a contused wound on the chin and another on the right temple, and was bleeding from the mouth, nose, and both ears.

Five witnesses of the accident stated that the car was travelling at the rate of fifteen or sixteen miles an hour at the time of the accident. These included Mr. Beard (himself a motorist) and his man, and two cyclists, Mr. Scott and a friend of his, Mr. Rathbone, a member of the Pegasus Cycling Club. Mr. W. Hinton Musgrave, a dairy manager, also a cyclist, of Dollis Hill Farm, Cricklewood, said the car was not going faster than ten or twelve miles an hour.

The Bench further remanded prisoner on bail, himself in £100 and one surety for a like amount.

IMPORTS OF MOTOR-CARS, MOTOR-CYCLES, AND PARTS THEREOF.

CONTINUING our practice of publishing the official monthly returns of the imports of motor-cars, motor-cycles, and the parts thereof into the various ports of the United Kingdom, we now give the figures relating to the month of April, 1902. Those for the month of May will appear in an early issue. These differ slightly from the imports recorded by the Board of Trade, but as they are prepared in fuller detail may be accepted as indicating the actual state of affairs. Hence their value to all who follow the progress of the motor-car industry. We have been enabled to give these figures since October, 1901, and their exclusive appearance in the *Journal* has certainly been recognised as one of the many useful features of this publication. For the last three months of 1901 the imports totalled £105,248; for the first three months of 1902 they reached £158,219, the receipts of motor-cars and their parts from France alone during that period being more than the imports of all countries in the last quarter of 1901. In April Austria made a first appearance in our lists, and compared with the previous month the returns were as follows:—

April, 1902 £123,145.
March, 1902 £ 67,303.

AUSTRIA.

Shipped from	To	Description.	No.	Value.
Fiume	Hull	Motor car parts	—	£ 380
Total Value of Imports from Austria, April, 1902				£380
" " " " for four months, 1902				£380

BELGIUM.

Antwerp	Harwich	Motor cars	2	300
"	"	" " parts	—	947
"	"	" cycle parts	—	2,207
"	Grimsby	" cars	1	24
"	Hull	" " parts	—	30
"	London	Motor cars	4	836
"	"	" " parts	—	2
Brussels	"	Motor cars	5	630
"	"	" " frames	2	190
Ghent	"	" " parts	—	283
Ostend	"	" cars	12	2,103
"	"	" cycles	16	399

Total Value of Imports from Belgium, April, 1902

" " " " for four months, 1902

FRANCE.

Boulogne	Folkestone	Motor cars	133	36,844
"	"	" " parts	—	3,287
"	"	" cycles	3	70
"	"	" "	2	30
"	London	" cars	50	14,971
"	"	" cycles	3	140
"	"	" car parts	—	52
Bordeaux	"	" car	1	500
Calais	"	Electric automobile	1	600
"	"	Steamobile	4	452
"	"	Motor car	1	360
"	Dover	" "	2	930
"	"	" cycle	2	90
"	"	" car parts	—	32
Dieppe	Newhaven	" cars	75	29,842
"	"	" car parts	—	2,623
"	"	" cycles	5	340
Dunkirk	Hull	" cars	3	640
"	"	" car parts	—	490
"	London	" cars	1	160
Havre	Liverpool	" "	9	1,730
"	Southampton	" "	1	320
Marseilles	London	" "	1	500
"	"	" cycles	1	50
Paris	"	" cars	4	1,260
Rouen	Glasgow	" cycles	2	55
Treport	London	" car	1	261

Total Value of Imports from France, April, 1902

" " " " for four months, 1902

GERMANY.

Bremen	London	Motor-wagons	2	£615
Hamburg	"	" car	1	180
"	Harwich	" cycle parts	—	5
Total Value of Imports from Germany, April, 1902				£800
" " " " for four months, 1902				£9,673

HOLLAND.

Amsterdam	Hull	Motor-car parts	—	40
"	London	" cycle parts	—	175
Flushing	Queenboro'	" car parts	—	30
"	"	" cars	5	715
Rotterdam	London	" "	17	3,380
"	Harwich	" "	1	180
"	"	" car parts	—	71
Total Value of Imports from Holland, April, 1902				£4,591
" " " " for four months, 1902				£9,206

UNITED STATES.

Boston	Liverpool	Steamobile	1	240
"	"	Motor-cars	2	300
"	"	" " parts	—	20
"	"	" cycles	1	50
"	London	Motor-cars	3	625
New York	Hull	Motor-cars	2	310
"	"	" car parts	—	40
"	Liverpool	" cars	2	600
"	London	Motor-cars	5	950
"	"	Locomobiles	42	6,067
"	"	" parts	—	200
"	Manchester	Motor-car parts	—	364
"	Southampton	Motor-cars	16	2,642
"	"	" car parts	—	473
"	"	" cycles	2	113

Total Value of Imports from United States for April, 1902

" " " " for four months, 1902

TO CORRESPONDENTS.

All communications intended for insertion in this *Journal* or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

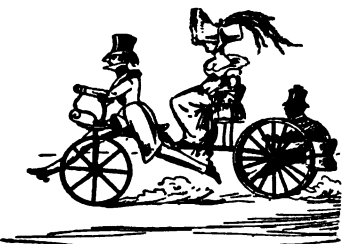
VOL. IV.]

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COMMENTS.



CHANGES that have lately taken place in the Government of the country have an interest for us all, and motorists will join in the general congratulations to the Right Hon. A. J. Balfour on his acceptance of the position of Premier. When on Sunday last he drove to 10, Downing Street, S.W., on his motor-car, it was the first time a British Premier had motored in that historic thoroughfare. On Monday he obtained possession of his 9-h.p. Napier car, and on Tuesday made a series of calls, being driven by his sister, Miss Balfour, who is also an accomplished motorist. The Marquis of Salisbury's interest in automobilism is of very recent birth, and his experience as a Locomobilist has been confined to Hatfield. But the present Premier is an enthusiast, and he regards motoring not only as an exhilarating and health-giving sport, but as one of the factors in the solution of some of the social questions of the day. Hence we may reasonably expect that the Cabinet will look with favour upon the desires of motorists to be free from restrictive enactments that have hitherto only hampered the industry without in any way adding to the safety of the public.

The A.C.G.B.I.

SINCE taking office Mr. A. J. Balfour has become a member of the Automobile Club, having been elected on Monday along with Lord Howard de Walden, Sir Savile Crossley, Bart., M.P., Sir George Newnes, Bart., M.P., Sir Daniel Gooch, Bart., Sir E. Strachey, Bart., Sir W. Tomlinson, M.P., and Mr. Griffith Boscawen, M.P. There are now 1,704 members of the Automobile Club, which will, on Wednesday next, give a dinner to Messrs. Edge and Napier at the Hotel Metropole. In our issue of the 5th inst. Mr. J. B. King suggested that something of the kind should be done—a proposal that was also made simultaneously in other quarters. We are glad to see that the Club is taking the matter up, and hope that the occasion will be made notable by a record attendance.

Leading Motorists.

THE fact that the King is a motorist; that the Duke of Connaught's example seems to be inciting the War Office to give out further orders for British cars; that Bishops have used the motor-car whereon to travel to their Sabbath ministrations; that distinguished judges like Lord Alverstone and Sir Francis Jeune and sportsmen of the calibre of the Duke of Portland and the Earl of Shrewsbury have all become enamoured of the motor-car—all goes to prove that automobilism is no longer a fad and fancy of the moment, but that it has become a permanent institution in our midst.

Motor-Cars and the Fruit Season.

AT the parade of motor-vehicles for heavy traffic on the Thames Embankment, referred to in our columns last week, there were some lorries specially designed for the conveyance of fruit and for the use of market gardeners. From the Midlands comes a remarkable instance of the value of the motor-car in connection with the retailing of fruit. Strawberries were selling at 1s. per lb. in Malvern in the earlier part of last week, so some enterprising gardeners hired a motor-car in Evesham and carried a large consignment of the fruit, which they retailed from the car in the streets of Malvern at 3d. per lb. Needless to say business was exceedingly brisk, and at this price a good profit remained for the consignor.

For Tramway Managers.

BEFORE a representative and influential audience at Bristol Mr. E. Manville has been advocating the adoption of motor-vehicles by municipal officers in almost every department. Probably his paper, which we summarise in another column, will have the effect of causing tramway managers, county surveyors, etc., to consider the matter, while the increased cost of horse hire is also proving a factor in drawing attention to the efficiency and the economy of motor-vehicles. In the course of the discussion on Mr. Manville's paper Mr. Hooley, of Nottingham, advised hiring rather than purchasing a car, and Messrs. Mawbey (Leicester), Weaver (Kensington), and Harpur (Cardiff) spoke in favour of the automobile for municipal surveyors. At Bradford the Tramways Committee has been considering the question of purchasing a motor-car for the tramways manager, who mentioned that the charge for a horse and trap hired by him had increased from 8s. to 10s. a day. Elsewhere, too, similar inquiries are being set on foot, and firms and companies letting motor-vehicles for hire should keep themselves well before the notice of official people interested in municipal work.

Westerham Hill.

WESTERHAM HILL has been made famous by the annual hill-climbing competitions of the Catford Club. It is an old-world place with many houses of the Queen Anne period, but few of modern date. From thence a pleasant run can be made on a descending road to Edenbridge. In his new book on "Cycle Rides Round London" Mr. Charles G. Harper, the historian of the great roads of the country, gives some sketch maps of this and a score of similar routes in the home counties, which are of value to the metropolitan motorist. The book, just published by Messrs. Chapman and Hall, Limited, is made all the more attractive by a plenitude of illustrations by the author, whose pencil is as facile as his pen. In Essex, which is usually described as dull, Mr. Harper discovers some excellent scenery, and even in the better known northern and southern suburbs he reveals some beauties hitherto unappreciated.

B

Racing Cars for 1903.

Now that the Gordon Bennett Cup has been won by this country, European and American makers are likely to spend considerable time and money in the effort to wrest it from British possession. It, therefore, behoves English motorists to do what they can to encourage our own manufacturers to produce vehicles that will more than hold their own with the cars of other countries. If a few sportsmen would give orders to British makers for cars of special design for racing purposes a great incentive would be given, and there would be greater likelihood of the Cup being retained in British hands. Already Mr. Mark Mayhew has placed an order for one of the new models of the Napier car, which are being put in hand for delivery in February next, and which it is the intention of the makers to build at a reasonable price. In the event of any of these cars winning a big race the vehicles will be presented to the winner without charge. In thus co-operating for the national credit, makers and buyers can ensure the possible retention of the Cup.



THE MEET OF THE MANCHESTER AUTOMOBILE CLUB—THE FIRST ARRIVAL.

Photo by]

[R. Banks.

The Manchester A.C.

LEASOWE was invaded by Manchester motorists on Saturday, when a dozen cars, varying from low-powered tricycles to 34-h.p. vehicles, arrived during the afternoon, the party numbering about thirty in all. The occasion was the seventh run of the Manchester Club, and there was no racing, but all were supposed to reach Leasowe Castle Hotel in time for seven o'clock dinner. Very few of the party failed to keep this arrangement, accidents delaying only a couple of cars beyond that time. Leasowe is situated at the extremity of the Wirral Peninsula, between Hoylake and New Brighton, a distance from Manchester of about sixty miles, the surface of the roads being all that could be desired. Excellent arrangements had been made for the convenience and comfort of the travellers at the Leasowe Castle Hotel, where ample accommodation was offered for storage, and a supply of petrol was in readiness for those whose stock required replenishing. The hotel itself presented an object of the greatest interest, being anciently a baronial residence standing in well-wooded domains, and now forming a high-class private hotel and hydropathic establishment. The castle, protected from the east by Bidston Hill, a romantic mount that lends a charm to the landward view, stands on a small mound on the edge of the coast line, immediately facing the Rock Channel entrance to the River Mersey, and therefore commands ever-varying views of the sea in front. It is noteworthy that three of the loftiest mountains in England and Wales—Snowdon, Skiddaw, and Helvellyn—are occasionally visible on the horizon, as are like

wise Black Comb, Langdale Pikes, the Isle of Man, the Great Orme's Head, Penmaenmawr, and Moel Famau, "the mother of mountains."

At Chester.

A GOODLY number of the party were provided with quarters for the night at the hotel, and on Sunday morning they began the return journey by way of Chester, stopping for lunch at "The Blossoms" hotel, which is the favourite resort of automobilists visiting the city, so much so that the intention of the proprietor to cover with a glass roof the yard in which the cars are stored, and to make an inspection pit for their convenience, and further to arrange for an engineer to be on the premises or within easy call, will be hailed with great satisfaction. In the afternoon a party of about a dozen, leaving their cars to cool, sought pleasure in another form, though, still be it known, automobile; and, having chartered an electric launch, proceeded up the river for some miles. After having tea at Eccleston Ferry, they returned to Chester, and, again taking to their cars, set out in the cool of a fine summer evening for their different destinations, thus bringing to a most successful conclusion one of the most enjoyable excursions yet made by the Club.

Who Were There.

AMONG the participants in the outing were Messrs. C. F. Budenberg, with Mrs. Budenberg and Miss Arnold, on 9-h.p. Daimler; G. P. Dawson and Lewis on 8-h.p. Panhard; C. Frost on 4½-h.p. De Dion; F. Gresham, with J. Hoyle Smith (hon. secretary), 4½-h.p. De Dion; H. E. Gresham and Mrs. Gresham on 8-h.p. Heatley; Mr. and Mrs. Hollingdrake on 8-h.p. Progress; Mr. and Mrs. Higginson on 4½-h.p. Empress; G. Higginbotham on 34-h.p. M.M.C. car; A. E. Jones, with Mrs. Jones and W. Kenyon, 6-h.p. Daimler; V. O'Neill, 10-h.p. Cottreau; W. E. Rowcliffe, with Miss E. McVitie, 5-h.p. Century tandem; and E. A. Sherley Price, with J. W. Taylor, 6-h.p. New Orleans. The next Club run will be on Saturday, the 26th, when the members will take tea with Mr. Gerald Higginbotham at Ivyholme, Macclesfield. There are two suggested routes, that *via* Cheadle and Prestbury, being nineteen miles, and that *via* Knutsford, thirty-two miles.

On the Bath Road.

THE automobile traffic on the great Bath road between London and Maidenhead has attained such proportions, and is said to be causing such damage to the highway, that the Slough Council on Monday night resolved to ask the Local Government Board to consider the question. It is stated that the road watering staff of the Slough Urban Council has proved quite inadequate to cope with the clouds of dust raised, and this is a menace to the health of the community. We fail to see that motor-car traffic is likely to damage the road surface so much as the hoofs of horses; but even the most ardent motorist must confess that some of the roads of the country are very dusty at times.

More Brake Tests in America.

THE proposition of the municipal council of Philadelphia to limit the speed of motor-cars to five miles per hour in the city and ten miles per hour in the suburbs has aroused the local automobilists to action, and an ordinance has been introduced at the request of the Philadelphia Automobile Club and others limiting the speed to eight miles per hour in the most crowded thoroughfares, ten miles in others, and twenty miles in the suburbs. To demonstrate this, a number of councillors were recently given an exhibition of the stopping ability of various types of motor-cars at various speeds, as contrasted with that of horse-drawn vehicles, in Fairmount Park, similar to that lately

held in New York. Mr. E. B. Gallaher, on a Mers, carrying four passengers, made the following records: At 8 miles per hour he stopped in 7 feet 3 inches, less than length of vehicle; at 10 miles per hour stopped in 10 feet; at 17 miles, 22 feet; at 18½ miles, 25.2 feet; at 21½ miles, 40 feet; at 30 miles, 91.3 feet. A two-horse team, going at 20 miles per hour, stopped in 61 feet; a four-in-hand coach going at 20 miles per hour, stopped in 82.4 feet, and at 17 miles per hour, in 62.8 feet; four motor-cars, averaging 10.5 miles per hour, stopped in 15 feet; five cars averaging 17.9 miles per hour, stopped in 34.9 feet; five cars, averaging 22.1 miles per hour, stopped in 48.5 feet; and four cars, averaging 27.5 miles per hour, stopped in 80.1 feet.

A "Century" Trial.

ON Friday last week, on the track at the National Athletic Grounds, Kensal Rise, a Century tandem was put to a hundred-mile test, accomplishing the run in 3 hours 6 minutes 23½ seconds. Unfortunately two stoppages were caused by tyre troubles, and resulted in ten minutes lost time. The fastest mile was done in 1 minute 44½ seconds. The car was fitted with a 6½-h.p. Aster engine (with bore 88 m/m, stroke 110 m/m), running up to 1,600 revolutions per minute. With eleven feet of Begbie-Audin radiators the engine kept delightfully cool, while the uniformity of the trip was a noticeable feature of the run. Lap after lap was covered in thirty-six seconds, without appreciable variation—as is testified by the certificate of Mr. F. T. Bidlake, who took the times.

Forthcoming Speed Trials.

IN connection with the speed trials to be held at Bexhill on August Bank Holiday, Lord de la Warr has placed £100 at the disposal of the Automobile Club, to be given as prizes. In the speed section two new classes have been added, viz., steam cars weighing under 650 kilos., and cars weighing 650 and upwards, but not more than 1,000 kilos. Entries should be sent to the Club not later than the 26th inst. Among the entries for the tourist section already received are the following:—Mr. J. Gorham's 22-h.p. Daimler, the Motor Manufacturing Company's 20-h.p. car, the Speedwell Motor Company's 6-h.p. Gardner-Serpollet, Mr. G. K. Gregson's 12-h.p. Gladiator, and Messrs. Dennis and Co's 8-h.p. car. In the new steam class Mr. H. J. Swindley has entered a 6-h.p. Weston car, and Mr. G. H. Arnott will ride a Werner motor-cyclette. In the speed section the entries include Mr. G. J. Jarrott's 70-h.p. Panhard and a 8-h.p. Argyll.

End to End Trip.

EARLY on Sunday morning Mr. J. W. Stocks left Land's End for John o' Groat's on a 8-h.p. De Dion car, and arrived safely at his destination on Tuesday, having accomplished the run in two days fourteen hours and twenty-five minutes. This was the actual time from the start to the finish, and includes all stoppages. On Sunday night Mr. Stocks arrived at Whitchurch two hours ahead of his time-table, and is to be congratulated on having made the journey in such a short time.

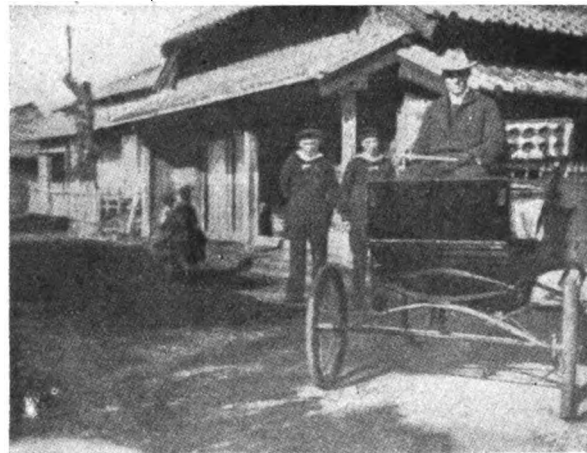
The Wolseley Racers.

WE have received a long letter from Mr. H. Austin, of the Wolseley Tool and Motor-Car Co., Ltd., in which he takes exception to the remarks of our Continental correspondent in our last issue anent the Wolseley cars in the Paris-Vienna race. Mr. Austin states:—"There can be no mistaking the inference to be drawn from these remarks, viz., that want of lubrication was the cause of the failure of the 'Wolseley' cars in the Paris-Vienna and Gordon Bennett Cup races. Now, although we had more than our full share of troubles, yet at no time did we experience any difficulty from this cause. As a matter of fact, we have never known the piston of a 'Wolseley' motor to seize, whilst on a vertical type of motor this is by no

means an uncommon occurrence. However, it is not our intention to enter into any discussion regarding the failure of our cars in the Continental races. On the other hand, we join most heartily in the congratulations due to Mr. S. F. Edge, who, with his Napier car, was enabled to win the Gordon Bennett Cup for England."

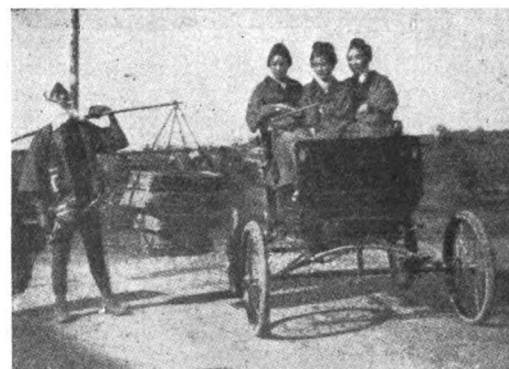
Motor-Cars in Japan.

SINCE the camera, as a necessary adjunct to the traveller's outfit, has made familiar scenes in every country of the world, it is a matter of endless astonishment to the stay-at-homes to find such evidence of what is popularly supposed to be home-grown civilisation in these out-of-the-way places—telephones among the



GERMAN SAILORS WATCH THE START.

BICYCLE, MOTOR-CAR, AND JINRICKSHA.



THREE LITTLE MAIDS FROM SCHOOL. MOTORING IN JAPAN.

Hottentots, phonographs among the Fiji islanders, kinetoscopes among the cannibals, and motor-cars everywhere. Mr. John W. Thompson, formerly of Philadelphia, who is now touring the land of the Mikado for his health, is the author of the accompanying photographs, which we take from *Automobile Topics*. In the first, Mr. Thompson is seen in his car, about to start. In the background two German sailors are seeing him off. Some miles away from Tokio Mr. Thompson was fortunate to encounter a Japanese cyclist and almost within hailing distance a jinricksha, with a sturdy,

bare-legged Jap in the shafts. Calling a halt, he persuaded the cyclist and the jinrickshaman to halt while the camera snapped the three of them, a unique combination of ancient and modern transport in Japan. Further along the road the traveller came across a Japanese fisherman, with his stock-in-trade slung over his shoulder on a bamboo pole, after the fashion of the time-honoured Chinaman on the willow pattern dinner plates. Near by were three dainty little creatures, who might have served as models for Gilbert's "Three little maids from school." Willingly they accepted Mr. Thompson's invitation to sit in his motor-car, and, while both they and the fisherman were wondering what he was going to do next, the camera snapped with excellent effect.

A Yorkshire Warning.

WHILE driving on Monday between York and Tadcaster on an 8-h.p. car two well-known Leeds motorists were stopped by a policeman, who seemed to come out of the hedge or the long grass by the side of the road, for travelling too rapidly. On enquiring how he made that out he asked them to wait until another policeman (also in plain clothes) rode up on a bicycle, and stated that as they had only just exceeded the legal limit, viz., 75 seconds for a quarter of a mile he would not bother them. He said they had travelled a quarter of a mile in 66 seconds. This occurred at 5.30 p.m., when there was no traffic about, and at about the fifth milestone from York. The road was on the rise, and it is possible that the motorists were going in the wrong direction from a policeman's point of view. The policeman had, as far as could be judged, a decent recording stop watch, which registered to a fifth of a second, very different to the watches with which some of the South of England police are provided.

Some Hints Regarding Tyres.

THE unavoidable accidents to the tyres of motor-cars probably form but a small portion of the total number. In many cases users are careless or ignorant, and meet with mishaps that could be prevented by the use of a little foresight. In a little pamphlet recently issued by the Diamond Rubber Company, for which Messrs. Shippey Brothers are agents in this country, they remark:—"Our repair shops report failures of tyres chiefly due to drivers becoming careless of the air pressure—insufficient as a rule—driving fast over rough places, striking stones, thus rupturing the fabric; also using tyres which have been ruptured or punctured. A tyre cannot be ridden deflated any great distance without serious consequences. Therefore, never ride tyres without inflating so that they stand up round under full load in motion. Every owner should possess a pump equipped with pressure gauge. We particularly caution motorists in using their cars during summer months to reduce the pressure in the tyres, for the reason that the heat increases the pressure in them."

Steam Cars in Germany.

HITHERTO steam motor-cars have been excluded from use in Prussia by the restrictions of a law enacted in 1890 for the control of steam boilers. Although motor-cars were not then contemplated, the effect of the law was to prevent steam carriages being used; but during the past three months certain features of the statute have been amended, and on the 15th of June a decree was issued granting to the Locomobile Company of America permission to sell their carriages for use in Germany, under the condition that three trifling modifications shall be made in their construction. This means that the German market is to be opened to steam vehicles, but each manufacturer, native or alien, must present his type of vehicle for inspection by the authorities, and obtain a special concession or licence.

The Motor-Bicycle.

To the great cycling world, and in anticipation of their wants, one of the most pleasing and gratifying attainments of modern mechanics is the perfection, or nearly so, of the small petrol motor of limited power, because with that point reached the success of the motor-bicycle is assured. The rapid increase in the number of motor-cars during the past few years means something of great moment to the motor-cycling interests. It was not until the past year or thereabouts that the bicycle-motor of 1½-h.p. was brought to a certain state of perfection. These small petrol motors are more easily understood, operated, and controlled than is generally believed. In some uninformed quarters it is erroneously supposed that they are dangerous, an error which should not be allowed to prevail. They have been classed as explosive motors, because they derive power from the instantaneous development of hot expansive gas, which, of course, is an explosion, but the motor itself does not explode. The efficient bicycle-motor opens up one of the most valuable of commercial markets. Its compactness, power, and economy make it possible for the man of limited means to take part in the great sport of automobilism. The motor-bicycle is always at hand ready to carry one, at a moment's notice, over the road at a speed that is equal to the requirements of the occasion, and well up to the legal limit.

A NEW motor tyre repair kit is being introduced by Messrs. Shippey Brothers.

WE understand that the "Packard" automobiles are about to be placed on the English market.

THE Leamington Town Council has decided to obtain a motor tender for the use of the Fire Brigade.

THE electrical trials, under the auspices of the Automobile Club, have been postponed until the last week in August.

MR. CORY-WRIGHT is the new chairman of the Motor Manufacturing Company, Limited, Mr. Roger Wallace, K.C., not now occupying a seat on the Board.

WE are glad to hear that there is no truth in the rumour which was published in the evening papers on Monday, as to Sir George Newnes meeting with an accident while motoring.

A LARGE number of English motorists will attend the forthcoming automobile events in Belgium, according to information supplied to the Belgian Automobile Club, from 119, Piccadilly, W.

MOTORISTS using the Dorking road during the next few Sundays had better keep a sharp eye for the police, as we hear on good authority that a number of constables have been told off for the purpose of catching automobilists at Mickleham.

THE War Office continues to give out orders for motor-vehicles, the Lanchester Company having just been favoured. Orders for Lanchester cars have also been received from the Duke of Portland, the Marquis of Zetland, and Mr. Rudyard Kipling.

Two doors from Holborn, namely, at 4, Gray's Inn Road, W.C., Messrs. G. D. Riches and Co. have started business as wholesale dealers in motor accessories and spare parts; the charging of accumulators will be a special branch, under the supervision of an experienced electrician. Their telephone number is 4778 Holborn.

THE grand jury of Richmond County (Staten Island) have decided not to bring indictments against Messrs. W. C. Baker and C. E. Denzler, the drivers of the Baker electric racing car which wrought such havoc at the speed trials on May 31st. The grand jury, however, made a recommendation that in view of the accidents attending the speed trials, which were held under the authorization of the Board of Aldermen of New York, it is advisable that in the future no further public tests of automobiles be held on any public highway in the borough of Richmond.

THE PARIS-VIENNA RACE.

By AUTOMAN.

MY account of the race as far as Belfort was written on the Austrian borders of the Lake of Constance, at Bregenz, under a broiling hot sun. The special train from Belfort had brought us along and landed us in the midst of the most charming Alpine scenery, on the borders of a lake green as emerald with a background of pine-clad mountains, and between the lake and the mountains the greenest of green carpets studded all over with the red-roofed, one-storied hamlets which figure so constantly in the Austrian oleographs and coloured prints.

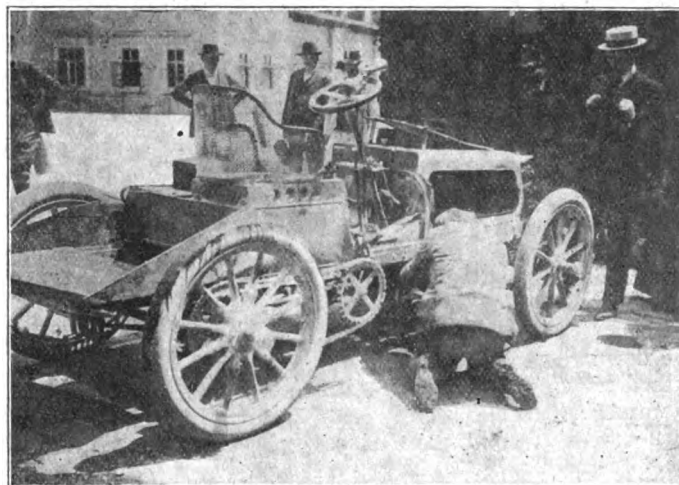
The rumours of accidents which we had heard at Belfort filled our minds with vague uncertainty, and although the experi-

have permitted such an open infraction of the bye-laws of the recognised authority.

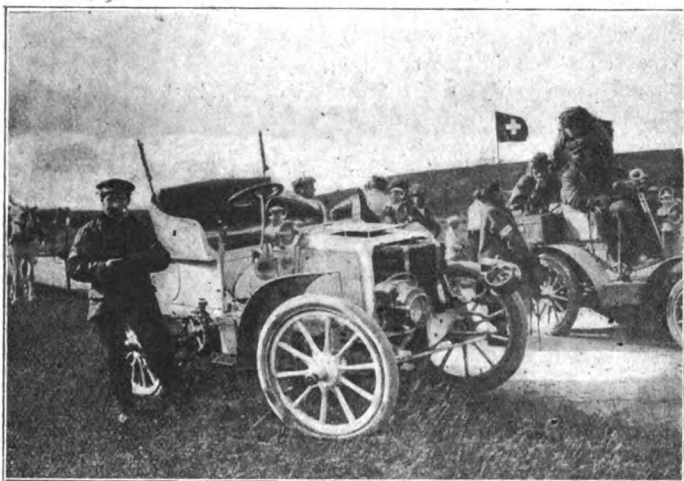
There are one or two curious details with regard to this fatality, which I cannot pass by without mentioning. In the first place, the car which the unfortunate man was driving is the first Pascal car. Some time ago I reported that Baron de Rothschild was commencing the manufacture of motor-cars, and that the profit of the undertaking was to be devoted to a medical institution in which the Baron takes a practical interest. The second curious incident in connection with this accident is that it is the third time within a very short period that a driver in the employ of the Baron has come to grief. In one case a driver was found dead in the middle of the road at the side of the car, and it has never been discovered how the fatality occurred, as there were no signs of any



AT INNSBRUCK.

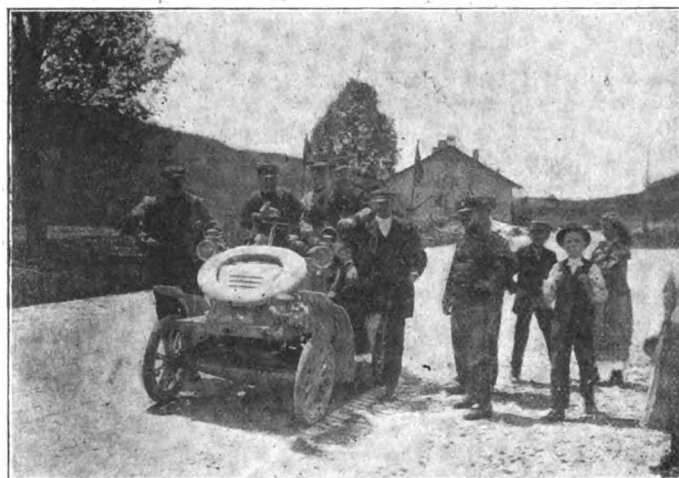


THE TURCAT-MERY (DE DIETRICH) CAR AT VIENNA.



THE CAR OF THE MARQUIS DE VILLALONGA BREAKS DOWN.

Photos by]



AT THE FRENCH FRONTIER.

[Madame Lockert.

THE PARIS-VIENNA RACE—THE TOURING SECTION.

ence of wild rumours in previous similar circumstances tended to alleviate our anxiety, there were such circumstantial details about some of the reports as to make a feeling of nervousness justifiable. At least three *chauffeurs* were supposed to be killed outright, and Mr. and Mrs. Gobron, who were passengers in the special train, were already composing the epitaph for their young driver, who was reported amongst the killed. Our relief can be well imagined when the news came along that all the rumours were unfounded, and that a few scratches and a sprained wrist were the only wounds received. True, it turned out that a driver in the service of Baron Henri de Rothschild had been killed, but he was not in the race, and was testing the speed of a new car over the racing course in a manner forbidden by the racing rules; and I presume unknown to his employer, who, I am sure, would never

accident. The third mechanician came to grief in the Ardennes, and was very seriously injured.

The control at Bregenz was situated some miles outside the town, and the sun and the dust made it anything but agreeable trudging up hill. On foot, however, I had to go, because the brave Bregenz Jehus had heard such terrible reports of the destruction spread around by these terrible motor-cars that they refused to bring their horses out, lest they should be included in the general destruction which was apprehended. There was little or no attempt by the military or the police to keep back the bystanders, and on the whole I really think this was an advantage. Bregenz offered a concert and a display of fireworks for the benefit of the *chauffeurs*, but as the special train left early, we could not profit by the invitation we had received, and started off to cross the

Arlberg in the night in time to arrive at Salzburg at nine o'clock on Saturday morning.

Salzburg is, I think, the most picturesquely situated town that I have ever seen, and it was at its very handsomest on Saturday morning (June 28th), when the special train brought us at about 9 a.m. into its midst. A broad river with swift current and emerald-green water divides the town in two; on each side pinnacles of rock seem to invade the precincts of the city with their precipitous sides. On one of these rocks is situated the magnificent old castle of Salzburg, which belongs to the Emperor of Austria, and where some years ago he entertained the Shah of Persia. From Bregenz to Salzburg over the terrible Arlberg was the hardest day for the racers, and we looked forward with anxiety towards the time of arrival, and I can assure you every car was warmly greeted as it arrived. The mountain pass was covered with snow, and had only been open to traffic a few days. It was here, too, that the Gordon Bennett race had to be decided, for this competition ended at Innsbruck, so that there was no excitement lacking as we proceeded to the control, which was situated on a level road some three miles out of Salzburg.

Telegrams came in at frequent intervals, and it became evident that Edge had won the Gordon Bennett Cup, and that even should De Knyff manage to repair his car he would never be able to make up his lost time. But his breakdown was too serious to be repaired on the road, for one of the pinions of his differential had given way—or, speaking more correctly, the pinion driving on to the differential—and there was no course open for him but to abandon the race. Towards half-past one the dust began to rise down the road, and every eye was strained and every face turned towards the west. The blue flags down the road began to wave, and the familiar cry of "Achtung, achtung," "Zurück, zurück," resounded as a Mercedes rushed up to the control at 1 h. 33 min. 32 sec. It was Baron Forest, who, starting twentieth from Bregenz, arrived first at Salzburg, leading all the rest by nearly three-quarters of an hour. Rumours now began to be circulated about the disasters on the Arlberg, and certainly every driver confirmed the fact that the dangers of the road were great and the breakdowns many, but the most sinister and wild rumours centred around Max, the Viennese driver of a Darracq, who was credited with having fallen over a precipice—car and all—300 ft. It turned out in the end that the car struck the boundary stones at the edge of the bridge of Tristana and fell over a precipice into the Sand River, but the driver and mechanic were thrown on to a heap of stones, the former being considerably bruised. At 3 h. 59 min. Edge came along, and we gave him three hearty cheers as the winner of the Gordon Bennett Cup.

At Innsbruck, Louis Renault and Baron de Caters had a collision, in which Louis Renault had his front wheel smashed and his back wheel and live axle bent out of all recognition. He executed the most wonderful repair that I have ever seen or heard of in an incredibly short space of time, and pushed through to Salzburg before nightfall. He replaced five spokes in the broken wheel by others made with such primitive tools as could be procured, and out of firewood, and straightened his back axle with a sledge hammer, showing an energy and resourcefulness worthy of the greatest praise.

The general impression left on my mind on Saturday night, June 28th, when I reached the special train at Salzburg Station, was, that if the organisers of the Austrian portion of the route had been on the scene, they would have had a warm reception at the hands of the *chauffeurs* as they arrived one by one from the Arlberg with the vivid impression of the difficulties and dangers traversed still fresh in their minds. However, they had the comforting assurance that the worst of their troubles was over, and the last stage was to be only a pleasure trip, a quick rush to Vienna over a road which had been levelled and prepared for the race. Alas! they had a bitter deception to experience. Just about starting-time for the special, M. Darracq arrived with his driver, Max, the hero of the Arlberg accident, and the former and M. Falconnet helped Max into the train into Darracq's berth, who had decided to stay the night in Salzburg and see his cars safely off in the morning. I think the accident of the Arlberg had upset

Darracq's nerves, and we helped him to unload all sorts of boxes of batteries and other spare parts which he intended to serve out to his drivers, for Darracq leaves nothing to chance, and his success is directly due to his personal energy and enthusiasm, which he communicates to all in his service.

In the special train the conductors were most obliging, and always before starting they looked us all up, so as to leave no one behind. We waited half an hour at Bregenz whilst Serpollet was hunted up, and all the time he was coolly seated at a café close by waiting for the signal to start. Nearly everyone aboard the train was crowded that evening into the *wagon-restaurant*, where there was only one subject of conversation, namely, "the Gordon Bennett Cup," round which arguments were fast and furious. News that Edge had fallen into a river, and been helped out, had spread like wildfire, and the most circumstantial details were to hand, including the exact number of peasants that had helped him. Sides were quickly taken. One of the Michelins, furiously Anglophobe, led the attack, and vowed that, if he were De Knyff, he would bring an action against the A.C.F. should the Cup go to England. This was in response to the Baron von Zuylen, who thought it would be more sportsmanlike to ignore the accident. Georges Prade sided with the Baron, whilst Huet contented himself with saying that if the Cup went to England it would be a great incentive to the industry.

Vienna is a remarkably fine city, with its wide streets and important, well-built structures, but the feature which would have struck most strongly an observer on the Sunday morning at 5 a.m., when our special arrived, was the speed of the cabs. It seemed quite appropriate to the Paris-Vienna Motor-Car Race to see fifty light Vienna cabs, with their splendid Hungarian horses, racing from the station to the hotels with the President of the A.C.F. in one, Peugeot in another, Gaetan de Knyff in another, Michelin in another, Max Richard in another, and so on, all the representatives of the French automobile trade racing for rooms and baths. Personally, I was chuckling, as I knew that most of them had not taken the precaution to reserve rooms, whilst I had written to the Bristol a week beforehand, and reserved a room. Imagine my disappointment when I discovered that a party whose name resembles mine had arrived with the tourists the night before and occupied my room. However, after a little loss of temper and a bath I settled down in other quarters.

Later in the morning I drove out along the Prater to the "trotting racecourse," or "Trabrennbahn," to reconnoitre the winning-post, which was situated in the woods which skirt the city. By the side of the racecourse at the city end there is a large round building called the Rotunda, and in this building the cars were to be put on exhibition after the race. I strolled into it and found some fifty cars of the tourist section already on view. Soon after noon the crowds began to collect on the racecourse, and telegrams commenced to arrive from intermediate towns along the route. Evidently amongst the uninitiated authorities, there was an exaggerated dread of an approaching racing motor-car, for the precautions taken as the first few arrived made the lives of the photographers a real burden to them, until, by a little healthy argument in very broken German, they came to understand that the knights of the camera were not going to endanger their lives. I must confess, however, that no one was ready for the winner when he came, and he put on such a spurt that he got ahead of the controllers at Florisdorf, and sailed gaily into Vienna at full speed, over the neutralised ground, and up to the winning-post the wrong way round the track. It was Marcel Renault, and if his advent was unexpected, his reception was none the less an ovation worthy of the splendid performance, which has upset many respectable theorists, who can argue for hours plausibly about the loss of power in the universal joint system, as compared with chain transmission. Marcel Renault was quickly loaded down with laurel wreaths, and received the prize for the first car to reach Vienna, which he earned by a good twenty-four minutes, arriving, as he did, at 2.18, amidst the strains of the "Marseillaise." At 2.42 the German National Anthem announced the arrival of Zborowski on his splendid Mercedes car. At 3.10 Baron Forest, the adopted son and heir

of the late Baron Hirsch, came in on his Mercedes, ignominiously towed by a tourist car. He had made a splendid run from Paris, and finding himself behind Zborowski in the third place whilst approaching Vienna, he put on full speed to pass him on a bad bit of road, and found himself quickly in the ditch, with the petrol tank burst, and all the petrol spilled.

Before leaving Baron Forest I must give the story of his entering the contest, as it was told me by a fellow journalist in the special train. A few weeks before the race the Baron, who is at Oxford, sent word to friends in France to enter him for the Paris-Vienna race. A reply was sent him that the single-fee date was over, and that it would be almost impossible to find a car. The Baron telegraphed to his friends to pay the double fee and find a car. Put to the test, Jellinek stretched a point and offered a Mercedes for 48,000 francs, which was immediately accepted. The car, however, not being ready, and the Baron having no experience of driving racing cars, another car was necessary, and a further 34,000 francs bought a 1901 type. Away went the young sportsman to learn to drive at a mile a minute and to reconnoitre the road, to the consternation of the Austrian police, who arrested his progress by barring the road and drawing up six burly gendarmes with loaded rifles point towards the blonde curls of the budding *chauffeur*, who had the satisfaction, after paying 1,000 kroners fine, of seeing ball cartridges withdrawn from the rifles which had just been levelled at his head. The incident did not close there, for, failing to put in an appearance at the subsequent proceedings, two gendarmes appeared at the Hotel Bristol on the Monday following the end of the race, to request the company of the Baron to a little entertainment according to Austrian law. They did not, however, find him, and the last I heard of it was that the matter was settled amicably by the judicious use of a little influence.

Talking with Edge, who arrived at eleven minutes past four, he told me the bitter disappointment the last day's route had been, and this was confirmed by all the *chauffeurs*. The *caniveau* or ditch across the road is bad enough, but the *dos d'ane* or donkey's back is the terror of the racer. The *dos d'ane* is a sudden hump right across the road, and no doubt covering a drain or a passage for flood water. It is sometimes hardly a foot wide, and it is impossible to see it when travelling quickly, until one is right on to it, an awful jerk resulting, the car leaving the road with first the front and then the hind wheels, and naturally coming down with a bang fit to smash anything. In this manner Edge's box for spare parts at the rear of his car got broken up, and he strewed the road between Salzburg and Vienna with spare tubes, valves, spanners, pliers, repairing outfits, etc. Hereby hangs a dark and mysterious tale and a good joke against Michelin. Finding all his spare inner tubes gone by the board, Edge said to himself, "Should I puncture before I arrive at Vienna I shall not be able to get in and shall lose my classification in the race. Prudence therefore dictates that I must procure some spare inner tubes." Unable to find a friendly competitor with inner tubes to spare, Edge very naturally stopped at a Michelin depot and asked to be allowed to purchase two inner tubes. The zealous employees of Clermont-Ferrand, only half understanding Edge, examined the tyres of his car and saw, or thought they saw, Michelin valves on the Gordon-Bennett Cup winner. Full of zeal, they communicated the news to Vienna, and on Monday morning a protest was put in against Edge for having used Michelin inner tubes. More than this, and unknown to Edge, a deputation was actually sent out to the Rotunda, where his car was housed, to substantiate the statement of the Michelin men, and with complete instructions to watch the car and never leave it, so that Edge might not surreptitiously change the inner tubes. All this fuss and bother originated with the fact that the Dunlop inner tubes used by Edge were fitted with English-made valves exactly resembling Michelins.

Every few minutes after Edge's arrival cars kept arriving until nearly five o'clock, when there came from the distance a series of violent explosions, like a pom-pom shelling the enemy, and louder and louder grew the uproar until the whole of the

spectators on the racecourse strained their eyes to see what could be the matter. I was talking with Michelin at the moment, and offered to bet him a hat that it was Jarrott, and surely enough, a few minutes after, at two minutes past five, up came Jarrott and Ducros, regulating on the electric ignition, and with the exhaust box smashed. Altogether, seventy-one vehicles were classed at Vienna, out of 138 which started from Champigny, and this percentage is higher than the anticipations and prophecies of the experts. A few more cars pushed through the whole course, but arrived too late in Vienna to be classified.

The stories of the Arlberg would take a volume to detail. There are, however, one or two which I must not pass over. The Arlberg was too steep for a good many cars, and there are plenty of witnesses and many photographs of Tyrolese peasants giving a friendly push, and one car, which shall be nameless, had to unload all its moveable goods and be pushed up. The big cars, however, could negotiate the steepest parts at the rate of twenty miles an hour.

Rene de Knyff's accident was as follows: After crossing Switzerland he noticed that the sleeve of the differential was broken, no doubt by overheating from some unknown cause, and this gave him a certain uneasiness; but all went well from Bregenz and the Arlberg was easily negotiated both up and down, and Innsbruck and the Gordon Bennett Cup were well in sight, when suddenly the car stopped and refused to move. On examination he found that the driving pinion had sheared off its attachment to the shaft completely, and the latter was turning free. Nothing could be done, and there was not a horse to be had.

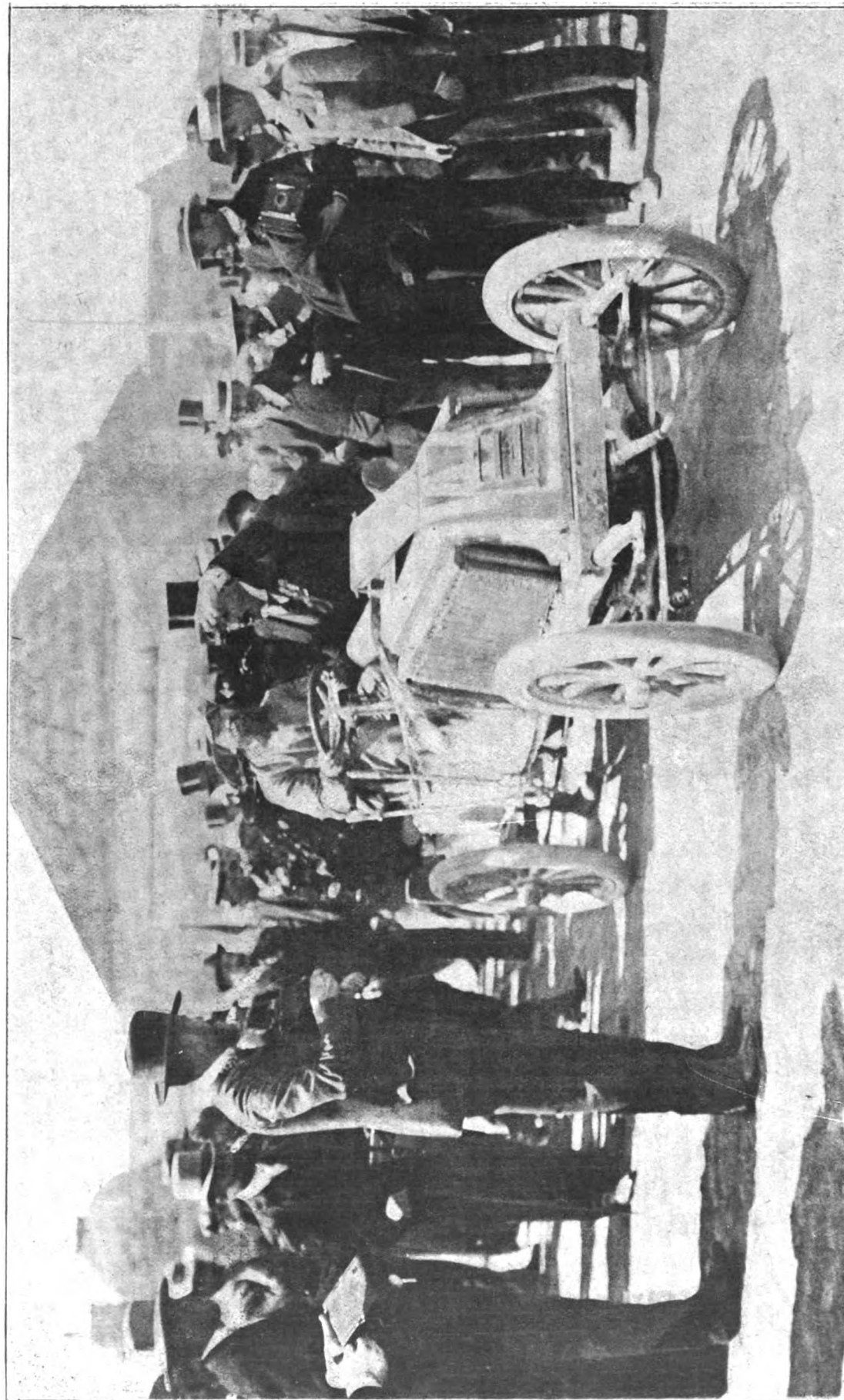
A peculiar accident on the Arlberg is that which brought to grief the Chenard-Walcker car, winner of all the late fuel-consumption trials in France. M. Walcker, the driver of the car, told me the story himself. The car was running well, but on the Arlberg M. Walcker witnessed several accidents, and this and the sight of the precipice which continually skirted the pass got on his nerves, until he completely lost control over himself, and deliberately turned his car away from the precipice into the rocks on the other side of the road, where it was broken up.

On the Sunday night after the race a banquet was offered to the competitors, presided over by the French Ambassador, and enthusiastic toasts were proposed. A feature of the banquet was that the entry of every fresh course was preluded by the sounding of a warning automobile horn, and the ices were brought in on a motor-car. For the next few days a series of excursions and fetes had been arranged, and I made one of a large party that went by steamer up the Danube to Nussdorf, and thence by special train up the Kahlenberg. At the top of the latter is situated a hotel and pleasure garden, on the terrace of which a sumptuous supper was awaiting us, whilst in the valley 1,000 feet below a display of fireworks enlivened the scene. The Kahlenberg is a most picturesque sight, and I should strongly recommend travellers to Vienna to visit it; but if I have any advice to give them, it would be, don't go by the beautiful blue Danube, which you will find neither beautiful nor blue between Vienna and Nussdorf, where it lies between uninteresting low-lying banks, whose only characteristics are swamps on the one side and gasworks and railway sidings on the other. On the following morning the Orient express took me back to Paris, along with a train full of *chauffeurs*, manufacturers, and journalists.

TATTERSALL'S catalogue contained a significant admission the other day when a horse, about to be put up for auction, was described as "the property of a gentleman who has bought a motor-car."

THE following advertisement recently appeared in a Kentish paper:—"If the motor party of four who had a private sitting-room and use of piano, and one glass of cherry brandy at —, May 23rd, and who left a powder-puff, will call they can have the latter by paying for room, otherwise the same will be sold to defray expenses."

The Paris-Vienna Race.



THE FIRST ARRIVAL AT VIENNA—COUNT SCHONBORN, THE PRESIDENT OF THE AUSTRIAN AUTOMOBILE CLUB, DIRECTING
M. MARCEL RENAULT TO THE GARAGE.

[Allgemeine Automobil Zeitung.]

MOTOR VEHICLES FOR BOROUGH AND COUNTY WORK.*

BY E. MANVILLE, M.I.E.E.

THAT there are great possibilities for the self-propelled vehicle in connection with borough and county work few will deny, but it is doubtful whether the full extent of the numerous purposes to which it can be put is fully realised at the present moment. Up to the present some of the more enlightened local authorities have organised services for street watering and dust collection by means of motor-vehicles, and, moreover, some attempt has been made in one or two cities to employ the motor in connection with fire brigade work.

The design and construction of the self-propelled vehicle have to-day reached a standard of excellence which renders it eminently suited to all classes of work; and serious consideration should be given to the claims put forward on its behalf. The main questions are economy and reliability of running, and, perfected as it now is, the motor-vehicle embodies both qualities to a very marked degree. Proof of this assertion is afforded by the official returns of the trials organised at different times by the Automobile Club and the Self-propelled Traffic Association; moreover, reliable evidence on these points is readily to be secured from the many private owners who make a practice of noting down valuable data relative to their motor-vehicles.

There are cars which for years past have been running week after week and month after month at a cost for fuel of 3d. per mile. Good results, however, are only to be secured by the employment of a thoroughly capable mechanic. No greater mistake can be made than to commit to an inexperienced man the charge of a motor-vehicle, and no doubt many have false impressions as to the cost of maintenance of motor-vehicles owing to the repairs that have been necessitated by the absence of intelligent care on the part of the individual whose duty it is to clean and adjust the somewhat delicate mechanism of the car. The initial cost, the expenses of maintenance, and the rate of depreciation are all points demanding consideration; but no comparison can be made between a motor-vehicle and one drawn by a single horse, as is only too frequently the case, for one of the former will do the work of at least three of the latter, and it is on this basis only that any attempt in the way of comparison of cost should be made. Again, false impressions of the cost of maintenance of motor-vehicles are obtained by the use of unsuitable types. The smaller and more lightly constructed vehicles, whilst eminently adapted for occasional use for pleasure purposes, are not nearly so suitable for constant daily heavy work, and in such cases vehicles of a more substantial type at a considerably greater capital cost should invariably be employed, and under such circumstances it may very well be said that, within reasonable limits, the greater the capital cost of the vehicle the cheaper its ultimate cost in maintenance.

Motor-carriages can be employed by municipal and county bodies in many different ways. What better means of conveyance could be adopted by city engineers, county surveyors, chiefs of police or fire brigades, or other civic officials whose duties so often require prompt attendance at some distant spot? A couple of minutes after a hasty summons, a motor-carriage could be got away, and, running rapidly and smoothly through the traffic, convey the fire brigade chief to some fierce outburst or the chief of police to the scene of a disturbance. No waiting for preparations, but an instant departure, and a journey made at a speed as fast as it is untiring.

City engineers and county surveyors should also gladly welcome a light, fast, and reliable vehicle, as by its means their duties could be much more expeditiously performed, and they would be always assured of quick arrival at any given spot when urgent need arises. The county surveyor and his principal assistants should find motor-vehicles almost indispensable to facilitate their work, for the extreme length of the journeys these gentlemen have to take makes the motor-vehicle incomparably

the best of existing means for getting about the roads; and, as a secondary, but by no means unimportant consideration, should be borne in mind the fact that the mere act of a motor-vehicle travelling at a comparatively fast pace over the roads would enable him to determine the condition of the latter and their comparative need of repair.

Again, local authorities who have electric and other tramway systems under their control might well avail themselves of motor-vehicles, both for the service of their engineers in the inspection of the lines, and for the conveyance of repairing gangs, etc. A large tramway company to which the writer is one of the engineers has actually availed itself of this method of transporting its engineers; and also the Compagnie de l'Est Parisienne has done the same thing for years past. Workmen engaged upon laying and repairing roads and gas and water mains might be carried cheaply and expeditiously, together with their tools and materials, to the point at which the work is proceeding.

Motor water and dust carts are already in use, but only to a limited extent; yet they perform their duties so admirably that considerable expansion in this direction may be safely anticipated, and with it the appearance of self-propelled street scavengers and other machines of special design for the public service. Very naturally, constructors of motor-vehicles are chary of launching out into the heavy expense which would be involved in designing and constructing special machines of this class until some encouragement is forthcoming from local authorities; but, given that, rapid progress will assuredly be made, and all manner of self-propelled vehicles for heavy work will be brought into practical use. It therefore follows that it is largely to the borough and county engineers the motor-car trade must look for the initiation of directions in which motor-cars may be utilised, and having regard to the well-known enterprise of these gentlemen, whose interest it is to see that the cheapest and best methods are used by the local authorities whom they represent, there is little doubt that the next few years will see a very large extension in the utilisation of these vehicles.

TO-DAY (Saturday) the members of the Irish Automobile Club will start from Dublin for a week's tour in Connemara.

THE United Motor Industries, Limited, have removed their stores and offices in Paris to 10, Rue Mogador.

WE have received a copy of the 1902 catalogue of Adler motor-cars from the Adler Fahrradwerke, Frankfurt-am Main, Germany. They are made in a variety of types and with engines of 4½-h.p. and 8-h.p.

THE Transvaal Engineering Company of Johannesburg is interesting itself in the question of automobilism, and one of its proprietors, Mr. T. H. Brown, is now in England studying the various motor-cars at present on the market.

CHATTING with an American motorist the other day, he remarked that out in the United States their principal trouble with petrol cars is in connection with the lubrication, little difficulty being now experienced as regards the ignition or carburation.

IN connection with the Annual Congress of the Society of Chemical Industry, at Liverpool, the Liverpool Self-propelled Traffic Association arranged to convey some of the visitors to the Widnes Chemical Works of the United Alkali Company, Limited, on Thursday, the 10th inst. The cars taking part in the run were:—18-h.p. Daimler brake, carrying sixteen passengers, and driven by Mr. Leonard Williamson, of Southport; Mr. Walter Jackson's 10-h.p. Daimler tonneau with Mr. Max Muspratt and party; Mr. H. B. Hemmons' 8-h.p. Argyll; Capt. Thornycroft Vernon's 7-h.p. Panhard; Mr. W. P. Culphey's 7-h.p. Panhard; Capt. Thornycroft Vernon's four-seated Locomobile, driven by Mr. T. H. Cookson; and some cars hired from the Road Carrying Company, Limited. Altogether there were about sixty passengers. The weather was exceedingly bad, rain being almost continuous. Mr. Jackson, of Bradford, had driven from Harrogate the previous night, and returned to Bradford on the evening of the run.

* From a paper read before the Incorporated Association of Municipal and County Engineers at Bristol last week.

THE BLERIOT "ELLIPTIQUE" LAMP.

MESSRS. BLERIOT have brought out a new lamp for motor-cars, called the "Elliptique." The lamp (Fig. 1) is made entirely of brass; the reflector is of pure nickel, and throws such a splendid light that the road in front of the car is claimed to be illuminated for a distance of over 200 yards. The generator is now made conical, and lodged in a box of similar

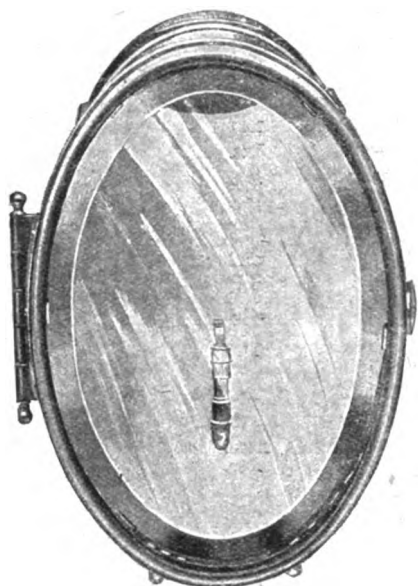


FIG. 1.

shape, so that it cannot rattle. Fig. 2 shows a section of the new generator, from which it will be seen that the generation of gas is on the principle of the old Bleriot lamps, but much simplified in detail. The generator is designed to use "Acetylithe," which permits of turning off the gas and relighting without appreciable

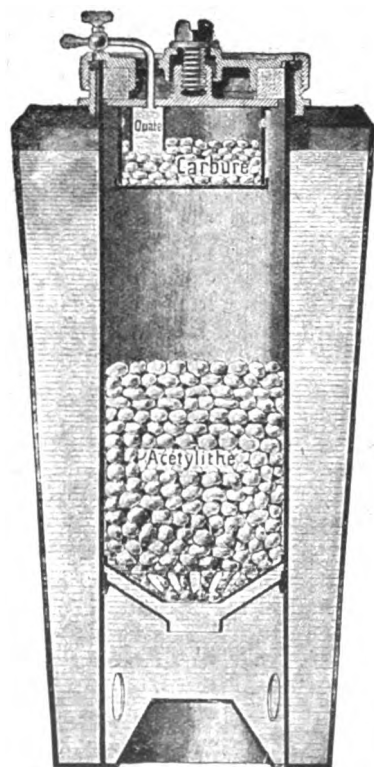


FIG. 2.—SECTION OF GENERATOR.

loss; the lamp is also now so constructed that it can be used with ordinary calcium carbide if Acetylithe is not available. This is easily done by removing the false bottom of the Acetylithe receptacle and stopping the hole of the fixed bottom with a rubber cork and a piece of rush running through it.

CONTINENTAL NOTES.

BY "AUTOMAN."

EVERYONE knows of the contract the Michelins made with the Dunlop Company a year or two ago, and how the Michelin tyres imported into England had to pay a very heavy royalty, which made the smallest car £20 dearer as soon as it crossed the Channel. To see this additional profit go into the manufacture of competing tyres must have been galling to the Clermont Ferrand firm, I should think, but whether this has stimulated their efforts or not I cannot say. Certain it is that for some time past they have been experimenting with a tyre which does not come under the existing patents, and they have run thousands of miles with this, which, I am informed, they intend to put on the English market very shortly.

ONE of the results of the Paris-Vienna motor-car race will, no doubt, be a change in the racing rules or in the choice of courses over which to race, for it has been made quite evident that timing on a large and extended scale is impossible, impracticable, and even ridiculous. Timing accurately is one of the fine arts, and can only be acquired by means of long experience. If you want to prove the truth of this assertion, take half-a-dozen ordinarily intelligent persons, give them stop watches, and ask them to time a motor-car over a measured mile, and you will get surely six different results.

IN a contest like Paris-Vienna every one of the competitors is satisfied with the timing of Messrs. Tampion and Gaudichard, but, unfortunately, these fully-qualified timekeepers, although they get little or no sleep during the three or four days over which such a contest lasts, cannot be everywhere at once, and difficulties and inaccuracies occur in the timing of the neutralised zones—that is, the towns and large villages through which the race passes. For each neutralisation a certain length of time is allowed for each competitor; the time of his arrival is booked, and a card given to him with the time marked on at which he may start again, and the actual time he does start is also booked. Such, however, is the liability to mistake, that in practice the competitors frequently find others coming in after them who actually started off before them; and errors of minutes are, I would almost say, continual. These added up easily make the difference between winning and losing an important prize. For instance, there were only five minutes between Edmond and Maurice Farman. Then, again, apart from the timekeeping, the neutralisations bring with them all sorts of other difficulties, and fines of time have to be inflicted, over which disputes and general dissatisfaction arise. It is an invidious situation for the Sports Committee to have to settle these matters, which are sometimes delicate questions, in which the prejudice of nationality is interwoven, so that a plan which avoids these dangers will have to be evolved. The simplest method would seem to be to choose a course where there are few or no neutralisations at all, and I am told that such roads exist in France.

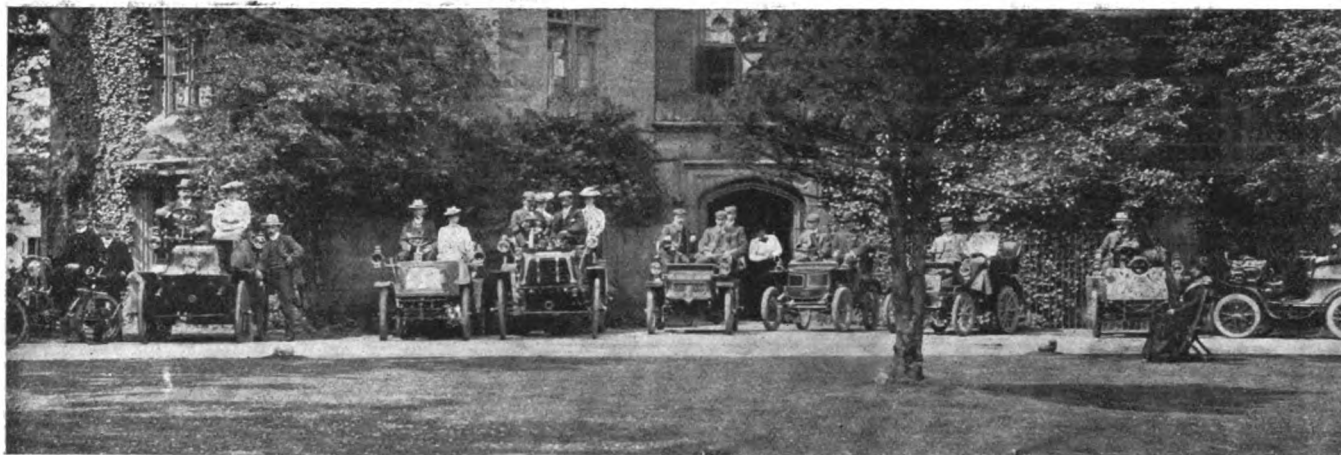
TALKING of routes where there are no neutralisations brings me to the "Circuit des Ardennes," which will be a most interesting competition. The whole of the Panhard stable cannot, unfortunately, be represented, because the Paris-Vienna cars are all sold, and the Ivry firm has no further control over them, but four cars will be there to compete with four by Mors. The latter will leave no stone unturned to retrieve his non-success in the Paris-Vienna contest. There is one circumstance with regard to the Mors car which should make Panhard and Levassor watch the results of the "Circuit des Ardennes." Until he punctured, Fournier was neck and neck with René de Knyff on the road to Belfort, and in 150 miles there was only a difference of ten seconds between the two. Talking to René de Knyff at the A.C.F. the other day, he told me his car was not yet back from Innsbruck, as there were some difficulties with the Custom

House, so that he will not be able to compete in the "Circuit des Ardennes." There are altogether seventy-five entries, including Baron de Crawhez (Panhard), Comte de Villegas (Belgica), Baron de Caters (Mors), Baron Forest (Mercedes), Count Zborowski (Mercedes), Messrs. C. Jarrott (Panhard), S. F. Edge (Napier), Dechamps, Jenatzy, Charron, Girardot, Dietrich, Mors, Gobron-Brillie, Delahaye, Clement, Decauville, Darracq, etc. In addition to the duel between Panhard and Mors, the C.G.V. cars have not said their last word, and no one knows really what they are capable of doing. The Mercedes will no doubt change their pinions, and go in for a higher rate of speed, seeing that there is no hill climbing to be done, and the roads are good. Jenatzy, too, is said to have a fast car. Mr. Edge would, perhaps, have been wiser to rest on his laurels, for though he may be able to slightly improve his Paris-Vienna position, he cannot expect to catch up the more powerful cars, while he runs the risk of a trivial accident detracting from his success. However, it once more shows his pluck, if he takes the chances, and automobile racing is productive of all sorts of surprises. The race is to be held on the 31st inst.

DUST will be the great difficulty at Bastogne, for the course is only about 53 miles to the lap, so that supposing only fifty cars start, there will be a car nearly every mile, and as the fast cars do considerably over a mile a minute, they will follow each other

since the great race was over he has been working hard in order to place before the Sports Committee the results of the contest gathered from the reports of numerous controls. There are literally hundreds of controls, and an average of over ninety cars passed them, so that there are at least 9,000 calculations to make. Certainly twenty figures per calculation would be a modest estimate, and yet would total up to 180,000 figures, which would take 100 hours' continuous work at two seconds per figure, without allowing any time for copying, comparing, verifying, and correcting errors. That is why the official results of Paris-Vienna are not yet published. I have just visited Tampier at his work, and he told me that the results would be out in a few days' time.

LEON SERPOLLET is not to be satisfied with having demonstrated to the world at large the reliability of his motor-cars, as he undoubtedly has done in the Circuit du Nord and Paris-Vienna races, in which latter I would call attention particularly to the little 6-h.p. Serpollet, driven by Mr. Herbert Oliver, an Englishman, who made his first appearance in the racing field in this competition. Mr. Oliver, on the little 6-h.p. of last year's pattern, came in smiling day after day, climbed the Arlberg, negotiated the *caniveaux* and the *dos d'ane*, and in the end beat a lot of other cars, including a 12-h.p. Serpollet. It was a record of what knowledge of a car and careful driving will do. Plans are



THE MEET OF THE MANCHESTER AUTOMOBILE CLUB AT LEASOWE CASTLE HOTEL, NEAR HOYLAKE. (See page 412.)

[R. Banks.]

in rapid succession. In addition to this, as there are six laps, and as the fastest cars go certainly twice the speed of the slow cars, they will have to pass them from three to four times.

THE result of the following rough calculation of the amount of passing that a fast car will have to do has rather startled me. Suppose that there are fifty starters, out of which ten average 60 miles per hour, ten average 50 miles per hour, fifteen average 40 miles per hour, and fifteen average 30 miles per hour, the passing for a fast car will then be:—Four times for each 30-mile car, that is sixty passings; twice for each 40-mile car, that is thirty passings; once for each 50-mile car, that is ten passings; not counting any passings for the other nine fast cars, the total would be 100 passings; add to this at least twenty-five passings caused by breakdowns, punctures, or other stoppages, and the total will be 125 passings in 318 miles, or one nearly every 2½ miles—that is to say, for a 60 mile an hour car one passing every two and a half minutes, which is something awful to contemplate.

PERHAPS one of the greatest favourites connected with international motor-car racing is the official timekeeper, M. Tampier. The busiest man of all concerned he certainly is, and yet he never loses his temper, and has always a kind word for everyone. Ever

in hand for a car which will be able to hold its own in the long road races in speed as well as regularity.

THERE is an exhibition going on near Berlin which should be interesting to automobilists, and particularly to makers of petrol and steam motors. It is being held on the shores and waters of the Wansee, a large sheet of water between Berlin and Potsdam. The Count Talleyrand de Perigord, who was one of the chief organisers of the Paris-Berlin race of last year, and who is, if I remember rightly, vice-president of the German Automobile Club, tells me that the exhibition, which is specially for motor-boats, also comprises motor-cars, and is well worthy a visit. The exhibition continues until September.

THE town of Eisenach, Germany, will be *en fête automobile* from the 25th to the 28th inst. On Wednesday next a trial of heavy vehicles commences at Leipzig, the competing cars being timed to reach Eisenach on the evening of the 24th inst., where they will be placed on exhibition for three days. On the 26th inst. there will be a congress of motorists, followed by a run to the Wartburg, where a concert will be given. On Sunday, the 27th, there will be a race to Meiningen and back, followed by a run to Reinhardsbrunn for another concert. On Monday, the 28th inst., the motorists will leave Eisenach for a two-days' tour in the Thuringian Forest.

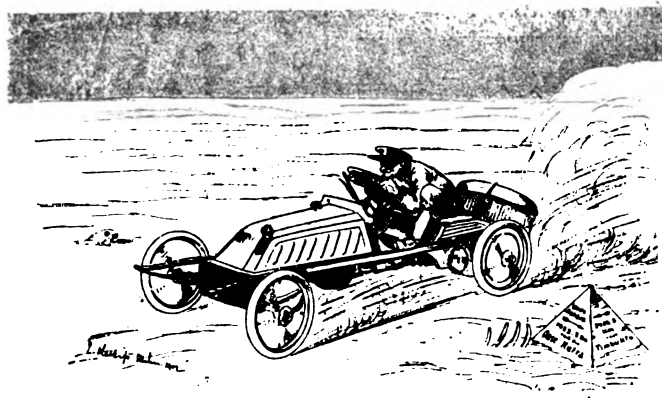
A CHAT WITH THE CUP WINNER.

MR. S. F. EDGE is a busy man, but this notwithstanding, his response to my question the other afternoon as to whether he would give me a few minutes was "a hearty 'Certainly, as many as you like.' Naturally the first duty was to offer my congratulation on his success in bringing the Gordon Bennett Challenge Cup to this country, and this once performed I opened fire with a string of queries.

The story of the Paris-Vienna race has already been recorded very fully in the *Motor-Car Journal*, and to it Mr. Edge has very little to add. "Indeed," said he, "in a race such as Paris-Vienna one has very little time to gather impressions. Your whole attention is centred on racing, and on the car you are driving."

It must be said, too, that my object in seeking out Mr. Edge was not so much to question him as to his impressions of the race as to sound him as to its results and probable effects. And on these points Mr. Edge has very clear views. In answer to my question as to whether there were any grounds for the suggestion that he had disqualified himself for the Cup, he remarked:—"None whatever. We certainly did get off the road a little way down an embankment, but fortunately we were able to get the car back on to the road unaided; and, more fortunately still, found that no serious damage had been done."

"Good, and I see that it has been decided that you fairly won the Cup, and that it has been definitely awarded to you?"



IF THE EARTH WERE A DESERT!

(Das Schnauferl, Munich.)

"That is so; it was settled in Paris the Saturday after the race. I did not come away till the matter was decided."

"Have you got the Cup?"

"Not yet, I expect it in a few days, and it will then be placed on exhibition at the Automobile Club."

"And now, Mr. Edge, let me ask you about the car which you drove to victory; what are its chief points?"

"Well, as you know, it is a chainless car, having a direct drive on the high speed. It was purely an experimental vehicle. In fact, the car was not really built for this year's Cup contest, and was only entered for Paris-Vienna to take advantage of the opportunity the race offered to submit the new ideas embodied in it to practical test."

"It must be a source of much disappointment to the French to see an English car take the coveted Cup from them, but I am glad to see that they did not permit trade jealousies to overcome fair play and justice, which forms the basis of true sport."

"Naturally the French do not like losing the Cup, any more than we should."

"While the success of the Napier ought to do much for the British motor-car industry, I do not think your victory will be a bad thing for the French makers, for now they recognise they have serious competitors on this side of the Channel they will be spurred on to greater things."

"Quite so," answered Mr. Edge.

"And now, I suppose, you have to be in readiness to answer a challenge next year?"

"That is only to be expected, and there is every likelihood that the 1903 Gordon Bennett race will be the most important one so far held."

"Why so?"

"For the reason that in addition to a challenge from France it is more than likely that Germany and Belgium will enter the lists; while it is probable that America will also send a team."

"Then I suppose you will soon be thinking about next year's racer?"

"It may surprise you to know that the designs are already in hand," was Mr. Edge's rejoinder. "Indeed, we shall probably have one car out on the roads for trial by December."

"If you have to meet challenges from all the four countries you have named, it will be no easy matter to retain the Cup."

"No, it will not; what is wanted now is some encouragement to motor-car builders from sporting motorists in this country in the way of orders for racing cars. In France, as you are aware, owing to support of this kind it is possible for one firm of builders to have quite a number of cars in a race, and thus the chances of winning are much greater than in the case of builders who are represented by only a single vehicle."

With this I fully agreed, and then led up to the all-important question as to where the 1903 race will be run. Mr. Edge is decidedly in favour of it being held on British soil, preferably in Ireland.

"But what about the many difficulties in the way?" I queried.

"True, there are difficulties, but in view of the importance of the matter they ought not to be insurmountable. If only the British public could recognise what racing has done for the automobile industry in France, they would view the matter in another light. The fact is not yet appreciated that the construction of motor-cars is bound to become a branch of industry as important as those connected with railways, and ought to be encouraged in every way if England is to take its rightful position in this section of engineering."

At this point I took my leave of Mr. Edge, but not before repeating my congratulations on his memorable success.

PHANOMEN.

EFFORTS are being made to improve the high-road between Scarborough and Whitby.

THERE are 12,000 hansom cabs in the streets of London, and 1,295 of these met with some mishap or other last year.

A MOTOR brougham, owned by Dr. Rutherford Harris, Llangibby Castle, broke down at Caerleon the other day, and was towed home by a horse.

THE ALBION MOTOR-CAR COMPANY, LIMITED, has been registered with a capital of £25,000 in £1 shares, with registered offices at 169, Finnieston Street, Glasgow.

FOLKESTONE was pleasantly described by Charles Dickens in an article which has been reprinted by the Frederick Hotels, Limited, in their pamphlet "Pavilionstone," to which Mr. Percy Fitzgerald has supplied an introduction calculated to draw visitors to the Royal Pavilion Hotel at that resort.

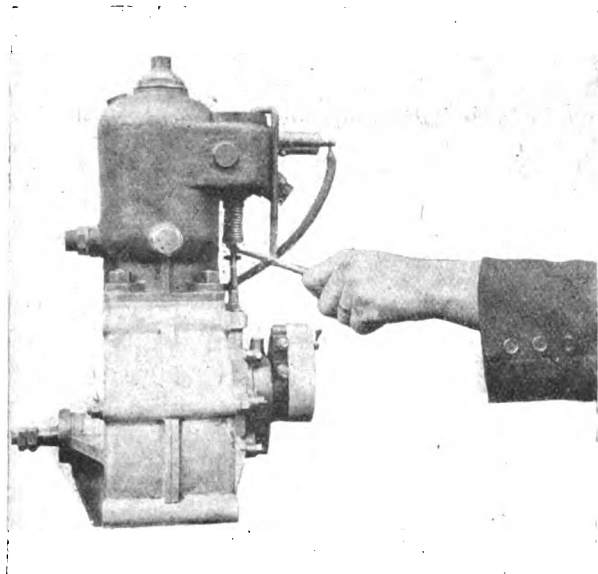
MESSRS. DE DION-BOUTON, LIMITED, have opened a branch depot at 59, Albert Gate Mansions, Knightsbridge, S.W. At their Brook Street premises, one day this week, we had an opportunity of inspecting one of the new De Dion delivery vans, of which an illustration was given in our last issue.

ON Sunday a motor-car overturned at Banstead, through the tyre bursting and causing the wheel to collapse. Three of the four occupants were thrown into the road and were badly injured. They were taken to Croydon Hospital and detained. David Doyle, of 13, King Edward Street, Westminster Bridge Road, the driver, had his thigh broken and spine injured; Mr. Percy McDonald, of 133, Clapham Road, sustained an injury to his back; and Mr. Alexander Ross, of 59, Lambeth Road, S.E., is suffering from cerebral concussion.

HERE AND THERE.

A MOTOR-CAR on the road is worth two in the ditch.

THE accompanying illustration shows a useful combination of exhaust valve raiser and grinding tool, which has lately been introduced by Messrs. C. H. Guest, Limited, of Draycott. The device permits of easily compressing the springs of exhaust



valves so as to facilitate the removal of the cotter when taking the valve out. The handle end is in the form of a screwdriver, and can also be used for grinding in exhaust valves.

A MOTOR-CAR wedding took place in North London on Saturday, when Mr. F. E. Coles drove his bride from church on a Belle car.

It is reported that M. Santos Dumont and Sir Hiram Maxim have promised to compete in the airship contest to be organised at St. Louis next year.

THE Bexhill Motor Company have ceased to run their cars to Hastings, being unable to obtain the consent of the local authorities to ply for hire there.

A HORSE, "quiet with motors and all other road nuisances," is advertised for sale by a West End lady, who ought to have known better than to characterise the automobile in such terms.

THE Force Motor Syndicate, Limited, has been registered with a capital of £5,000 to adopt an agreement with Messrs. W. A. Taylor and G. E. Warren, and to carry on the business of motor, motor-car, motor-cycle, and engine manufacturers.

CALLENDER'S CABLE AND CONSTRUCTION COMPANY, LIMITED, of Erith, have just acquired an electrical motor-wagonette from the British Electromobile Company. The car is intended for the use of engineers and others visiting the works, and is to be used to take them to and from the station. Two persons are carried in front and three or four in the wagonette body behind. The car is fitted with forty-eight "Leitner" cells, of 280 ampere-hour capacity, and is capable of running between eighty and ninety miles on a single charge. The average speed of the vehicle is twelve miles an hour.

DURING the last few days motor-cars with boating men as passengers have been familiar sights in many of the villages on the banks of the Thames, and the combination of boating with land travel is undoubtedly a very popular recreation. To enjoy the beauties of the river as well as the pleasures of the places on its banks some local knowledge is necessary unless one has such a companion as the little book on the Thames which Mr. G. E. Mitton has written and Mr. Grant Richards has published. This has a good series of plans of the river, and the historical matter is as interesting as the author's other work on the Fascination of London.

MESSRS. MANN AND OVERTON'S, LIMITED, have opened a department for accessories, motor parts, etc.

EXPERIMENTING on motors for bicycles is one of the causes to which Robert Roberts, electrical and motor engineer, Derby, ascribes his present financial embarrassment.

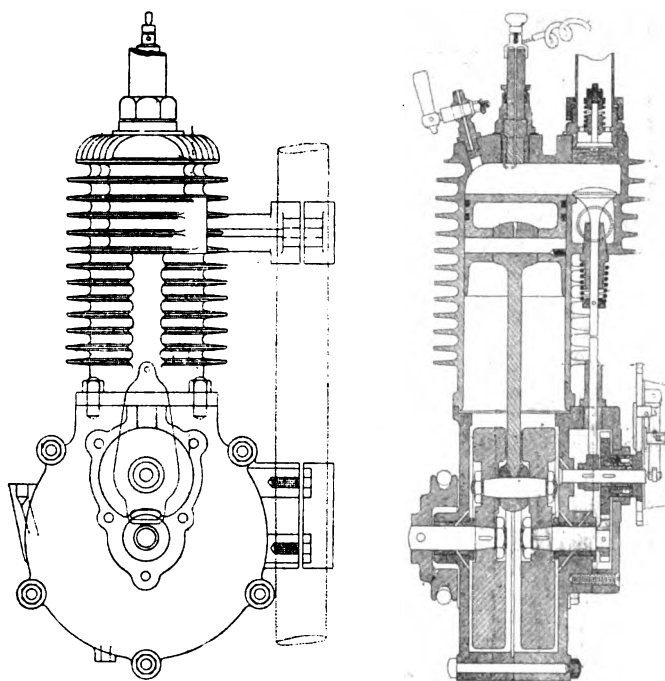
IT being reported that imitation Aster motor parts are being sold in this country, the Begbie Manufacturing Company point out that the genuine parts are stamped with a star—a mark for which purchasers should look.

IN the Paris-Vienna race Messrs. Georges Richard, for whom Messrs. Mann and Overton's are sole agents for Great Britain, started five cars. They all arrived in Vienna. Three of the cars were of 20-h.p., and were designed by Monsieur Brasier, late manager for Mors.

WE understand that the Daimler Motor Company has secured an order from Sir William Gordon Cumming for a carriage exactly similar to the one built for the King. Lord Windsor and Sir Charles Seely, Bart., have also commissioned the Daimler Company to build 12-h.p. cars.

FRISWELL, LIMITED, have taken the premises lately occupied by the Automobile Manufacturing Company, Limited, in Long Acre, W.C., and are opening them under the management of Mr. Guy Lewin. A general assortment of motor-carriages will there be stocked, including the new $9\frac{1}{2}$ -h.p. Clement, Dupont bicycles and carriages, Napier, M.M.C. cars, etc. The Holborn Viaduct depot will be kept exclusively for the sale of Peugeot carriages, and that at Holland Park for sales by auction.

THE London Autocar Company, Ltd., who have for some time been making a speciality of castings to enable engineers and others to turn out their own petrol motors, have lately introduced a set of castings to meet the demand for a more powerful bicycle motor than is usually employed. The set includes the cylinder and combustion chamber, piston, flywheels, connecting rod, piston ring casting, flywheel, crank cases, crank case cover for exhaust, two bushes for main shaft, two clips for crank cases, and exhaust valve guide. The accom-



panying illustrations show respectively a general view of the motor complete and a sectional elevation. It will be observed that the cylinder and combustion chamber are in one casting. The cylinder has a diameter of $2\frac{1}{2}$ in. by $2\frac{1}{2}$ in. stroke. Ample bearings are provided, while it will be seen that the sparking plug is located centrally over the piston. The external dimensions of the engine are about $6\frac{1}{2}$ in. by $6\frac{1}{2}$ in. by $16\frac{1}{2}$ in.

THE new Hotel Imperial at Seabrook, near Hythe, has a commodious motor-car garage.

MR. J. S. MONTAGU's Bill for the regulation of motor-cars is supported by Sir Edgar Vincent, the Hon. A. Stanley, Messrs. Harmsworth, Tennant, T. P. O'Connor, Henry Norman, and C. J. Murray.

THE honour of being the first lady to navigate an airship has fallen to Mrs. Stanley Spencer, the wife of the well-known aeronaut. On Monday she successfully navigated the Mellin airship around the polo ground at the Crystal Palace.

ON Sunday, His Highness Ras Makonnen, envoy extraordinary and plenipotentiary to the Emperor Menelik of Abyssinia, was driven by Mr. Timson on a motor-car from London to Theobald's Park, near Waltham Abbey.

WHAT looks like a plated cap of a wheel was seen to fall off a car in Wilton Place, Knightsbridge, on Sunday last. The owner can have same by giving his address to the United Motor Industries, Limited, 42, Great Castle Street, London, W.

THE Dunlop Company, the Martin Company, and the Good-year Company have notified their intention of entering tyres for the Automobile Club's forthcoming trial of pneumatic tyres, entries for which will be received not later than the 12th prox.

AS announced last week, the Catford Club's competition on Westerham Hill attracted much attention. The success of the Singer machine in both motor-bicycle events has been the subject of much comment, and both the makers and the rider, Mr. E. Perks, are to be congratulated on the double victory.

OWING to a horse which he was driving on the high road at Thirsk on Sunday taking fright at a passing motor-car, Mr. F. Pullyen was thrown out. The driver of the car tried to steer clear, but was unable, and the back wheel passed over Mr. Pullyen. Medical assistance was at once summoned, but the injured man died in less than half an hour.

A SUCCESSFUL meet was held by the Lincolnshire Automobile Club on Saturday at Captain Cole's place, Roxholme Hall. Among those present were Mr. C. W. Pennell (Durkopp car), Sir H. B. Bacon (Panhard), Mr. R. M. Wright (De Dion), Mr. Lovell, Stickney (Stonebow dog-cart), Mr. G. Godson, Asgarby (M.M.C. Phaeton), Dr. Bridgeman (Mabley), Mr. A. A. Padley (8-h.p. De Dion), Mr. J. Coombes (8-h.p. De Dion), Mr. and Mrs. C. Holland, Boston (6-h.p. Progress), Mr. E. Cragg, M.D., Mr. W. B. Jevons, Market Rasen (6-h.p. De Dion), Mr. Tomlinson, Grimsby (Bardon), and Dr. Gilpin (7-h.p. New Orleans).

THE Irish Motor-Cycle Union held an informal hill-climbing contest on Saturday last on Glenamuck Hill, between Carrickmines Railway Station and the district of Golden Ball. The distance was about three-quarters of a mile. The hill comprises two steep gradients; the surface, however, was excellent. The arrangements generally were rather crude. Some men started after a short run of forty or fifty yards, while others went back a considerable distance, and got up the fastest possible speed before crossing the line. The best time was done by G. Millington on a Werner (2 min. 30 sec.), J. B. Dunlop, Junr., on a F. N., being second, in 2 min. 37 sec., and M. R. Wheeler, on a Quadrant, third, in 2 min. 40 sec.

THE Ormonde Motor Company have written us with regard to the results achieved in the motor-cycle section at the Westerham Hill climb, and the advisability or otherwise of allowing pedalling in such tests. They remark that:—"We think we are correct in stating that the idea in organising these trials is to ascertain the exact capabilities of a motor-bicycle of a standard type, as sold to the public, but this fact seems to have been altogether overlooked by most of the manufacturers, with the result that motors of high power and very low gear were used. As at present there is no law forbidding motor-bicyclists from pedalling up steep gradients, we fail to see why the rules governing the hill tests should debar a rider from the ordinary conditions that pertain when touring in the usual way. The general rider does not require a freak, but a handy mount that will give good results under all reasonable circumstances, and one that does not fatigue him with a lot of unnecessary vibration."

CORRESPONDENCE.

A COACHMAN'S APPEAL.

TO THE EDITOR OF *The Motor-Car Journal*.

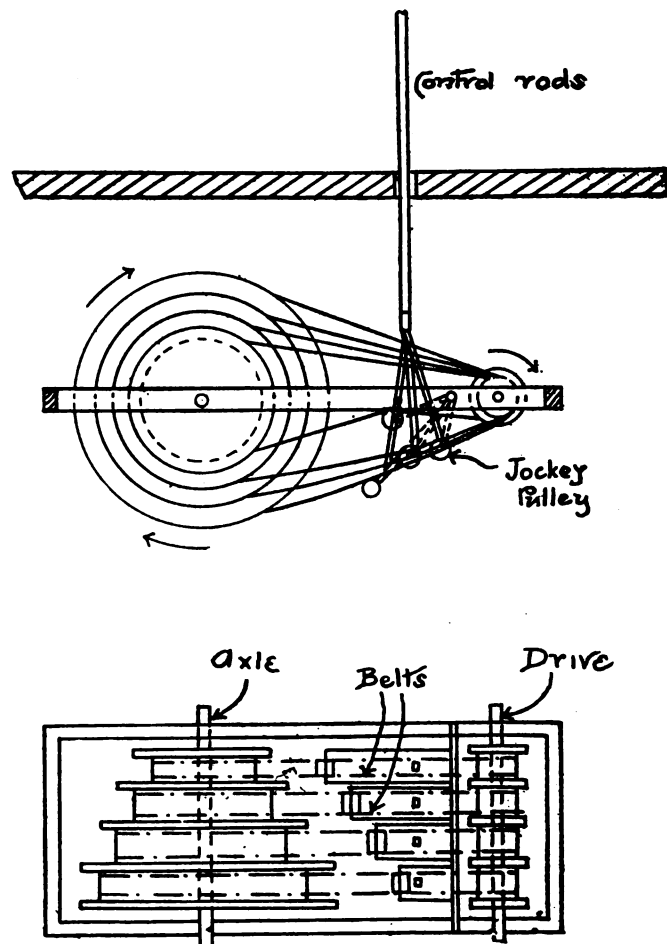
SIR,—I wish to learn the management of, and also how to drive a motor-car of a good make. As I have not the means to support myself during the time of learning, I should like to get with a firm to assist in the repairing department, in return for learning and a small weekly wage. I am now a coachman, but I wish to leave the stable, as I think the coachman's day is gone by.—Yours truly,

ONE WHO WANTS TO DRIVE.

VARIABLE SPEED GEARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have been greatly interested in the letters published in the *Journal* re the above, and enclose a tracing of a suggested change-speed



ELEVATION AND PLAN.

gear which might prove worth a trial. The power transmission is by suitable leather belts, which are thrown into action by jockey pulleys controlled from car, and which keep the belt at just the required tightness and allow of the engine running free when desired. The advantages are simplicity, less vibration and noise, and the whole of the gear can be placed in a small case in a suitable position, in accordance with the design of car; provision can also be made for a reverse. Any number of speeds can be utilised, or only two, as in the case of a motor-bicycle.—Yours faithfully,

FRED G. GARDINER.

TOUR IN BELGIUM.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I shall be glad to know from any of the readers of your *Journal* what it is requisite to ascertain and do in order to take my geared Benz car with me into Belgium. What would be the probable expenses, and price of petrol there? Are solid tyres suitable for the Belgian roads around Bruges and the neighbouring seaside places? What are the usual regulations as to the Customs' authorities?

Any information as to the best route to take, or other details, would be greatly appreciated by—Yours truly,

H. G.

THE PROPOSED LICENSING OF MOTORISTS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The subject of licensing motorists is now under discussion, and the prospects are that licenses will soon be generally required. Fundamentally, any measure to restrict the operation of motor-cars is objectionable. If speed laws and the dictates of common sense in this respect had not been generally violated there would be no occasion for requiring motorists to be licensed, for it is plain that the chief object in making this requirement is to secure an effective remedy for speed excesses in withdrawing licences rather than to insure that motor-cars be operated only by persons mechanically competent.

In France the licence system has been in force for a considerable time, apparently to the general satisfaction of automobilists, for I notice in the report on Laws and Ordinances presented to the recent Automobile Congress at Dijon the following reference to automobile traffic: "No one disputes the opportuneness of the provision requiring automobile vehicles and those who are to operate them to be submitted to an examination. It would not have been compatible with public safety, nor with the interests of the automobilists themselves, to allow the operation on the public highway of vehicles with insufficient means of control and safety devices driven by inexperienced persons."

In my opinion, the advantages of licensing would be the same here as in France. The measure would primarily be adopted for purposes of public safety, and if public safety can be assured by requiring motorists to be licensed, then the automobile movement and the industry would also be served.

Automobilists will hardly object to the little inconvenience that may be caused them by obtaining licenses, and the only real objection that, in my mind, could be made is that the requirement may lead to abuses. This, however, is not a valid argument against licensing, since the same may be said of all other forms of governmental supervision, and no sane person for that reason would advocate the abolition of all forms of governmental supervision.

As regards insuring that only mechanically competent persons shall operate motor-cars, the requirement of licensing would hardly change matters. A motor-car is a comparatively expensive machine, and owners therefore, as a rule are, or should be, careful in whose hands they place them, while if they drive their own vehicles they too are careful in every point, except possibly one, speed. A system of licensing would, in my opinion, tend to discourage speed excesses and would favourably influence the reliability of hired drivers. Whatever may be the disadvantages of the system, it certainly offers some advantages in return; and, besides, it is bound to come anyhow, whether we want it or not.

In putting forward my views on the subject I am not overlooking the fact that the proposal to require motorists to be licensed is considered distasteful by my fellow-*chauffeurs*, many of whom will no doubt hasten to take me to task.—Yours truly,

SLOWCOACH.

A USEFUL EXPEDIENT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—No motor-car or cycle proprietor looks forward with pleasure to being suddenly stranded for want of current, and when this does happen, either from an accidental short circuit or from the batteries or accumulators being used up, it is generally a case of a long stoppage, unless it happens in a convenient spot, which, alas! is seldom the case. A friend of mine had the misfortune to get stuck up in this manner last Sunday, and, as usual in my locality, I was sent for, and found the storage cells drained of current. Such a thing as a spare battery was not to be got in the town—at all events, on a Sunday—and as a last resource I took the small three-cell dry battery out of my electric torch, and coupled this up to the coil with the best connections I could make, and when I found it drove the two-cylinder 12-h.p. engine with regularity I was decidedly pleased. These small batteries are very light, probably under 1 lb. in weight, and so cheap that they are well worth carrying as a stand-by even on a motor-bicycle, and, in my idea, no car is complete without the electric torch, as it is tempting Providence to go messing about petrol tanks at night with ordinary lights.

Have any of your readers tried Davies' special emery for valve-grinding? It is a perfect marvel, doing as much in ten minutes as knife-powder or flour emery will accomplish in an hour, and after its use the valves seem to remain tight for a much longer period.—Yours truly,

A. C. P.

THE RELIABILITY TRIALS.

For the forthcoming Reliability Trials of the Automobile Club more than seventy vehicles have been entered by the following firms:—The Ariel Motor Co., Ltd., The Beaufort Motor Co., Messrs. J. W. Brooke and Co., the Brush Electrical Engineering Co., the Century Engineering and Motor Co., the Clarkson and Capel Steam Car Syndicate, Daimler Motor Co., Messrs. Dennis Bros., Messrs. Durham, Churchill, and Co., the Duryea Co., Messrs. Friswell and Co., Hozier Engineering Co., Messrs. Humber, Ltd., Messrs. James and Browne, Ltd., the Locomobile Co., Messrs. Mann and Overton, Messrs. Marshall and Co., the Maudslay Motor Co., Messrs. George F. Milnes and Co., the Motor Car Co., Ltd., the Motor Manufacturing Co., Ltd., the Motor Power Co., the New Orleans Co., the Newton-Pearce Motor-Car Co., Ltd., Messrs. Panhard and Levassor

(England), Messrs. Parr and Co., Ltd., Mr. F. Peckham, the Roadway Autocar Co., the Simms Manufacturing Co., the Speedwell Motor and Engineering Co., the Star Engineering Co., the Werner Motors, Ltd., Messrs. Wilson and Pilcher, Ltd., and the Wolseley Tool and Motor-Car Co. Mr. S. F. Edge, Mr. W. Exe, and the Hon. A. Verney Cave have also entered cars. The entry fees for these Trials now increase by 25 per cent. per week.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	FINES.
Camberley	P. Brennan, Newmarket	39 m. p. h.	£5 and costs.
Bradford	J. R. Egerton, Northwich.	Above legal limit.	£4 and 3s. costs.
Buckingham ...	Madame Claude Watney and M. Dumont, London	30 to 40 m. p. h.	£10 and 5s. costs.
Stratford, E. ...	S. Andrew, Leytonstone	20 m. p. h.	40s. and 4s. costs.
" ..	H. Olney, Streatham	20 m. h. p.	20s. and 4s. costs.
Northampton ...	W. L. Adams, Northampton	Above legal limit.	20s. including costs.
Guildford	W. Williams, Kensington	20 m. p. h.	£3 and costs.
Huntingdon ...	Rev. P. Armstrong, Cambridge	Above legal limit.	£3 3s. 6d. and costs.
Retford	Rev. P. Armstrong, Cambridge	30 m. p. h.	£7 5s. 6d.
Malling, Kent	C. S. Whitburn	20 m. p. h.	£1 and costs.
Chelmsford	C. G. Beharell, Forest Gate	Above legal limit.	£2 10s. and 7s. 6d. costs.
Rotherham	G. Ledoux, Sheffield	22 m. p. h.	10s. and costs.
Wallingford ...	W. F. Parker, Oxford	Above legal limit.	Adjudged.
Tunbridge Wells	F. Forest, Hastings	15 m. p. h.	£1 and 14s. 6d. costs.
Llandudno	M. H. Bates, Conway	Above legal limit.	£5 and costs.
Hereford	F. Marriott, Hereford	17 m. p. h. on a motor-bicycle	10s. and costs.
Southampton ...	H. Nesbett, Southampton	Above legal limit.	10s. and costs.

PATRICK BRENNAN, who has been fined at Camberley, is the driver of the motor-car of Colonel M'Calmont, who is mentioned as the next Governor-General of Australia. It was stated that on returning from Ascot on Hunt Cup day, Brennan entered Camberley at thirty miles an hour, and going to Ascot for the Gold Cup next day the car was timed by the police as travelling at thirty-nine miles an hour.

On the charge-sheet at Brentwood, on Friday, the 11th inst., were written the names of six drivers of motor-cars, three motor-cyclists, and eleven cyclists. They were all charged for travelling at an excessive speed. Timing one of the motorists, the police declared that five miles were covered in nine minutes. Fines of £5 and costs were imposed on two of the motorists, £3 on a third, and £2 on the others. The motor-cyclists were ordered to pay 10s. and costs.

EDMUND LEDOUX, a Frenchman, of 91, Clarkehouse Road, Sheffield, was summoned at the Rotherham West Riding Police Court on Monday for driving a motor-car at an excessive speed at Canklow. Police-sergeant Swann said on the 3rd inst., at 2.15 p.m., he was on duty in Bawtry Road, Canklow, and saw the defendant driving a motor-car at a very furious rate. He was just coming over the top of Brinsworth Common Hill when witness pulled out his watch and timed the pace for 220 yards, which the defendant covered in eighteen seconds. Witness measured the distance afterwards, which was between a stone post at the side of the road at the commencement, and a tree at the end of the lane at the finish of the distance. The pace was at the rate of twenty-two miles an hour. Witness stood in the middle of the road and held up his hands, and shouted to the defendant. The latter stopped, and witness asked for his name and address, which were given. Mr. Jebb (a magistrate): Was this down hill? Witness: Yes. Was it a straight road?—Yes, sir. How many people were about?—Four, sir. Were they walking on the footpath or not?—They were walking on the side of the road; there is no footpath there. Was there any danger of his running into these children?—No, sir. How can you time a 220 yards race from both ends?—I could distinctly see when he passed the stone post. Mr. Gichard: There was very little traffic on the road?—Yes, sir. Only some foot passengers?—Yes. But they were in no danger?—No, sir. And you were in no danger?—No. For the defence, Mr. Gichard said the constables' methods of taking the time were extremely unreliable, and their evidence would not warrant the Bench in convicting. The machine was only one of 9-h.p., and must indeed be a wonderful car if it could negotiate the hills at the speed indi-

cated by the constables. Defendant was sworn, and said he was in the habit of driving Commander Scott, the Chief Constable of Sheffield. He drove him on the previous day, when he assured him that he was very careful. Defendant was fined 10s. and costs.

THE Rev. Philip Armstrong, of Cambridge, who was fined at Retford on Monday for furiously driving a motor-car on the Great North Road, is alleged to have knocked down a horse, which had to be destroyed. Telephonic information was sent to the police, who stopped him at Newark. The magistrates were told that he was fined at Huntingdon on Saturday for a similar offence.

THE case at Chelmsford was in respect of a motor-bicycle, which it was alleged by the police travelled between Ingatestone and Widford—a distance of 4½ miles—in fifteen minutes.

WILLIAM MOCKETT, of 21, St. Peter's Street, Maidstone, was summoned for driving a light locomotive at a greater speed than was desirable, having regard to the traffic on the highway, in Mill Street, on June 26th. Evidence was given by several witnesses, and particular stress was laid on the fact that a collision occurred between the car and a mineral water van, but at the conclusion of the case Mr. A. J. Ellis, the defending solicitor, pointed out that no one had said that defendant was on the car, much less the driver, and on this ground the magistrates dismissed the case.

In the case against W. Williams at Guildford, his employer, Mr. M. Praschauer, of Carlton Mansions, Kensington, the owner of the car, said it was not going at a greater speed than eight or nine miles an hour.

At Llandudno, Maurice Bates, the Marquis of Anglesey's chauffeur, was charged by the police with furiously driving a motor-car on the road between Deganwy and Llandudno on the 7th inst. Dr. Dalton, a magistrate, said that the defendant tried to turn a corner, but was going at such a rate that the motor-car skidded right across the road, almost into some women, and nearly into witness's carriage. Then the tyre of the motor-car burst. The defendant did not blow his horn nor give any signal. It appeared that, on the date of the offence, the defendant, after being fined on a similar charge at Conway, had given an undertaking that the offence should not be repeated. Several witnesses deposed that the car was going at a moderate pace, but the Bench inflicted the full penalty of £5 and costs, together with the costs of the witnesses for the prosecutor, and two guineas advocates' fee.

DURING the hearing of the case against H. Nesbett, Chief Constable Berry said the police took the names of three persons on the day referred to, and defendant was the only gentleman who gave his correct name and address.

NO LIGHT.

DANIEL DE JONGE was fined 10s. for driving a motor-car without a red light behind after sunset at Slough.

THEFT.

At the Camborne (Cornwall) Police Court, R. B. Stewart, described as a motor engineer, was charged with stealing a bicycle from W. Curtis, of Redruth, and a volt-meter and an ampere-meter from his employer, Mr. W. C. Stephens, of Roskear, Camborne. On the latter charge he was given the benefit of the doubt, but on the former he was fined 40s. and 23s. 6d. costs.

A MOTOR-CYCLE DISPUTE.

At the Ipswich County Court, A. M. Underwood, Arcade Street, Ipswich, brought an action against H. H. Withers, cycle maker, Ipswich, for the return of a bicycle—or the sum of £9, its value—and £1 ls. balance due on accounts between the parties. Alternatively the plaintiff claimed £10 ls. damages for breach of warranty. It was stated that negotiations as to a motor-tricycle commenced between the parties about November last, when plaintiff was desirous of hiring a machine for a month. Ultimately plaintiff agreed to purchase the motor-tricycle if it were put into proper repair. Under the terms of the purchase plaintiff agreed to sell defendant, by way of exchange, a lady's bicycle, valued at £9; to strike off a balance of £1 ls. then due from defendant to plaintiff; and to pay him £17 in cash. Plaintiff further alleged that a condition of the purchase was that the motor-tricycle was of 2½-h.p., and subsequently, on finding it was only of 1½-h.p. he repudiated the contract, returned the machine, and requested the defendant to return the bicycle and balance of account. Defendant refused to do this, and wrote to plaintiff, "The motor-tricycle remains here at your own risk, and if not taken away before next Saturday will be sold." For the defence it was contended that the contract did not depend upon the horse-power of the tricycle. His Honour gave judgment for plaintiff, allowing five guineas on the lady's bicycle, and £1 ls. on the balance.

SEQUEL TO A MOTOR-CAR COLLISION.

DURING the Automobile Club's run to Southsea on November 16th last year the steam-car driven by Mr. O. H. Bayldon, of Chepstow Villas, Bayswater, was pulled to the side of the road at Skew's Bridge, Barnes, as the power was giving out. There were about 150 cars following in procession. Three or four pulled out and passed in safety, but the car driven by Mr. Harry Edwards, manager of the Roadway Autocar Company (Limited), collided with the plaintiff's machine, and damaged it

severely. Mr. Bayldon sought to recover damages from the Roadway Autocar Company for negligent driving, and the case was heard by Mr. Justice Bucknill in the King's Bench Division on Tuesday. The defendants denied liability, and pleaded that the collision was the result of an inevitable accident, and in the alternative that the plaintiff was guilty of contributory negligence. Plaintiff, in his evidence, said that the car at the time of the accident was practically a new one. He had given £220 for it, but after the collision he sold it at a sacrifice of £100, although the repairs had cost £70. Mr. Henry Morris, who was riding in the car, corroborated Mr. Bayldon's story of the accident. Witness was examining the machinery when the collision happened. He was within an ace of being crushed.

Mr. Edwards, the driver of the defendant's car, said that the fog was so thick and the cloud of steam from the plaintiff's car was so dense that it was impossible to distinguish anything more than a few yards ahead. He did not notice the plaintiff's car until he was within two yards of it, and it was then impossible to avoid a collision. He received no warning of the motor being at a standstill. In the end the jury found for the plaintiff with £100 damages. Judgment was entered accordingly, with costs.

CLAIM AND COUNTERCLAIM.

At the Ramsgate County Court, the Auto-Motor Express Company sued F. B. Bear for the sum of £10 14s. 9d. The defendant counterclaimed against F. J. Clements and R. Softly for £31 for the hire of machinery, &c. F. J. Clements, the chairman of the company, said it was proposed to build motor-cars to run between Ramsgate, Margate, and other places. They rented premises from Mr. Bear in Ramsgate. After a long hearing the judge allowed Messrs. Clements and Softly £9 14s. 9d. on the claim, and he allowed Mr. Bear £17 18s. 9d. on the counterclaim. He gave judgment for Mr. Bear against Messrs. Clements and Softly for £8 4s., being the difference between the two amounts.

THE DRIVING OF A MOTOR-CAR.

BEFORE Mr. Justice Channell and a common jury, an action has been heard to recover damages from Messrs. Swan and Edgar, Limited, resulting from alleged negligence in the driving of a motor-van. Mr. McCall, K.C., and Mr. P. Rose-Innes were for the plaintiff; Mr. Robert Wallace, K.C., and Mr. Muir Mackenzie for the defendants. It appeared that the plaintiff, Madame Valiquet, was driving on May 6th of last year in her brougham, which was drawn by a hired horse, in the Buckingham Palace Road, where the horse became frightened at the defendants' motor-van, and galloped off, colliding first with a bicycle, then with a victoria, and finally with a four-wheeled cab. The last collision threw the brougham on its side and the coachman into the roadway. The plaintiff was considerably bruised and shaken. Her doctor's bill was three guineas, and the cost of repairing the brougham was £25. The plaintiff's account of the matter was that the motor-van was being driven at fifteen miles an hour; that the driver, when signalled to by her coachman and herself owing to the horse being restive, paid no attention, but drove right on; that the motor-van was making a considerable noise, and that suddenly, just when passing, it emitted a quantity of steam which frightened the horse. There were two men on the van, both of whom stated that they saw and heard no signals, and knew nothing of the accident till two or three days afterwards; that the van was going about seven miles an hour, and could not have been going more than eight, as it was geared to that speed. As to the steam, it was said that the van was driven by petrol and could emit no steam except from the cooler, from which after twelve hours' running a light cloud of vapour might come, lingering just for a moment before it disappeared. In the result the jury found a verdict for the plaintiff for £50. Judgment accordingly.

A HILL-CLIMBING competition up Mont Cenis is to be held towards the end of the present month. It is being organised under the auspices of the *Stampa Sportiva* of Turin.

At 16, Store Street, Tottenham Court Road, W.C., the Imperial Manufacturing Company have opened a garage, from which they will let on hire motor-cars and buses.

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COMMENTS.



IN a recent issue we gave an illustration of the Earl of Shrewsbury and Talbot leaving for a hunting meet by motor-car, and, despite the outcry raised by certain fogies connected with sport in Warwickshire during last autumn, the use of the motor-car in connection with hunting is making great headway. The

Duke of Sutherland is a master of fox-hunting in Staffordshire, and it is no uncommon thing to see His Grace going to distant meets on his 12-h.p. Pankard. At Dunrobin, in Sutherlandshire, he uses another car for the convenience of his shooting and fishing parties on the west coast. There is no doubt that the motor-car will in the future play a very considerable part in connection with hunting, and although, of course, it is not likely to supersede the horse, still it will relieve him of many burdens that he now has to carry.

Motor-Vehicles for Municipal Work.

IN the course of the discussion on Mr. Manville's paper before the Association of Municipal and County Engineers at Bristol, Mr. W. Weaver, of Kensington, described the vehicle with which the scavenging work of that borough was done. He said he had a Thornycroft steam-propelled vehicle, which was partly their design and partly an adaptation of his own, and it had been at work for five months. It consisted of a water tank, holding 600 gallons, with a two-way distributor, one for flooding a road and the other for fine distribution. In addition to that it could carry a rotary brush, which in turn could be taken off and replaced by a spiral indiarubber squeegee, so as to get a wiping-up action after the cleaning of the wood surface. The vehicle worked extremely well, but, like all new machines, they found various difficulties, which they were removing as they went along. It worked all night in washing and cleansing wood pavement, and it would do 140,000 square yards in an hour. And when he told them it would wear out a set of bass brooms in four days, they would understand there must be some working friction. He was having another machine made in which he had endeavoured to rectify the little difficulties which had shown themselves in the last vehicle, and he believed in the course of a year or two they would be able to have a very satisfactory self-propelled street-cleansing machine which would be of immense service to borough surveyors.

Experience at Hampstead.

MR. WINTER, of Hampstead, said that he had had two Thornycroft steam vehicles at work for nine months. They were obtained chiefly for dust collection. The reason it was thought they would be an advantage for this work was that their destructor plant was two or three miles outside the boundary of

their district. He found there was a good deal of time and value lost when the vehicle was about the street for collection purposes, and the result was that compared to horse haulage it did not work out economically, even when a trailer was employed in connection with the motor. For the last three or four months he had used the motor-vehicle for street watering and haulage, and there he found it a very distinct advantage. Each motor-vehicle was now doing the work of four horses and carts. They paid 9s. 8d. a day for a horse and cart, which worked out at £1 18s. 8d. The motor dust-van, including driver, allowance for depreciation, and estimating fully for repairs, which he anticipated would be fairly heavy, cost 28s., or a saving of 10s. a day. The original cost of the motor-vehicle was £700. That included two bodies, one for dust collection and the other for street watering.

Hotel Charges.

WE hear of an hotel in Nottinghamshire the proprietor of which is so blind to his own interests as to charge one shilling for the privilege of leaving a motor-car in his open yard while the occupants have tea in the hotel. Not even the comparative privacy of the ordinary hotel yard is provided in exchange for this payment, as it is apparently the Sunday rendezvous for village loungers, who congregate in such numbers as to impede the movements of the motorist who may want to start up his engine. Hotel proprietors generally are not slow to recognise the worth and value of the automobilist, and this is an exceptional case to which the attention of the county automobile club might well be drawn.

An Unfortunate Accident.

AT the inquest concerning the death of the unfortunate farmer reported on page 424 of last week's issue it was clear that no blame could be attached to the motorists. Mr. W. Boulton, of Leeds, the owner and driver of the car, said that the vehicle had been going at the rate of ten or eleven miles an hour, but when the bend in the road, where the accident occurred, was reached the pace was not more than six miles an hour. Mr. Rowland Winn, of Leeds, and Mr. H. J. Kirk, gave corroborative evidence, and the Coroner said that so far as the evidence went it seemed to him that as much care was used as was possible in the circumstances. The jury found a verdict of "Accidental death," adding the rider that "beyond the evidence of the occupants of the car there is nothing to show what amount of care was shown to avoid the accident."

Technical Education.

DURING a discussion on technical education at Tuesday's meeting of the London County Council, some interesting references were made to the motor-car industry. A sub-committee of the Technical Education Board had reported that England, and London in particular, had suffered the loss of certain industries owing to the defective system of technical education; and in moving that the Board should propose practical steps to remedy this state of things Mr. T. A. Organ said

he had noticed, when going through Long Acre, the names of British manufacturers being blotted out for French ones, and he thought before long they would wake up and wonder where the motor-car industry was. Mr. John Burns also referred to the automobile business, in connection with which he said the backwardness of England was not due to the workmen, but to political reasons. When once the engineers of England took up the manufacture of motor-cars they would sweep the earth—a fact which is steadily receiving demonstration.

Fines from Charity.

ALTHOUGH folks may imagine that the fines paid by motorists are a contribution to the revenue of the county, they are not, by any means, a relief to the locality. Many gentlemen allocate a portion of their incomes to charitable purposes and the like, and from such funds fines incurred during motoring are generally paid. Fines can hardly be regarded as ordinary expenses, nor do they come under the heading of luxuries. We are afraid charities suffer when they are imposed—a fact which county gentlemen should remember when inclined to show animus on the Bench.

In an African Pass.

In the neighbourhood of Port Elizabeth, Cape Colony, there is only one motor-car in constant use, viz., a 4½-h.p. Benz, the property of Mr. W. Alcock. The car has done good service over the veldt, and we have received a photograph showing it coming up Van Staden's Pass, which is twenty-eight



miles from Port Elizabeth. The pass has a gradient of one in ten, and the road is loose and covered with rough stones. Although it was considered out of the question that any motor-car could go successfully down the pass, it was driven up and down without the slightest difficulty.

A Word in Season.

THERE was a pretty little play enacted on the Epsom road on Sunday, when some county police set forth to take the names and addresses of motorists who were travelling in speedier style than the old-fashioned manner familiar to our grandfathers. But it so happened that a well-known resident of Epsom, whose pastimes include motoring and golf, was aware of their plan, and he, with that fraternal spirit that all good motorists display, spent a few hours on the road warning about a score of fellow automobilists of the danger that lurked ahead. In this way he rendered good service and frustrated the designs of the

police, who thus wasted their time at the expense of the county. A word in season to the passing motorist is always appreciated where the police and the magistrates prove unfriendly. We learn from another source that the Surrey police have a measured distance not far from Surbiton, on the Hook Road, starting from the brow of the hill beyond the North Star public-house to the bottom of Hook Village, ending at the cross roads. The police will be on duty on forthcoming Saturdays and Sundays in or near Hook and are also on the look-out at Chessington, about a mile further on the same road.

Beware of Maidenhead.

SURREY motormania has extended to Berkshire, and drivers passing through Maidenhead may expect to be worried and summoned by the police. Before the usual business of the Maidenhead police court was proceeded with the other morning the Chairman (Mr. Cox) said that he had received a complaint from a gentleman as to the excessive speed motor-cars were driven in Maidenhead. The writer stated that he had nearly been run down by people driving such vehicles. He (Mr. Cox) knew that what the gentleman had written was only too true. For instance, that morning, when he was coming down the Grenfell Road, he was as nearly as possible run into by a motor-car. He could not see from whence the car was coming, and it only just escaped colliding with his wheel. He thought the police should take this matter up, as something ought to be done to protect the public, to all of which the magistrates' clerk responded, "I quite agree with you," in a style worthy of Gilbertian days. The superintendent of police said he had had men on special duty to watch the motor-cars, but that did not satisfy the Chairman, who told him how in one town the Chief Constable had men placed at various points with stop-watches to check the rate of speed these motor-cars were run. He thought a good plan would be to adopt what other counties had done, and have men stationed at a measured distance to check the speed, and then the offenders could be brought before the magistrates. The police superintendent promised to give the matter his attention, and an early haul of motorists is anticipated.

To Those Who Lurk in the Rear.

WHEN will cyclists learn the folly and discard the practice of keeping as close as possible to the progressive motor-car? In addition to the police who peer out from the most unexpected places, and the dogs and children who dart across the roadway to the consternation of humane drivers, the cyclist who lurks in the rear of the car, taking advantage of the shelter thus afforded, is a person to be abhorred. It is annoying enough when only men are riding; but it becomes ill-mannerly when ladies are in cars. Often have we seen three or four cyclists in the wake of a speedy car. Were it to stop suddenly their plight would be unfortunate; but only themselves would be blame-worthy. Only the good sense of the individual cyclist will prevent the annoyance, but something might be done if the captains and officials of cycling clubs would point out the danger of the practice to their members.

Touring in Holland.

ON the opposite page of the present issue we are able to reproduce three snapshots of an interesting tour in Holland, undertaken at Whitsuntide by a party of Belgian motorists mounted on eleven cars. The meet took place at Antwerp, whence a good run was made on the first day to Utrecht. The next day the journey was continued to Arnhem, via Appeldoorn, near which place is the Castle of Het Loo, one of the residences of the Queen of Holland. The final run was via Nymegen and Venloo to Liege, where the party dispersed after a pleasant outing. All the cars behaved well, the only trouble encountered on the trip being three punctures.

Tyres.

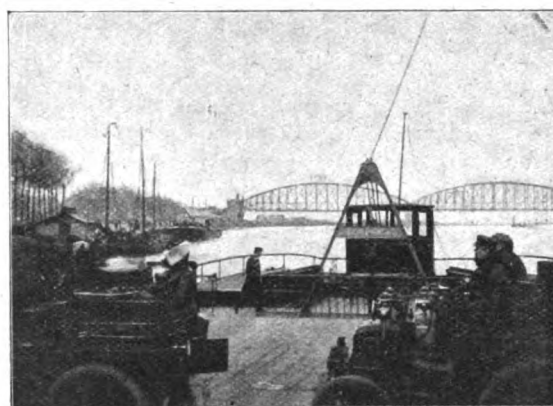
DURING the past week many motorists have been to 14, Regent Street, to inspect the Dunlop tyre covers taken off the Napier car that won the Gordon-Bennett Cup, which, by the way, is now located at the Automobile Club in company with several other trophies. The covers show but slight trace of their long journey. The right-hand driving wheel seems to have had a hard time, and the rubber treads are worn through completely round. In some places two plies of the canvas are also worn through owing to the brakes being unevenly set; during the descent of the famous Arlberg Pass the right-hand wheel repeatedly locked and skidded along the road, so that the tyres were worn. On the left back wheel cover there is a bad gash exposing a small piece of the inner tube. Notwithstanding these threatening circumstances the tyres went through the

Future Arrangements.

To show Mr. Jones's exertions last week to work up a trade in this way, it may be mentioned that he ran to Tewkesbury twice on Saturday, to Cheltenham with two loads on Monday, a car load to Malvern, and another to Upton-on-Severn were sent on Tuesday, and on Wednesday two loads were sent to Tewkesbury. When he first ran to Tewkesbury he had a crowd of over a thousand people round him in the Plough Hotel yard. As was natural, the shopkeepers in Tewkesbury did not altogether appreciate the fun of being undersold, and thirty-six petitions were signed to prevent his selling in the Plough yard. Consumers, however, looked at the matter in a different light. During the rest of the season he will run a car to Tewkesbury Wednesdays and Saturdays, and on Tuesdays and Fridays he will go to Malvern; if circumstances permit, Gloucester or other towns



WAITING FOR THE
FERRY AT NYMEGEN.



CROSSING THE
RHINE AT NYMEGEN.



ON THE ROAD TO APPELDOORN.
AN AUTOMOBILE TOUR IN HOLLAND.

[La Belgique Automobile.]

whole of the trying journey from Paris to Vienna without a puncture.

Motor-Cars and the Fruit Season.

THE exploit of the fruit-grower of Worcestershire in selling fruit from a motor-car, which was reported in last week's *Journal*, has made quite a sensation in the district. Mr. Sidney Jones, of Evesham, is the enterprising gentleman who has thus shown the value of the automobile to fruit growers, and he has been running loads of fruit and vegetables by motor-car to Malvern, Cheltenham, Tewkesbury, and Upton-on-Severn. So successful has the experiment proved that he proposes to continue the use of motor-cars during the season. So far the cost has not proved less than would have been the case had the fruit gone by passenger train, but considerable time has been saved.

will be visited during the rest of the week. The vehicle employed carries a load of 15 cwt.; it belongs to Mr. V. G. New, of Evesham, who also arranges pleasure trips by motor-car to the many historical places in the neighbourhood.

The First American Motor-cycle Race.

PROMOTED by the Metropole Cycling Club of New York, the first motor-cycle race in America has been held. The run was in two stages, the first day's journey being from Boston to Hartford, 126 miles, and the second from Hartford to New York, 127 miles. Each day's run was divided into five approximately equi-distant controls, and the awards were on the basis of a maximum of 1,000 points, 100 to each control. Penalizations for replaced parts and late arrivals at controls were deducted from the maximum. Each replaceable part was sealed by the

referee at the start and each replacement resulted in a penalty of five points. An early and a late limit was set at each control, within which unpenalized arrivals could be made. Each minute of arrival behind the late limit entailed the loss of a point. The machines were classified and limited in speed as follows: Class A up to 1½-h.p., 8 miles per hour minimum to 15 miles per hour maximum; Class B, 1½ to 2½-h.p., 10 to 15; Class C, 2½ to 3-h.p., 12 to 15. Each contestant was furnished with a time schedule on a celluloid-covered card, giving him his time schedule at each control. These were strapped to the arm and were in plain view of the rider all the way.

The Results.

THERE were thirty-one starters, and of these eighteen reached Hartford. Seventeen left the latter place, and thirteen got through to the finish, seven scoring the maximum number of points, and tying for the gold medal; two won bronze medals and the Metropole blue ribbon, one gained a red ribbon and bronze medal, and three secured bronze medals. Of the first seven machines, one was a 2½-h.p. Holley, three were 1½-h.p. Indians, one a 2½-h.p. Crescent, and two were 3-h.p. Orions.

An Agricultural Motor.

DESIGNED for the use of farmers, the Ivel agricultural motor was put to a practical demonstration on Wednesday. An illustration of the machine appears on page 437, with the maker, Mr. Dan Albone, following in the rear. Mowers, reapers, etc., are attached by a spring coupling, and almost any agricultural machine can be fixed to the appliance in a few minutes. It can also be utilised for cutting chaff, grinding corn, pulping roots, etc. A double-cylindrical 8-h.p. engine, with water circulation, is fitted. Electric ignition is provided, and there is one speed forward with reverse. The engine is free, and when put in motion a friction clutch is employed to transmit the power through an intermediate shaft to the balance gear shaft, by means of Renold patent silent running chains. The wheels have extra wide rims with grips on to prevent them from skidding round. For travelling on the high road from place to place, detachable rubber pads are attached to the rims of the wheels by means of thumb screws. These rubber pads lessen vibration and enable the motor to run more silently. They are easily fitted on and taken off in a very short time. The trials, which were held on Mr. G. Capon's farm at Old Warden, near Biggleswade, in the presence of a large assembly, including Lord Alwyne Compton, M.P., were entirely successful.

The Bexhill Trials.

IN addition to the entries for the Bexhill speed trials on August Bank Holiday, given in our last issue, the following gentlemen have since entered cars:—Messrs. A. Burgess, J. A. Holder, S. C. Cory, W. J. Peall, C. W. Peall, W. Exe, W. M. Letts (4), C. C. Maudslay, Capt. Skeffington Smith (2), G. Cornwallis-West (2), W. G. Crombie, C. H. Clift, J. Clifford, T. B. Browne (2), T. Chambers, E. W. Hart, R. H. Fuller (2), F. W. Peckham (2), H. Austin (3), A. Heard (2), J. Overton, W. D. Astell (3), R. E. Ellis, C. Cordingley (3), S. F. Edge (2), W. P. Spencer, A. T. Evans (4), W. G. Crampton. Except where otherwise mentioned only one car has been entered by each competitor.

A MOTOR-CYCLE handicap is included in the programme of the sports to be held by the Littlehampton Amateur Athletic and Cycle Club on Bank Holiday, August 4th.

As is well known, the Shah of Persia has for some time had a Serpolkt steam car at Teheran. During the course of his recent visit to Berlin he exhibited much interest in petrol cars, and at his request a Mercedes of the latest type was taken to the Persian Embassy for his inspection.

BANQUET TO THE GORDON BENNETT CUP WINNER.

ON Wednesday evening, at the Whitehall Rooms, Hotel Metropole, London, a complimentary banquet was given by the Automobile Club to Messrs. S. F. Edge and M. Napier in celebration of the British victory in the Gordon Bennett Cup contest. Mr. Roger Wallace, K.C., presided over a company of about a hundred gentlemen, who included all the best known automobilists in this country. Several interesting telegrams and letters were read from well-known men, and the Right Hon. A. J. Balfour wrote congratulating Messrs. Edge and Napier on their success, and referring with pride to the fact that the car was of British design and manufacture. M. Ernest Cuenod, president of the Swiss Automobile Club, wrote that Messrs. Edge and Napier deserved their best congratulations for bringing the international trophy to England. But the greatest enthusiasm during the reading of the letters was reached when the Chairman read a message from M. Charron, the first winner of the Cup, congratulating Mr. Edge on his victory, which was also a triumph for the English industry. The cheering with which this greeting was received was renewed when, at a later stage of the proceedings, M. Girardot, the winner of the Cup in 1901, formally handed the trophy to the latest winner.

After the toasts of the King, the Queen, and the other members of the Royal family had been honoured the Chairman and Mr. Mark Mayhew proposed the health of the guests. In the course of his speech the former urged that next year the race should be run in England, and Mr. Mayhew felicitously traced the history of the Napier car from the time of the 1,000 miles Trial. Mr. Edge had shown himself one of those Englishmen who did not know when they were beaten, but who simply went on until they won. Mr. Napier had produced a motor-car in which they were not afraid to ascend and descend the awful pass of the Arlberg and come back through the criticisms of foreign nations to a rejoicing Automobile Club. The toast having been drunk with enthusiasm, musical honours were accorded.

Mr. Edge, who, on rising to respond, modestly disclaimed the idea that the honour was a personal one, but one that did credit to British industry. Having given some of the incidents of the race, Mr. Edge testified to the sportsmanlike spirit of those who took part in the Paris-Vienna contest, and hoped that it would be possible to hold the next Gordon Bennett race in this country. Englishmen, too, should encourage automobilism as a sport.

Mr. Montague Napier was cordially received and briefly responded.

Success to the Automobile Club of France and other recognised Automobile Clubs was proposed by the Hon. J. S. Montagu, M.P. M. Girardot responded, and the proceedings closed with the toast of the Chairman, proposed by Mr. H. Austin, who, on rising, was greeted with cheers.

MR. A. J. BALFOUR is said to be contemplating a motor-car tour in Switzerland.

MR. J. H. ADAMS, sales manager of the Motor Traction Company, Limited, was in Brussels at the end of last week placing orders for Germain cars, delivery of which can now be promised within a month of the date of order.

ON a recent Wednesday Messrs. Skinner and Company, who now run all the public motor-cars in Hastings, took a party of holiday makers to Henley. They returned three days later highly delighted with their motor-car excursion.

THE Duryea Company is giving to every purchaser of one of their carriages a little book on "What to do and how to do it," which will be useful when adjustments have to be made and also in assisting to a knowledge of the details of these cars. At the end of the book are pages ruled for notes on the journeys taken, the miles run, and the expenditure incurred on petrol, lubricating oil, repairs, etc.—a useful feature that should appeal to all users of these vehicles.

MECHANICAL FLIGHT UP-TO-DATE.*

BY SIDNEY H. HOLLANDS.

CHAPTER IX.—CONCLUSION.

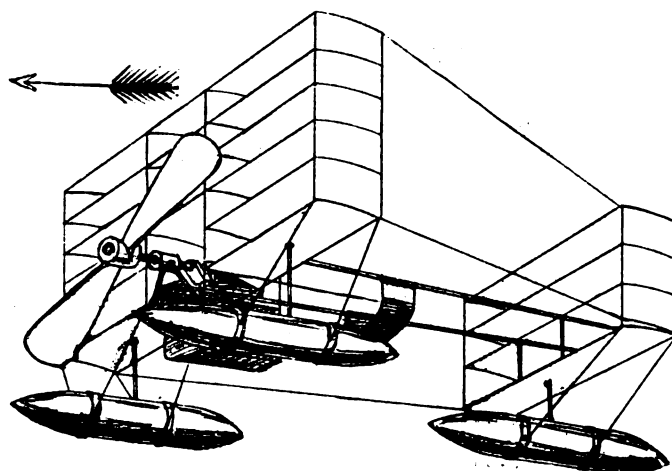
REVERTING now to Mr. Hargrave and his work for the past eighteen years—literary as well as practical—that gentleman holding the opinion, in which I share, after having made and tried under varied conditions upwards of fifty aerial models in all, that we have now learnt sufficient about the conditions of flight to warrant the construction of a large aviator—but not too large—i.e., a one-man machine, thus carrying intelligent control on board, a great advantage in which model machines are lacking, is now, I am glad to announce, constructing such a machine, and has it well on towards completion. It is Mr. Hargrave's purpose to make trials with this aviator over Sydney Harbour, N.S.W., in view of which the machine is designed to rise from the water, after skimming along on the surface for 100 yards or so, and to become gradually air-borne; this will be a simpler, safer, and generally more satisfactory course than laying down a railway track on land (see illustration). The new machine is on the "cellular-kite" principle; a "multi-decker" of superposed aerocurves in three detached batches, two abreast forward, and a single set in the rear. The steam-motor and propeller are carried between the two forward sets of aerocurves, so that the propeller in its leading position pulls instead of pushing, and is thereby continually advancing on new-unbroken air. The passenger's seat is slung from the longitudinal boom connecting the forward and rearward "decks." The substructure in plan takes the form of a triangular "catamaran," having a very light hollow steel spindle-shaped float, or little "pontoon," at each angle, and coming under the centre of each set of "decks." The total weight of machine and freight is about 325 lbs., the lifting surface having a total of 484 square feet. Its resistance to motion when afloat on the water is but slight, so its motor should propel it skimming along at sufficient speed to become air-borne in a short distance. There is no apparent reason why this machine should not be a success, and I anxiously await further news from Mr. Hargrave.

It may now be of interest to quote a few passages from some of the papers on aeronautical subjects, read by Mr. Hargrave before the Royal Society of New South Wales, and he has contributed a considerable number in all. In allusion to his numerous and varied models, he says:—"The distance these models fly seems trifling, but experience teaches us that in all model experiments increase of proportional size and weight bring universally better results in work done." The speed attained shows us that when we come to deal with machines weighing tons instead of ounces we shall also have to deal with air pressures exceeding hurricane force, with which the edges of trochoided planes are, in my opinion, the only things that can successfully cope."

With reference to the best proportions of length to breadth of machines, ratios of area to weight, and power to both, position of centre of gravity (a vital point), the best form of wing and screw-propellers respectively, together with the most efficient are swept by the wings, and relative pitch and diameter of screws, Mr. Hargrave says: "These results are arrived at by a system of selection, those machines that fly at all have been kept until some slight improvement—suggested by experience or judgment—has been embodied in the next ones; the older machines are then either broken up or altered. It is found that this experimental method is more fruitful than attempting to make any elaborate calculations, although differently constituted minds may find the latter the best way. Regarding the proportion of weight to area, the models are comparable more to butterflies than to the majority of flying organisms; but, these experiments seem to show that by means of the trochoided plane the same power will propel equal weights the same distance, provided the rapidity of the motion of the wings

is increased proportionately to the reduction in the sectional area of the waves thrown; or, that a beetle and a moth of equal weight expend the same amount of power in flying the same distance, and the result is produced by throwing the same number of cubic inches of air in each case. . . . The everyday employment of flying machines as means of transit would be brought much nearer in point of time if our boys would make and use these models as toys; they require little more skill in construction than an ordinary kite, and young brains are so much readier to perceive and grasp an improvement than those that already have been moulded and set in a particular groove. . . . In making experiments on flying machines on a large scale, it is well we should understand that the generation of steeple-jumpers has passed away, and that anyone at the stage our knowledge has attained to who tries his machine first from an eminence richly deserves any accident that may befall him. . . . Some may ask, what is the use of experimenting in calm air, when such a state of the atmosphere is exceptional? But the answer is, that by patiently waiting for still air reliable data can alone be obtained, and when we have the correct proportions of the machines, none of the parts can be more strained by a gale of wind than by the lightest zephyr. The speed through the air does not vary; it is only the distance over the ground that is affected.

"It has long been thought that there would be a spice of



"HARGRAVE" LATEST "CELLULAR" AVIATOR.
Total weight, about 325 lbs. Total area, 484 sq. ft.

danger in trying large flying machines, but now it is known that if experiments are conducted over water a ducking is the only risk involved, besides which the machine would be but very slightly damaged. . . . It may be said that it is a waste of time to make machines of such small capabilities, and that no practical good can come of them. But we must not try too much at first; we must remember that all our inventions are but developments of crude ideas, that a commercially successful result in a largely unexplored field cannot possibly be got without an enormous amount of unremunerative work. It is the piled-up and recorded experience of many busy brains that produces the luxurious travelling conveniences of to-day that in no way astonish us, and there is no reason for supposing that we shall always be content to keep on the agitated surface of the sea and wind, when it is possible to travel in a superior or an inferior plane, unimpeded by frictional disturbances. In other words, the surface method of marine transportation now in vogue is analogous to a man wading along shore through the breakers, in preference to either swimming beyond the disturbed water or walking on the beach.

"It does not follow that because the machines are of small weight and large area the insignificant performances of much larger ones of similar proportions are to be scouted. For instance, 400 lbs. weight of tin tubing, silk, and steel wire would serve to carry one man 500 yards at 17 miles per hour; and such a result,

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though of no commercial utility, would mark an epoch in the art at least as hopeful as the earliest attempts at marine steam propulsion."

That which Mr. Hargrave considers to be "the most deeply interesting point" in all his experiments with flying models is, that "the successful flyers maintain a horizontal position during a horizontal flight, i.e., that the body plane is practically level, and not tilted up forward at anything approaching the angle that theory leads us to expect."

Thus (as in the case of one of Mr. Hargrave's models), to support an aeroplane of 14.8 sq. feet, loaded to 2.09 lbs. total, at a speed of 12 miles per hour, the theoretical angle of inclination would have to be $11^{\circ} 25'$, or, according to Professor Curtis (of the Smithsonian Institution), who uses a smaller constant— $16^{\circ} 5'$ —sine of angle of inclination of plane = $\frac{P}{V^2 0023}$



THE SHAH OF PERSIA INSPECTS AN EXAMPLE OF THE 1902 MERCEDES CAR.

[Allgemeine Automobile Zeitung.]

or, according to Professor Curtis, the formula stands = $\frac{P}{V^2 00165}$ where P = pressure in lbs. per sq. foot, and V = velocity in feet per second.

One more passage—both characteristic and original—from Mr. Hargrave's published papers will well bear quotation:—"It is well known that publishing the results of experiments as they advance is not a course that most inventors would pursue, but the subject is thought to be so far-reaching in its effect, and the varieties of practicable flying machines so numerous, that any attempt to secure a monopoly of the profits accruing from their construction would be a mean and selfish proceeding, and totally unworthy of consideration."

"The writer feels assured that if he should ever make flying-machines for sale, his productions will be as well appreciated as any others, and that the endeavour to strangle the work of others by patenting would only result in real progress being hampered by conflicting monetary interests and much ill-feeling."

Just recently Mr. Hargrave has addressed a letter to the *Times* (London), from which the following are extracts:—"I appeal to you to state my case to the world. I have succeeded in making many sets of apparatus that fly, and they are described minutely in accessible publications. My experiments led me to invent a form of kite that has been beneficial to many, and is now being used for meteorological purposes. There is no means of compelling any of the profits to flow in my direction. I am pursuing my investigations with a view to making a machine of sufficient power to raise me from the surface of water. This is well known by engineers to be possible, and a safe course of procedure. . . . To hasten the completion of my work I require additional means to obtain technical assistance and necessary apparatus."

"I will accept, without scruple or diffidence, the aid of those who will benefit by my labours, and devote it solely to the evolution of the aeroplane flying-machine."

(Signed) "LAWS HARGRAVE."

"Woollakra Point,
"Sydney, N.S. Wales,
"Jan. 28th, 1902."

As Thaddeus Hyatt, of N.Y., once truly wrote, "The field is too great for any one man. Aerial navigation demands earnest

work from many heads and many hands, and the best inventive talent of mankind will be needed for its accomplishment."

MR. D. CITROEN, the agent for Minerva bicycle motor sets, has sent us a copy of an attractive window transparency he is just issuing. It depicts a trio of motor-cyclists ascending a hill, one of whom is drawing a trailer. Cycle and motor-car agents would do well to write for an example.

ACCORDING to the new price list of the Century Engineering and Motor Company, Limited, the prices of their light cars have been advanced; those of the Century tandems remain as heretofore. The company has a large number of orders on hand both for cars and tandems.

BUILDERS of heavy motor-vehicles may be reminded that the 31st inst. is the last day for sending in tenders to the War Office for the supply of a self-propelled lorry for military purposes, driven by an internal combustion engine using oil of not less than 100 deg. F. flash-point (Abel's close test) as fuel.

FROM END TO END ON A WERNER MOTO-CYCLETTE.

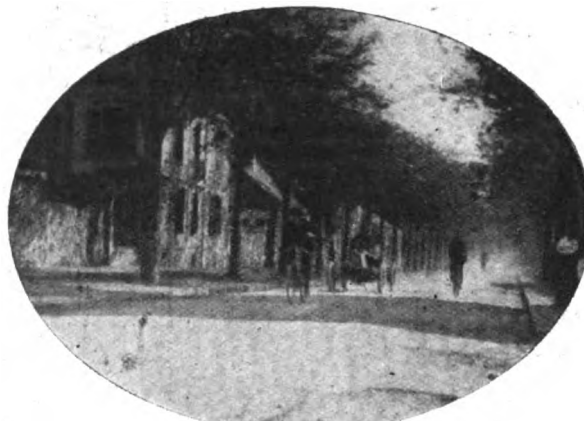
ON the morning of July 13th, at 2.55 a.m., I left the Land's End Hotel to ride to John o'Groat's on my Werner motor-bicycle. The morning was fine and warm, and there was no incident worth mentioning until I found myself at St. Agnes, which is some distance out of the way. My mistake cost me quite an hour in time and an experience of some exceedingly bad and hilly roads before I rejoined the right track near Zealla. Good speed was then made over the fair roads to Bodmin, and up the long and stiff ascent from Bodmin on to the moors. The road across the moors is hilly, and has one or two very trying climbs which were not rendered any easier by the loose surface, and by the many cattle and sheep which seem to prefer the road to rest on in preference to the grass-grown moors themselves. As I did not wish to stop my machine on the way up any of the hills I had some very close work at times to get past the obstructionists. Once away from the moors, all was clear running over the good but very hilly roads through Launceston, Okehampton, Exeter and Taunton to Bridgwater, which was reached at 10.45 (165 miles).

Mr. H. Carver, of the Bridgwater Motor Company, had prepared an early lunch, so I refreshed the inner man and then, after replenishing my tanks, started from Bridgwater at 11.55 a.m. From Bridgwater to Bristol the road is in most places simply vile, it is so rough. It was, however, not so hilly as the earlier part of the journey, but the one hill of the road, Red Hill (near Cross), is exceptionally long and steep, and I had to make use of my pedals to get to the top. It was a great relief to get through Bristol and on to the Gloucester Road; as compared with the previous samples this was smooth, and for the thirty-four miles to Gloucester there was not a rise worth calling a hill. The good road continued through Tewkesbury to Worcester and Kidderminster with varied stretches of level, undulating, and hilly roads. Just out of Kidderminster there is a stiff and fairly long rise, and the road continues hilly through Bridgnorth till Wellington is reached, after which and on to Whitchurch it is undulating and with good surface. For some few miles previous to Wellington the road is rather rough, and there is a touch of the "Black Country" apparent. I reached Whitchurch at 7.30 p.m., having accomplished the first stage of my journey, 324 miles, without having had to make a single adjustment, except an occasional attention to the belt.

I stayed at Whitchurch for the night, and, starting again at 3 o'clock next morning, very soon covered the thirty-four miles to Warrington, the roads being excellent and with no hills to speak of. After passing Newton-le-Willows, six miles beyond Warrington, the road developed into a state too terrible to be described, and continued so right into Wigan. The strength of my Werner could not have been tested more thoroughly, and I felt as if my own bones might get shaken out of joint. After leaving Wigan the road was very far from good for some miles, but fair time was made under varying conditions through Preston and Lancaster until nearly into Kendal, when signs of rain began to make themselves apparent in the condition of the roads. When I got into Kendal itself I found the streets as greasy as they could be and the rain was beginning to fall. Donning my water-proofs, I rode through it, the rain continuing till nearly over Shap, which, by the way, was in a very bad state, and I was really thankful when, after hard pedalling on the last steep piece, I reached the top. I found the remainder of the road to Carlisle through Penrith alternately dry and greasy. Carlisle was reached at 11.15 a.m., and after having lunched and refilled the tanks of my machine I mounted again at 1.10 p.m. I found the roads good for a time, but I soon ran into the rain again, and once more had alternate dry and greasy roads through Lockerbie, Beattock, Crawford, Biggar, and Carllops to Edinburgh and Granton Ferry, reaching this latter place at 6.30 p.m. A halt was made here till 7.15, when I moved on again, and reached Perth at 9.30 p.m. Here I went through the same routine of refreshments, sleep, etc., and left next morning for the last day's run at 2.55 a.m.,

All went well till past Dunkeld, when I had to attend to my second puncture. The first took place after Carlisle, and the two in aggregate caused a stoppage of seventy minutes. A fresh start being made, the ride was through the most lovely scenery of Pitlochry and Blair Athole, and thence across the Grampians *via* Dalwhinnie and Kingussie. Needless to say the road over the Grampians is hilly, and at times the ascents are very severe. From Killiecrankie Station there is a continuous rise for about twenty miles, the highest point being somewhere about Cockburn Cottage at an elevation of over 1,500 feet. The road itself was bad. In many places grass was growing and for nearly the whole way the road consisted of loose metal. From Cockburn Cottage there is a continuous descent for about twenty miles to Kingussie. The road is then level or undulating with nothing steeper than one in eighteen till Carrbridge is reached, when a rise of about six miles begins, which is rather steep in places and reaches at its highest point an altitude of about 1,330 feet. It is then all down hill (except for a mile at Daviot) right to Inverness, nearly twenty miles. From Inverness the road to Invergordon, Beuly, and Tain is good and practically level.

I arrived at Tain at 12.20, and, after feeding, departed again at two o'clock, having an uneventful run over fair roads to Golspie. From Golspie onwards the road skirts the coast, and is within sight of the sea nearly all the way. There is nothing very bad in the way of hills till Helmsdale, and then begins a stiff climb



ON THE ROAD.

of about five miles to the top of the Ord of Caithness. The gradient varies from one in fourteen to one in eighteen for most part of the way. There is then a long run down to Berriedale, the most dangerous hill on the road to go down and the most difficult to ascend. It is exceedingly steep and has many sharp turns. After nearly coming to grief at the first corner of the ascent my machine mounted beautifully till I came suddenly to another very sharp turn which I was travelling too fast to negotiate, and then, having to suddenly apply the brake hard, I stopped my machine. I slipped the belt off and prepared for a lengthy walk to the top, but after going about 75 or 100 yards the hill eased slightly for a short distance, and a strong youth being handy and willing, I, by dint of hard pedalling and a good push, got started again and mounted to the top without a falter. The road then continued undulating and good through Keiss and Wick till nearly to Groat's, when the road became very loose. I drew up at the John o' Groat's Hotel at 8.40 p.m., July 15th, having covered the 888 miles of trying roads in various conditions of wetness and dryness in the gross time, including stoppages of all descriptions, sleep, meals, tyre repairs, etc., of two days seventeen hours forty-five minutes. After deducting stoppages at hotels only my net riding time is forty-seven hours ten minutes for the distance. I did not require even to use a spanner once during the whole journey, and not a single adjustment was made except occasionally to the belt. The same sparking plug (a genuine De Dion) went right through without even being looked at, nor was the contact breaker touched, the adjustment being as perfect at the end of the journey as at the beginning.

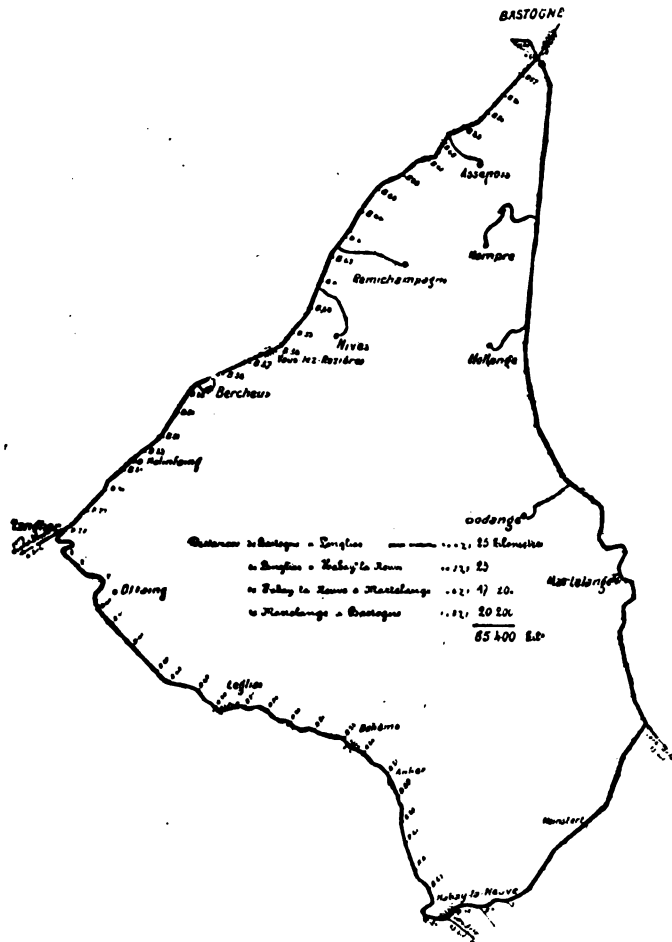
ERNEST H. ARNOTT.

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CONTINENTAL NOTES.

BY AUTOMAN.

THE hill-climbing trial at Laffrey, near Grenoble, took place on Sunday last under unsatisfactory conditions, thunderstorms having considerably damaged the road, and rain and fog having made it sodden and muddy. Laffrey is situated on the slopes of the Alps, near the town of Vizille, and is certainly the most suitable hill for a competition of auto-



THE ROUTE OF THE ARDENNES RACE.

mobiles which has yet been discovered in France. It has a total length of four miles, with an average of 9.3 per cent. of slope. Beginning at Vizille with 4.6 per cent., it passes quickly to 7 and 9 per cent., and reaches as much as 12.8 per cent. There is more than a mile of 10 per cent. gradient. The road is straight and wide, with no dangerous turnings, and there are no level parts. The motor was thus hard at work all the time, and the test is most severe.

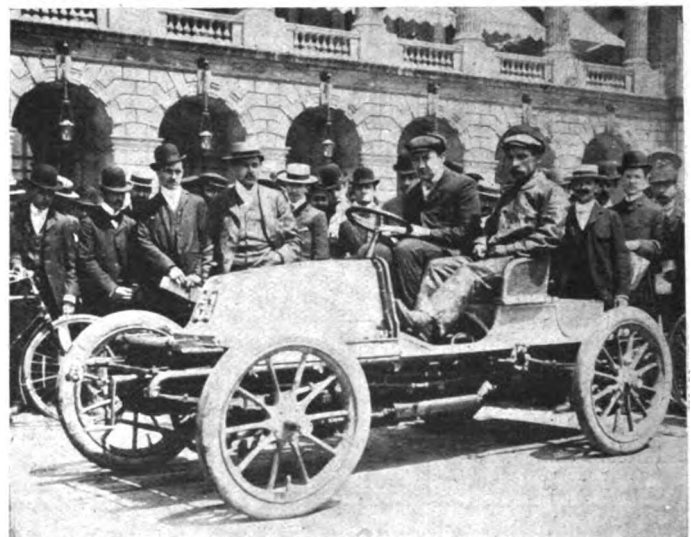
The trials were organised for the first time last year by the Automobile Club Dauphinois, the winner being a Georges Richard. In an interesting article published in *La Locomotion*, M. M. P. Laveine, of the Automobile Club Dauphinois, explains the origin of the trials. It seems that for years motor-cars were supplied which were quite incapable of negotiating the hills abounding in the neighbourhood of Grenoble, and whenever this was explained to the Paris automobile manufacturers, it was not credited, the reply being always given that, having proved their efficiency at Chantloup, the Redillon de Tuileries, Gaillon, and other hills in the neighbourhood of Paris, the cars would certainly negotiate the Alps, an assurance which was not justified by subsequent events. The Alps are no respecters of motors, and in the region in question there are plenty of hills of 12, 15, and even 18 per cent., which often occur after long stretches of less steep ascent. "The hills," says M. Laveine, "we could only crawl up at the rate of four or five miles an hour,

and we felt ourselves lucky if we could climb them at all. This is why we organised the hill-climbing trial of last year, and we chose Laffrey because it is a steady pull all the way up with out giving the motor any rest."

THERE were six classes for motor-cars and one for motor-bicycles, namely: (1) voitures up to 400 kilos.; (2) light cars under 650 kilos.; (3) cars under 1,000 kilos.; (4) light tourist cars; (5) heavy tourist cars; (6) motor-lorries; (7) motor-bicycles. There were fifty entries, including Serpollet, Clements, Mercedes, Peugeots, Darracqs, and Rochet-Schneiders.

THE race took place at 7 o'clock in the morning, one minute being allowed between each competitor. The weather was fine, but the roads had been drenched with rain the night before and were really in a shocking condition, causing frequent side-slips, which fortunately in no case resulted in accident. A great many Parisian *chauffeurs* were present, and of course all the disciples of automobilism from the neighbourhood of Lyons. In addition to the prize for the winner of each class, a special one was offered to the car which made the best time on the second half of the hill. This very ingenious idea was put forward in order to show the superiority of the motor which worked best after having made a considerable and prolonged effort, and here M. Leon Serpollet was easily the master of the situation. The best time was done by an amateur, M. Armand Mauselin, on a 20-h.p. Darracq, who negotiated the four miles in exactly ten minutes; M. Serpollet coming in just six and one-fifth seconds after him. This constitutes a triumph for automobile progress, for last year's record was sixteen minutes twenty-three and two-fifth seconds. A remarkable performance was that of Dery on the Clement motor-bicycle, who was fifth in the whole competition, being only one minute nineteen and four-fifth seconds longer than the winner.

CLEMENT shares the honours of the day with Darracq and Serpollet, for his vehicles won the first, fourth, and fifth classes. A 24-h.p. Mors driven by Raymond won the class for heavy touring cars. The following is the general classification:—



THE PARIS-VIENNA RACE.—THE NEW GEORGES RICHARD 16 H.P. CAR.

	M. S.		M. S.
1. Armand Mauselin (light Darracq) ..	10 0	12. Raymond (Mors tourist car) ..	15 28
2. L. Serpollet (Gardner-Serpollet) ..	10 6	13. Bary (Mercedes tourist car) ..	16 4
3. Hemery (light Darracq) ..	10 21	14. Tart (Clement light tourist) ..	16 4
4. Rochet (light Rochet-Schneider) ..	10 40	15. Ollion (light Rochet-Schneider) ..	16 6
5. Dery (Clement motor-bicycle) ..	11 19	16. Marge (tourist Rochet-Schneider) ..	17 5
6. Butinel (light Rochet-Schneider) ..	12 11	17. Ribes (tourist Peugeot) ..	18 45
7. Volatum (voiturette Clement) ..	12 32	18. Pegoud (tourist Rochet-Schneider) ..	21 21
8. Dompnet (light Clement) ..	12 48	19. Le Blon (Gardner-Serpollet) ..	23 52
9. Kraeutler (light Peugeot) ..	13 6	20. Bouchet (Gobron-Brillie) ..	24 40
10. Noirel (Dietrich) ..	14 5	21. Coulois (tourist Rochet-Schneider) ..	25 20
11. Tart (light Clement) ..	14 10	22. Gignoux (tourist Berliet) ..	27 10

	M. S.		H. M. S.
23. Berthoin (tourist Rochet-Schneider) ..	28 21½	26. Boissy (Peugeot light tourist) ..	49 57½
24. Camus (voiturette Test and Moret) ..	34 10	27. Dietrich (tourist Dietrich) ..	52 53
25. De Boisse (voiturette Boisse-Levassor) ..	35 35½	28. Thorrand (tourist Gardner-Serpollet) ..	1 11 33½
		29. De Dietrich lorry ..	1 19 45½

AFTER the trial was concluded there was a lunch at Vizille, when 300 were present. It was arranged in the open air, and the scene was most gay and picturesque. After the luncheon the company was invited to meet the Mayor of Grenoble in the park of Uriage, and in the evening a reception was given at the Town Hall, Grenoble.

THE latest thing in automobile novelties is an eight-cylinder car, which is being made by Bertin, the well-known tricyclist. Bertin says that he is going to do more than 130 kilometres an hour on it—that is, more than eighty miles an hour—though it is rather puzzling to understand why eight cylinders should have been adopted, as a four-cylinder engine is just as well balanced as one having eight.

THE Circuit des Ardennes, which will be contested on Thursday next, July 31st, is engaging the serious attention of the automobile world. As already mentioned, there are seventy-five entries.

THE start will be made at five o'clock in the morning at Bastogne, at the cross-roads of the Arlon and Neufchatel thoroughfares. There will be also a competition for motor-cycles at two o'clock in the afternoon. The cars will be started off in the order of their entry, with one minute between each. The road is wide, dry, and hard, made mostly of granite, and through a country which is almost destitute of habitations. There are two or three sharp turns at the base and apex of the triangular course. Numerous depots of petrol will be found along the route.

AMONGST the well-known *chauffeurs* who will drive cars are Messrs. Dechamps, Riviere, Cozic, Jarrott, Charron, Girardot, Giraud, Fournier, Gabriel, Baras, Edmond, Collins, Guillaume, Mestayer, etc. Mr. Edge, who was expected to compete, finds himself too busily occupied in connection with the Napier cars to take part in the race. The great interest in the race will, of course, centre around the struggle between Panhard, Mors, and C. G. V., and as the road presents every suitable feature for high speeds, some remarkable results should be obtained.

FOR the benefit of any English motorist who intends to go over and watch the race, I would give a word of warning with regard to the accommodation to be had in the neighbourhood of Bastogne. Everything in the way of sleeping accommodation has already been requisitioned, and the only thing to be done is to send in an application to the A. C. B., Place Royale, Brussels, for a place in the special train, at a cost of about £2. The train will leave Brussels about six o'clock on the evening before the race, and return to Brussels after the race is over, providing sleeping accommodation and board for the passengers.

THE A. C. B. is already commencing to work seriously at a competition which is to be held from the 23rd to the 29th of October next. The competition is to be international, and open to all automobile vehicles suitable for town purpose or suburban service. The competition will take into account the cost and expenses of a motor-vehicle in daily service in Paris or in the suburbs, accomplishing a journey of sixty kilometres (thirty-seven miles) on a hilly road. The comfort and easy handling of the car will be taken into consideration, as also the number of times it needs to take in supplies, the extent of repairs required, and the facility of carrying them out. There will be two sections—namely, town service and suburban service. The first section will include the following six classes: (1) Cars for two or four passengers without luggage, open or closed, or so constructed that they can be opened or closed at will; (2) Cars for four passen-

gers and thirty kilos. of luggage per passenger; (4) Delivery wagons able to carry from 500 to 750 kilos., with one extra seat; (5) Cars capable of carrying from 300 to 500 kilos., with one extra seat; (6) Tricycles carrying 100 kilos., but with no extra seat. The second section will be divided into three classes, namely: (1) Omnibuses for ten passengers, with 30 kilos. of luggage per passenger; (2) Delivery wagons capable of carrying 750 kilos., with one extra seat; (3) Lorries capable of carrying a ton.

In each section the cars must be completely finished with the usual carriage work employed for their class. The delivery wagons must have a van body containing at least a cubic metre of space for 300 kilos, one and a-half cubic metres for 500 kilos, and two cubic metres for 750 kilos. All the cars will be required to have at least one brake acting both ways, a sprag, and a reverse motion. The entries, at the rate of 200 francs per vehicle, close on September 15th, but up to the 15th October at midnight entries will be received at the rate of 300 francs. The trials will be watched by an observer for each car, and will last over six days with one day's rest. For each section there will be two different routes, starting from and arriving at the A.C.F., in the Place de la Concorde, Paris, and passing through Versailles for the suburban section. The legal speed will be insisted upon throughout, and speeds on certain hills will be calculated. It will be seen by the above details that the competition will be a most interesting and instructive one.

AFTER much labour, the Commission Sportive Internationale has issued the classification of the Paris-Vienna race. Appended is a list of the first twenty-seven competitors to reach Vienna, with their total time:—

	Driver.	Car.	Time.		
			H.	M.	S.
1	M. Renault	Renault	15	47	43
2	H. Farman	Panhard	16	—	30
3	Edmond	Darracq	16	10	16
4	Zborowski	Mercedes	16	13	29
5	M. Farman	Panhard	16	19	29
6	Baras	Darracq	17	4	52
7	Teste	Panhard	17	13	28
8	Hemery	Darracq	17	23	38
9	Marcellin	Darracq	17	38	36
10	Pinson	Panhard	18	—	41
11	P. de Crawhez	Panhard	18	5	20
12	Chauchard	Panhard	18	16	45
13	Tart	Clement	18	26	45
14	Berteaux	Panhard	18	28	—
15	Edge	Napier	19	16	21
16	Collin	Darracq	19	16	47
17	Barbaroux	Clement	19	51	1
18	de Caters	Mors	19	54	58
19	Guillaume	Darracq	20	4	33
20	G. de Crawhez	Panhard	20	6	36
21	Dechamps	Dechamps	20	16	25
22	Grus	Renault	20	17	54
23	Jarrott	Panhard	20	44	12
24	Dernier	Gobron-Nagant	20	45	57
25	Lays	Panhard	20	51	52
26	Augieres	Mors	21	17	50
27	Weigel	Clement	21	28	37

M. RENE DE KNYFF (Panhard) secures the D'Arenberg Cup for having made the best time on the Paris-Belfort stage, using alcohol as fuel. Harry Farman (Panhard) heads the list in the heavy-car class. Marcel Renault is first in the light-car class, while the winner in the voiturette class is Guillaume (Darracq).

A RACE from Susa, Italy, to the hospital on Mont Cenis, will be held on Sunday next, the 27th inst. The distance is 27 kilometres, and the average gradient 1 in 10. The categories range from motor-bicycles to heavy cars; eighteen entries having so far been received.

MR. A. L. ALLEN, of 1, St. James's Street, W., was the winner of the Daimler motor-car at the Imperial Coronation Bazaar.

SOME ELEMENTARY REMARKS ON BRAKES.

(Concluded from page 404.)

EXPANDING ring brakes are in their nature somewhat similar to band brakes, and may be either single or double-acting, since the expanding force is usually applied tangentially at the two ends of the split ring, and is therefore influenced by the friction between the ring and the drum. The chief advantage of this form of brake is that it can easily be inclosed when applied to the hub of the wheels, in which position these brakes are mostly used. An illustration of a form of expanding ring brake is shown in Fig. 4. The drum A fastens to the wheel hub or wheel spokes, and in it is located the expanding ring B of cast iron which is split, the two ends thereof being connected by a pair of toggle levers C C and a link D to the bell crank E, which is pivoted at F upon a bracket G secured to the axle H. The middle part of the ring is connected to the vehicle frame I by a rod J, which takes up the tangential effort of the ring due to the friction. The operating effort is applied to the bell crank through the intermediary of the rod K. The arms L and rollers M serve to keep the brake ring in place laterally. This particular form of expanding ring brake is double-acting.

In the case of tyre brakes, rim brakes, and hub brakes, one brake is always used on each of the two driving wheels. It is very essential that the operating effort applied to the two brakes be at least nearly equal, as otherwise the vehicle will have a tendency to slip sideways when the brakes are applied. As the two

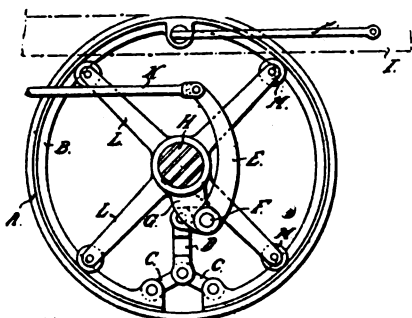


FIG. 4.—EXPANDING RING BRAKE.

brakes are applied by means of a single lever or pedal some equalising device must be used to evenly divide the operating effort between the two wheels. A form of such equalising device is shown in Fig. 5, which drawing is practically self-explanatory. The brake rods R R from the brakes are connected to the lever arms A A on the shafts B B, journaled in bearings depending from the vehicle frame. At their inner ends these shafts carry two other lever arms C C, which are connected by links D D to a balancing beam E, to the middle of which the operating effort is applied through the rod F which connects to the operating device.

The power of a brake is the greater the faster the speed of the shaft on which it acts. This consideration would lead to the placing of the brakes directly on the motor shaft, as far from the wheels as possible, since the speed of rotation is usually continuously reduced from motor to wheels. On the other hand, the power of the brake becomes effective at the tyre surface of the wheels, and the further the brakes are removed from the tyres the greater are the number of parts through which the braking effort must be transmitted, and the greater the chance of the brake becoming inoperative, due to the breakage of one of these parts. Moreover, if the braking effort must be transmitted through the differential gear, if one of the wheels stands on slippery ground, not only is the total braking effect reduced to a very small value, but the application of the brake has a tendency to cause the vehicle to skid or slip sideways. For this

reason all vehicles intended for general road service should be provided with one pair of brakes, the effort of which is not transmitted through the differential gear.

In some cases the brake is applied by the same lever by which the speed of the vehicle is controlled, a forward movement of this lever gradually applying more power or increasing the gear,

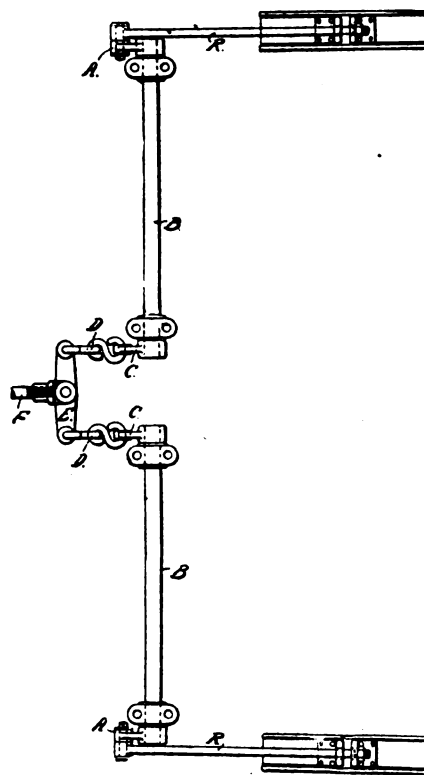


FIG. 5.—EQUALISING BRAKE-OPERATING MECHANISM.

while a backward motion of the lever cuts off the power, and, when continued, applies the brake. The power is thus always shut off when the brake is applied, which is a very desirable feature. More frequently, however, the brake is applied by a separate operating device, generally a pedal or foot lever, which leaves the hands of the driver free to control the steering, etc. In order that the power, with a separate brake-operating device,

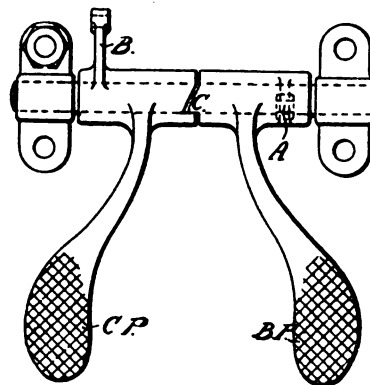


FIG. 6.—INTERCONNECTION OF CLUTCH AND BRAKE PEDAL.

may always be shut off before the brake is applied, the brake pedal and the clutch mechanism (in vehicles in which a clutch is used) are generally inter-connected, as illustrated in Fig. 6. In this figure C P is the clutch pedal and B P the brake pedal, both being loosely mounted on a shaft supported in brackets secured to the vehicle frame. The brake pedal has a downwardly extending lever arm A, from which connection is made to the brake, and

the clutch pedal has a similar lever arm B extending forwardly, which connects to the clutch. The hubs of the two pedals are provided at their inner ends with a ratchet catch C, by which a depression of the brake pedal results in a simultaneous depression of the clutch pedal, but which allows the clutch pedal to be depressed without affecting the brake pedal. Instead of the ratchet catch various other devices can be used for the same purpose.

The driver sometimes desires to let a vehicle stand on the side of a hill, and in order that he may do so the brake must be provided with a locking device which permits of locking it in position when it has been applied. The unlocking of the brake before it can be released requires a special motion, which is easily executed by the hand, but less easily by the foot, and where a hand brake is employed this locking arrangement is usually provided on it. It might be stated here, remarks the *Horseless Age*, that two separate brakes are usually provided in a motor-car, the one generally employed on all ordinary occasions being a foot brake, and the other one, called the emergency brake, being operated by hand.

HERE AND THERE.

A SERIES of kilometre races will probably be held on the promenade at Deauville, France, on the 6th prox.

A MOTOR lawn-mower will probably make its appearance on the Chiswick Commons and Recreation Ground ere long.

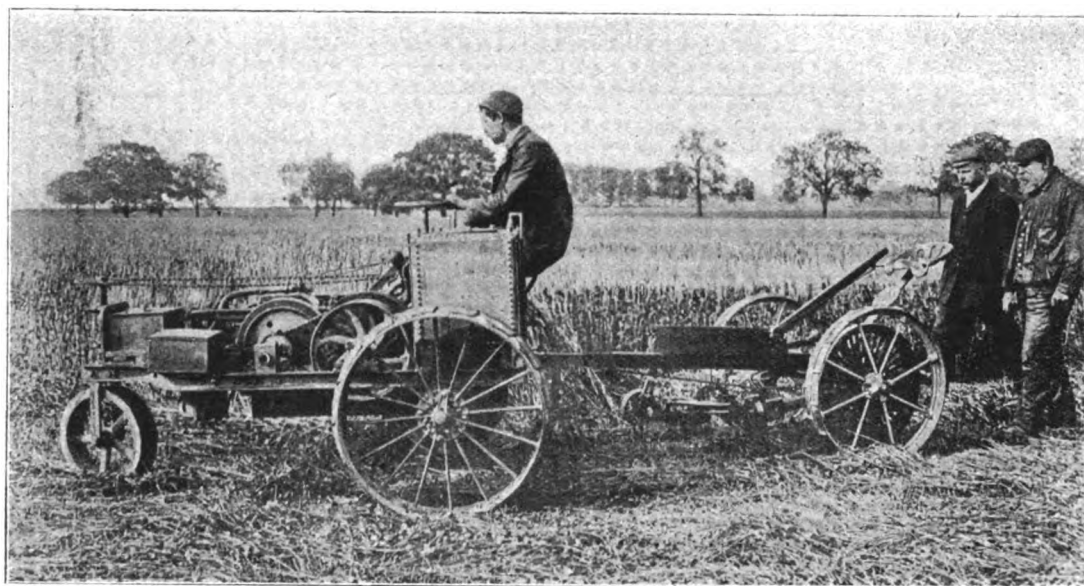
THE Automobile Amusement Company has been organised in the United States for the purpose of manufacturing automobiles.

MR. C. E. SHAW, a former superintendent of the Olds Motor Works, has left the United States to assist Mr. F. W. Peckham at the London branch of the Oldsmobile.

THE Irish Automobile Club is exploring Connemara, the start having been made from Dublin last Saturday. To-day (Saturday) the headquarters are at Recess, and for the remainder of the tour, which ends on the 28th inst., Mullaranny will be the centre.

MR. A. BENNETT, riding a motor-bicycle from London to Tavistock, fell from his machine at Marytavy, and was found by a police constable in a semi-conscious condition. On the following day he was removed to his destination in a carriage, the injuries sustained being somewhat serious.

SEVERAL changes have lately been made in the De Dion 8-h.p. water-cooled motor. The stroke of the piston has been increased from 110 mm. to 120 mm., the diameter of the cylinder being, as hitherto, 100 mm. A heavier flywheel has been adopted, the exhaust outlet has been removed from the front to the side of the motor, while the water-circulating pump is now driven off the half-speed shaft of the engine.



AUTOMOBILISM IN THE CORNFIELD. (See page 430.)

THE chances of the Motor Vehicles Registration Bill in the present session of Parliament are regarded by its author as very small.

AMONGST the latest converts to motoring is the Right Hon. Viscount Castlereagh, who has just ordered a Clement car from the British Automobile Commercial Syndicate, Limited.

THE Speedwell Motor Company inform us that M. Leon Serpollet is now designing a new racing car for next year's kilometre race at Nice. It will be remembered that M. Serpollet has already won this race twice in succession, and, if he can win it again next year, the cup he now holds will become absolutely his own; therefore he is naturally making a special effort to eclipse this year's flier.

MR. T. A. EDISON has been impressed with the fact that 80 per cent. of the residences in the suburbs of New York have no carriage houses. His nickel-iron storage battery is now undergoing its fifth and final test. Five different models of motor-cars, of various weights and construction, but each fitted with the new cells, are, it is reported, being put through a 5,000 mile run over country roads.

THE first arrival at the meet of the Manchester Automobile Club, illustrated in our last issue, was a Roots and Venables car. Messrs. Roots and Venables inform us that, in addition to a considerable number in daily use in Great Britain, their cars are now at work in India, the Straits Settlements, Australia, British Guiana, and the United States, and will shortly be in New Zealand and Egypt.

AS already announced, a small exhibition of motor-cars is being organised in connection with the seventieth annual meeting of the British Medical Association, which is to be held in Manchester from the 28th inst. to August 1st. Among the firms who are showing cars are Messrs. F. Wilkinson and Co., who will have on view a number of "Steamobiles."

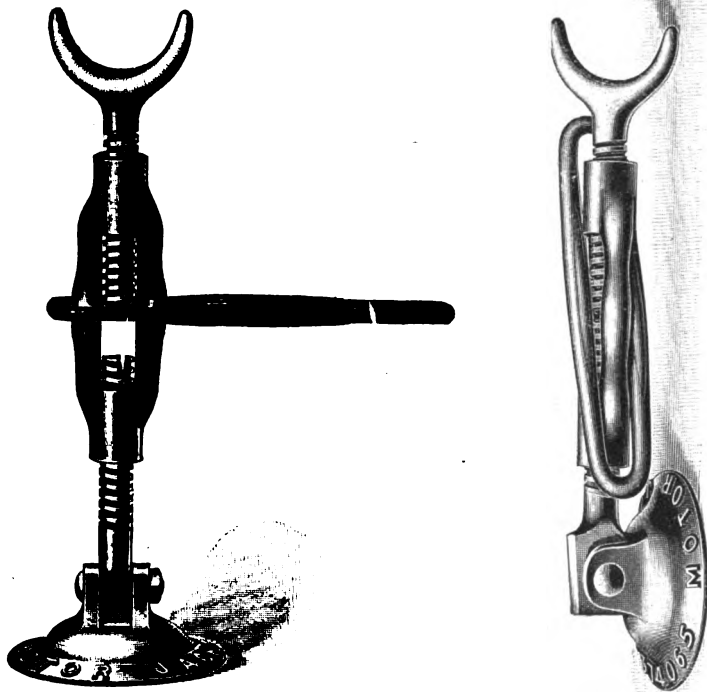
AT a board meeting of Messrs. Friswell, Limited, held on the 17th inst., an interim dividend of 10 per cent. on the ordinary shares, and 6 per cent. on the preference shares, was declared.

THE race from Eisenach to Meiningen and back, which has been organised by the German Automobile Union for Sunday next, has been cancelled, owing to the refusal of the authorities to allow racing on the public roads.

MR. ALBERT CHEVALIER has been staying at Chulmleigh, and was frequently seen on a motor-car in various parts of North Devon.

THE recently-formed Automobile Club of Algeria is taking steps to ensure the establishment of petrol and lubricating oil stores in various parts of the departments of Algiers, Oran, and Constantine.

MR. CHARLES BUNN, manufacturer of motor-car accessories, West Bromwich, has placed upon the market a registered design of folding lifting jack, specially intended for motor-car work. As will be seen from the second illustration, the jack when folded occupies but little space and can easily be put out of the way. It might be thought that the bolt upon which the standard



pivots bears the whole of the weight that may be thrust upon the jack, but a second glance will show that the screwed spindle rests upon the bottom of the jack at a point where a solid mass of metal is provided, and of sufficient bulk and strength to withstand all strain. In other words, the foot is entirely solid and rests flat upon the ground. The jack is made in two sizes.

It is reported that the Russian military authorities have given to an English firm an order for two powerful motor-cars and six motor-trucks, which are to be used during the next army manoeuvres. French cars of 8-h.p., constructed to carry three-quarters of a ton, are also to be tried.

In the annual report of the Electrical Power Storage Company, Limited, for the year ended May 31st last, the directors record a continued increase in business, the output having been larger than in any previous year. "This is especially gratifying, as the increase has not been confined to one class of cell, the smaller as well as the larger types, and still more, the batteries designed for the propulsion of electrical vehicles, having shared in the growing demand."

THE Automobile Club, of Cleveland, U.S.A., has taken a very decided stand on the subject of scorching. It has announced that it will act as aids to the police in the apprehension of scorches, even though the offenders be members of their own organisation. The Chicago Automobile Club has also recently passed resolutions against the fast driving of automobiles in the city streets, tendering its support to the city authorities in their efforts to uphold the law.

A PUBLIC motor-car service has just been established between Newlyn and Marazion.

ON Friday next week the members of the Yorkshire automobile Club will leave Leeds on a tour to Dawlish.

MOTOR-BICYCLE races of respectively three and five miles are to be held at Strabane, Ireland, on the 30th inst.

ON Tuesday Lord Kitchener drove from London to the Indian soldiers' camp at Hampton Court on one of the King's motor-cars.

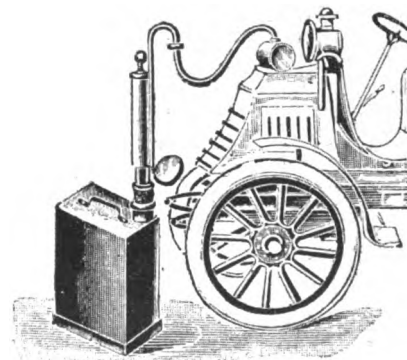
MR. FRANK MORRIS, of King's Lynn, finding his manufacturing responsibility increasing, is disposing of the motor-car hiring business which he has carried on with success during the past four seasons at Yarmouth.

MR. F. W. HUDLASS, of the Phoenix Motor Works, Southport, informs us that he has taken Mr. John Harrison, engineer, of Birkenhead, into partnership. The firm will in future be known as Messrs. Hudlass and Harrison.

A PURSUIT race will be one of the features of the races which the Long Island Automobile Club will hold on August 23rd. The plan is to place four cars at equi-distant points around a mile track and start them by a pistol shot. The machines travel in the same direction, and as soon as a car is caught it is disqualified, and must be taken out of the race. The last driver to be caught receives the second prize, while the driver of the car that catches him is awarded the first prize.

MR. T. THROUP, of Fairbank Road, Bradford, has sent us a copy of the "Cyclists' and Motorists' Guide to North Wales and part of Cheshire, Shropshire, and Derbyshire," including two road maps by Bartholomew, routes, and distances. The guide, which is well illustrated, should be found useful by those intending to visit the districts named. A similarly excellent handbook is the "Guide-book to the North of England," issued by the same publisher.

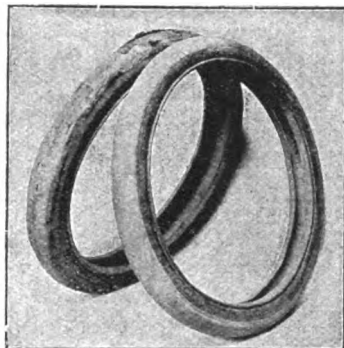
THE Vulcan Benzin Vertrieb Gesellschaft, of Berlin—the leading petrol supplying firm in Germany—has lately introduced a useful device whereby petrol can be transferred from the two gallon tins to the tank in the car with a minimum of labour. As will be seen from the accompanying illustration, it consists of a small pump with a long length of piping; the pump is adapted to fit the stopper hole of the petrol tin. Not only does the



device result in an economy of petrol, none being spilled in filling up the tank, but all chance of accident due to fire is removed. If some enterprising firm were to introduce a similar device in this country, it ought to meet with a ready sale, as by a few strokes of the pump the contents of the spirit tins are quickly transferred to the reservoir on the car.

UNITED MOTOR INDUSTRIES, LIMITED, have sent us a sample tin of the "Castle" belt dressing for motor-bicycles and motor-cars they have lately introduced. The dressing is claimed to prevent all slipping of belts, keeping them in good order, and preventing stretching, etc. Only a very small quantity of the dressing is required to be used. It is applied to the face of the pulley, or inside the belt.

Of the wear and tear of tyres every motorist could relate experiences enough to deter all but the most stalwart enthusiasts from venturing upon what might appear as the capricious sport of motoring. Capricious only from the tyre point of view, for the mechanical arrangements of cars are reliable and trustworthy enough. When the tyre problem can be solved automobilism will go forward not at the crawling legal rate of twelve miles an hour, but, to use a historical and, in this case, truly accurate phrase, "by leaps and bounds." Meanwhile the Imperial Rubber Company is setting out to repair tyres in such a way that something like the original character



is obtained without anything like the expense of a new tyre. In the lighter tyres the company cement vulcanised rubber bands on the outer covers in the familiar method, having facilities for the purpose at their place in Brook Street, Holborn, W.C., but in the heavier tyres special means are adopted which restore worn tyres from the condition shown in that in the left of the illustration to that on the right hand. In the process of repairing the rubber is vulcanised in such a way that it is united homogeneously with the original substance of the outer cover. Motorists suffering from tyre troubles will find the Imperial Rubber Company useful friends.

THE motor-car agents and dealers in Paris have just formed an association to be known as La Chambre Syndicale du Commerce de l'Automobile.

COLONEL H. S. WATKIN, C.B., superintendent of the Royal Small Arms Factory, Enfield Lock, purchased a Peugeot phaeton from the Caledonian Motor-Car Company during the week of the Highland Society's Show.

MOTOR-CYCLES are getting quite a common sight in Llanelli; among local residents who have lately acquired motor-bicycles are Mr. D. L. Joseph, captain of the Ashburnham Golf Club, and Mr. Morton Evans, of Llangennech Park.

At the invitation of the Earl and Countess of Onslow about two hundred of our Indian and Colonial visitors have been entertained to luncheon at Clandon Park, near Guildford. Many of the Colonial Premiers drove down from London on motor-cars.

At the second ordinary general meeting of the Diesel Engine Company, Mr. W. Oppenheimer said he understood from an expert on heavy automobiles that whereas the ordinary heavy steam traction engine would run twenty miles, the same carriage with the application of the Diesel system, carrying the same weight of oil as the steam engine carried coal and water, would run 200 miles.

DURING the first half of the current year the imports of foreign motor-cars and parts into Belgium reached the value of £19,414 (£11,083 being complete vehicles and £8,331 parts of cars), as compared with only £16,410 (£6,975 complete cars and £9,435 parts) in the corresponding period of last year. A much greater increase is, however, noticeable in the exportation of Belgian-built motor-cars and parts of same. For the half-year just ended they attained a value of no less than £29,567 (£23,948 complete cars and £5,619 parts) as compared with only £15,914 (£13,265 complete vehicles and £2,649 parts) in the first half of 1901.

CORRESPONDENCE.



STEAM v. PETROL CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It is with some diffidence that I reply to "L. B. C." in your issue of July 12th re petrol and steam cars. I am an engineer of some thirty-five years' experience, and during the greater part (some twenty-three years) have been engaged almost solely in experimental work on both systems. The opinion I have formed is that, all things considered, the steam car is much the simplest and best for anyone with not much mechanical and electrical knowledge. There would be a vast improvement if all steam car makers would give a little more pump, boiler, and burner power, as at the time of greatest urgency the pump usually fails to deliver to the boiler a sufficient supply of water, and if the pump does efficient duty, the burner fails to convert same into high-pressure steam. The thing is cut too fine all round. The burners also, even the best, generally choose a most inconvenient time to block or work badly. The petrol car, however, is undoubtedly doomed, and we may look for the future development of the motor-car along the lines of high-pressure steam. No sane person who had experience of the two systems would hesitate for one instant as to which is best, the tremendous speed and heavy moving parts of the petrol engine being mechanically unfair to any materials, however good. A vast scrap-heap of petrol cars in a few years is what I foresee. The tubular boiler, being too easily damaged by inexperienced users, will, however, not do. The flash generator is the thing, and if fitted with an automatic pressure regulator and a sufficiently large burner, is near perfection, cheap, and durable. The steam-engine of to-day does not require criticism; it is absolutely perfect, when well designed and made. I fear I shall give offence to some, but may add that I am not financially interested in any make of steam or petrol car whatever.

As to cost of maintenance, the actual cost of running is about equal, if the steam car is fitted with a good paraffin burner. With petrol burner the cost of running will be about one and a-half times as great after the car has been in use a short time. The steam car will undoubtedly outlast any petrol car.—Yours truly,

IRON.

A GOOD SUGGESTION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—All the theory in the world has sometimes to yield to practical experience, and it is therefore to those who are using motor-cars day in and day out that we must look for very much of our practical information with regard to motor-cars. A record of the facts and things met with would be very interesting and very helpful to other owners if only motorists would take the trouble to make the same public.

It is on the broad plane of imparting useful knowledge that I venture to suggest that owners of motor-cars should write frequently to the *Journal* about the practical points that come up in their several experiences. Some of the things that new beginners desire to know about are: (1) The consumption of fuel. (2) The cost of repairs; the kind of repairs most common and the methods taken to carry out the work and prevent recurrence of the trouble. (3) The life of tyres under varying conditions. (4) Useful accessories; that is, all those adjuncts to the car in the shape of lamps, tools, and the like, which are not an actual part of the vehicle. (5) Experiences with various forms of motors, gearing, lubricators, bearings, carburetors, ignition, pumps, etc. (6) General happenings in operation, breakdowns, their causes, results, and repair. It is greatly to be desired that all who possibly can will contribute to the general knowledge of the behaviour of different types of motor-cars in practical use.—Yours truly,

LEARNER.

RE BENZ CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—If any of your numerous readers could give me in trouble any advice respecting his Benz car he would be very much obliged. It is a 3½-h.p. car, with an additional air valve at back of cylinder; it will go very well on the high speed on a level road, and still faster if a little incline; but when there is the least rise in the road, it begins to slow down, and I am obliged to change to second speed, otherwise the engine stops altogether. If I have to ascend a hill of one in twelve I can hardly get up with the Crypto gear. The sparking and accumulators appear to be all right.—Yours truly,

J. W. WOOD.

MOTOR-CYCLE HANDICAP.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—A good deal of correspondence has lately been published as to the difficulty of so handicapping motor-cycle races as to ensure a chance for the average rider and an interesting race to the onlookers. Mr. Garrard's suggestion that the machines should be rated, taking as a basis the cubic contents of the cylinder, weight of machine and rider, thickness of tyres, etc., would reduce the starts to be allotted to a mathematical

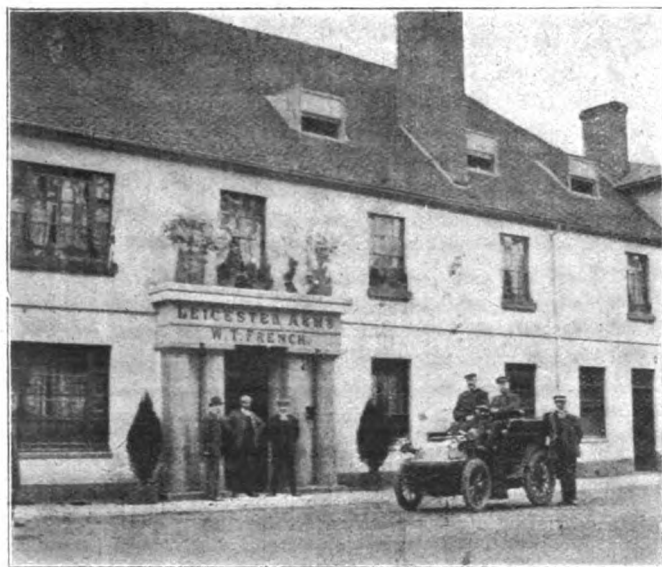
formulae, appears, on the face of it, to be the only reasonable way of settling the question, yet by an experience I had personally in the ten-mile handicap at Canning Town a good many other factors will have to be considered to ensure the desired levelling up.

With the exception of Martin's 80 x 85 Excelsior, no other machine out of about twenty riders travelled the pace I did, consequently I won the handicap, which had been based on the bore and stroke of engines, etc., with over a mile to spare. My Phoenix has a Minerva standard engine of 70 x 70, yet other machines of 76 x 76 were left behind in actual running. The machine was fully equipped with mudguards, two brakes, even a luggage-carrier, and, as it was my intention to journey to Peterborough in the evening, I had actually two gallons of petrol on board. Yet this touring machine, which has been many thousands of miles on the road, proves faster than stripped racing machines of much larger bore and stroke. Truly the handicapping question seems to be more difficult than ever!

With regard to the Ormonde Company's remarks *re* pedalling in hill-climbing competitions, these entirely coincide with my views on the subject. As a proof of my argument, I point out that the very same machine which went at the rate of over thirty-seven miles an hour in the handicap above mentioned only surmounted Dashwood Hill in the trials last May twice unassisted. Yet a machine capable of doing thirty-seven miles an hour is good enough for average road.

As Mr. Goodwin justly points out, there is no law to prevent a little pedalling up a very stiff hill; it requires very little effort on the part of the rider, and it is at all times more pleasant to be mounted on a machine capable of travelling a fair pace on give-and-take roads, than one specially built or geared to perform feats which it may not be called upon to do half a dozen times in a year's riding. In other words, when going for a morning's drive, one would not harness a cart-horse in a light trap, although this would pull uphill.—Yours faithfully,

J. VAN HOOYDONK.



MR. R. E. LANE ON HIS 10-H.P. BENZ TONNEAU AT PENSHURST, KENT.

PANHARD AND NAPIER PRACTICE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It was interesting to me to observe in the recent Paris-Vienna race that the latest 70-h.p. Panhard racing cars have their gear placed in exactly the same way as the 50-h.p. Napier, namely, the whole of the gear put behind the differential. They were in size and appearance an almost identical reproduction of the Napier racing carriage for 1901, the only difference being that they were brought down to the 1,000 kilos weight. As has been proved, they suffered in the same way as the 50-h.p. Napier, from being unnecessarily fast; in the majority of cases the carrying of the great horse-power necessary for giving an excessive speed proved a disadvantage.

This was the experience I gained in 1901 with the 50-h.p. Napier, with the result that our 1902 model is almost the other extreme. The 1903 will be a sort of happy medium.—Yours truly,

S. F. EDGE.

A SPACIOUS motor garage has just been added to the South Eastern Hotel at Deal. It has an inspection pit and is well lighted by electricity. The manager, Mr. Smart, has also arranged for the execution of repairs, the supply of petrol, and the re-charging of accumulators.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	FINES.
Wallingford ...	W. F. Parker, Oxford	Above legal limit.	Dismissed.
Carmarthen ...	W. Smith	21 m. p. h.	£5 and £1 1s. costs.
Tipton ...	O. Marsh and T. Baker, Burnt Tree	15 m. h. p.	Each defendant ordered to pay the costs.
Llangefni	H. M. Bater.	Above legal limit.	£5 and costs.
Caversham	T. Jordan, Reading	" "	5s. including costs.
Woking	B. Pugh, Reading	" "	" £2."
"	A. G. Rees, Marlborough Rd., N.W.	" 18 m. p. h."	" £2."
Bromley (Kent)	G. Lansbury, Upper Sydenham	Above legal limit.	15s. and 8s. costs.
St. Neot's	Sir Charles Forbes, St. Albans	" "	£5.
Kingston	J. S. Pollock, Walton-on-Thames	" "	£5 and 30s. costs.
"	Capt. R. Wymiss, Lowndes Square, W.	" "	£3 and 6s. costs.
Brentwood	L. Scott, Woodbridge	" " "	£5 and 4s. costs.
*Higham Ferrers	E. J. Clark, Stanwick	17 m. p. h.	Dismissed.
Chapel-en-le-Frith	S. Revill, Hathersage	20 m. p. h.	10s. and costs.
Coventry	A. Mosses, Birmingham	Above legal limit.	20s. and costs.
Chertsey	A. Hinde, Cobham..	29 m. p. h.	£3 and 8s. 6d. costs.
"	F. Lawson, Burton-on-Trent	30 m. p. h.	£3 and 10s. costs.
Louth ..	W. Allbones, Grimsby	Above legal limit.	Dismissed on payment of £3 3s. costs.
Bournemouth...	A. Mackay, Oakesdown	" " "	£2 and 8s. costs.
Altrincham.....	H. T. Francis, Guildford	20 m. p. h.	Dismissed.
Kingston	C. Bacon, Edgware Road, W.	15 m. p. h.	10s. and 12s. costs.
Leeds	W. House, Bradford	20 m. p. h.	40s. and costs.
Tunbridge Wells	F. Forest, Tunbridge Wells	20 m. p. h.	£1 and 14s. 6d. costs.
York.....	Capt. A. C. Duckworth, York	20 m. p. h.	£1 and costs.
"	F. H. Forge, Woodford	Above limit.	£3 and 1 costs.
"	J. C. Smith, Hyde	" "	£5 and costs.

* Motor-cycle case.

AN appeal to the Carnarvonshire Quarter Sessions has been lodged against the decision of the Llandudno bench in the action brought by the police against H. M. Bater, the Marquis of Anglesey's *chauffeur*, for furiously driving his lordship's motor-car on the 7th inst.

WILLIAM FREDERICK PARKER, manager of the Motor and Cycle Works, Oxford, was summoned for driving a motor-car at a greater speed than was reasonable and proper in Castle Street, Wallingford, on June 21st. After hearing the evidence the Mayor said the bench must accept that of the defendants, and must consider that the witnesses for the prosecution were perhaps drawn away by excitement and thought the car was travelling at a greater rate than it was. The defendant was certainly wrong in not waiting longer than he did to ascertain the extent of the injury to the man who was knocked down. It seemed almost impossible to believe that the man could be lying in the road only a few yards away and that they could not perceive what had happened. The defendant was culpable in that respect, but with regard to this charge they dismissed the case.

In the case against A. Mosses at Coventry the evidence of the complainant, a lad fourteen years of age, was to the effect that on July 4th he was riding a bicycle down the Holyhead Road. When about to turn into Spon Street he was run into by defendant, who was driving a motor-car, and in the act of turning into Holyhead Road from Fleet Street. His machine was smashed, and he sustained a wound on the head. The defendant gave evidence to the effect that he was going between ten and twelve miles an hour. The lad cut right across in front of him, and in endeavouring to avoid an accident he swerved to one side and ruined one of the tyres. Had he not done so the lad must have been killed. Questioned as to his promise of compensation, defendant voluntarily stated that he had previously run

over fowls, and had always compensated the owners. He also knocked someone down at Banbury.

In the case at Carmarthen, the magistrates allowed a police-constable to cross-examine the defendant in the following style:—How many accidents have you had this year?—One. How many claims have you had?—None. How many persons have you ridden over?—None. How many animals?—Only one ran into me—a cow—and I had the worst of it. (Laughter.)

At the Llangefni Police-court, Harold Maurice Bater, the Marquis of Anglesey's chauffeur, was charged with furiously driving his lordship's motor-car. This was the third occasion within about a month on which Bater has appeared on this charge, the previous cases being at Conway and at Llandudno. Robert Davies saw the car on the date named, and he considered it was going at the rate of thirty or forty miles an hour. It raised such a dust that he could not distinguish the car until it had gone about a mile. On the return trip it went by him so fast that he could not tell how many occupants it contained. Police-constable Owen Jones said he first noticed the car about three-quarters of a mile off, and that distance was covered in one minute, including the slackening down, on witness being seen by the occupants. Mr. Rowland, for the defence, said he did not think the Marquis of Anglesey, who was on the car at the time, would have tolerated a speed that was dangerous. The defendant said he took the Marquis of Anglesey for a short spin on the date in question for the sake of the air. He did not travel at any time at a dangerous pace. Even were it going at full speed he could stop it within two or three times its own length. He was going at a speed of a little over twenty miles. Colonel Lloyd said the Bench considered the charge proved, and thought it was a great pity these cases should be so frequently brought before the courts; but the remedy was in the owner's hands—viz., to moderate his pace, which the Bench strongly recommended him to do. A fine of £5 and costs was imposed.

"ZIG-ZAG" MOTORING.

JULES DECCIT, of the White House, Walton-on-Thames, was charged before Mr. Denman, at the Marlborough Street Police-court, on the 17th, with being drunk while in charge of a motor-car. A policeman said that at ten minutes to three that morning the vehicle pursued a zig-zag course along Piccadilly, and scattered a gang of workmen. The car then broke down. The prisoner admitted he was "to a certain extent" under the influence of drink, and that if he had not been so his course would have been in a straight line. Mr. Denman fined him twenty shillings.

NO LIGHT.

GEORGE SAMWAYS, for riding a motor-bicycle without a light at Falmer, has been fined five shillings at Lewes.

SEQUELS TO MOTOR-CAR ACCIDENTS.

P. F. MOSELEY, living in Medina Road, Holloway, who had been out on bail, was charged, on remand, at Hampstead Police-court, on the 17th inst., with furiously driving a motor-car in the Edgware Road, Cricklewood, and causing bodily harm to May Mortlock, aged nine years, of Laurel Terrace, Cricklewood, who had since been in a very critical condition. The occurrence took place on June 27th, and the child has not yet been able to attend the court. At the last hearing a doctor stated that he considered the child "out of danger," and he expected her to recover, but mental trouble might remain for some time. The prisoner, who reserved his defence, was committed for trial, but liberated on bail, himself in £150, with one surety in a like amount.

At a Pleading Diet of Edinburgh Sheriff Court on Monday, a motor-car driver named Thomas Morrison appeared before Sheriff Rutherford, charged with having on June 14, in Princes Street, Edinburgh, while in charge of a motor-car, driven the vehicle against Christina Currie and killed her. The accused pleaded not guilty, and will be tried on the 31st inst.

HORSE'S ANTIPATHY TO THE MOTOR-CAR.

BEFORE his Honour Judge Bowen Rowlands, K.C., and a jury, at a special sitting of the County Court, at Birkenhead, on Monday, the Oxtou Carriage Company, Limited, brought a claim against Frederick Heath, Prenton, for £20 damages to a brougham, alleged to have been caused by Mr. Heath's negligent driving of a motor-car.

Mr. Rigby Swift, in detailing plaintiff's case, said that at 6.30 p.m., on April 18, Mr. Page, manager to the plaintiffs, in company with Mr. Thomas Kynaston, was driving a horse and brougham along Woodchurch Road in the direction of Neston for the purpose of trying the animal. Shortly after passing Cecil Road they observed the defendant driving a motor-car towards them. Both Page and Kynaston held up their hands for the motor-car to be stopped, but the defendant took no notice, and drove on, with the result that the horse took fright and bolted. Kynaston jumped off, but Page stuck to the reins, and after going nearly a mile the brougham overturned, and was dragged some fifteen yards further before Page succeeded in stopping it. For the defence Frederick Heath said he had driven a motor-car more than 2,000 miles. On the day in question when he passed Euston Cottage he was going at the rate of ten miles an hour. When the driver of the brougham put up his hand witness turned to the side of the road, and immediately brought the car to a standstill. His Honour summed up at length, and the jury brought in a verdict for the plaintiff, £15 damages.

OBSTRUCTION BY A CROWD.

A CASE of importance to motorists has just been before the magistrates at the Manchester City Police Court, the point being whether or not the owner or driver of a car could be held responsible for an obstruction of the road by a crowd which assembled round his car. The proceedings were taken under the Manchester Police Act. Herbert Francis, chief engineer to Mr. Alfred Harmsworth, was the defendant, and Mr. Newman appeared for him. Police-constable Grant said that the car, which was a 40-h.p. racer, was allowed to stand outside Parker's Restaurant, St. Ann's Square, for an hour and twenty minutes on the 11th inst. A considerable crowd stood around it, and so caused an obstruction. Mr. Newman admitted that the car stood as stated by the officer, but questioned him as to what he would have done if an ordinary carriage had been allowed to stand for a similar length of time. Witness replied that the objection was to the obstruction caused by the crowd. Mr. Newman submitted that the defendant could not be held responsible for the presence of the crowd. Defendant had a perfect right to use the road, and he suggested that it was the duty of the police either to see that the crowd moved on or to summon them. The Bench, however, found that defendant was responsible, as would have been the case, they said, had any other vehicle been the cause. They imposed a fine of 5s. and costs.

MANCHESTER COMPANIES.

THE first (statutory) general meeting of the Manchester Motor Transport Company has been held at the offices, 10, Deansgate. Mr. W. G. Killick (chairman) presided. The company has been formed for the purpose of carrying heavy goods from Manchester to the towns around. Three motor-lorries are now at work, and this number will soon be increased. As an example of what the company purpose doing, it may be mentioned that they have been engaged in conveying cotton from the Ship Canal Docks to mills at Royton and Shaw. The meeting was purely formal. The chairman announced that a depot had been formed in Chester Street, Hulme, for stores and the repair of motor-vehicles of various kinds.

The Trafford Motor Manufacturing Company, Limited, has been registered with a capital of £1,000 in £1 shares, to acquire and carry on the business of a motor-car builder and manufacturer carried on by Mr. F. W. Hutton, at Christ Church Square, Hulme, Manchester, as the Trafford Motor Manufacturing Company. No initial public issue will be made. The registered office is at Christ Church Square, Hulme, Manchester.

A MOTOR-BICYCLE CASE

LAST week the case of J. D. Wheldon v. The Motor Traction Company, Limited, was heard. The plaintiff sought to recover the sum of £35, paid to the defendants on account of a motor-bicycle with which they had supplied him, which machine he alleged to be unsatisfactory, and not in accordance with the statements made as to it at the time of the purchase.

Mr. Lewis Thomas, in opening the case for the plaintiff, said that in March last Mr. Wheldon visited the premises of the defendants, and inspected a motor-bicycle. He agreed to purchase the machine if it fulfilled the statements as to its capabilities made to him by the representative of the company. The defendants further agreed to send the machine to the plaintiff's house at Cheshunt, and that he was to try it there, and, if it proved satisfactory, to forthwith send them a cheque. The defendants delivered the machine, and, after a short trial on the day of delivery, his client forwarded the company a cheque for £35, leaving a balance due which would be paid after further trial. In the course of a day or so, Mr. Wheldon found that the machine was anything but satisfactory. Many little things were wrong with it, and, after much correspondence on the subject, the defendants sent him another machine in exchange. This machine was also defective, and, as the brake was wrong, it was sent back to the Company, who returned it with a new brake, which was admitted to be specially made, and might, therefore, be looked upon as an experiment. This brake touched the rim, and Mr. Wheldon further found that the driving belt fouled certain portions of the frame and the mudguard. Finally, after more correspondence, Mr. Wheldon wrote to the firm, and informed them that unless they immediately sent him the money back, or provided him with a satisfactory machine, he should take proceedings. As the company refused to do either the one or the other, and demanded payment of the balance for the machine, this action was brought. After plaintiff had given evidence, Mr. Tyler gave expert evidence on behalf of the plaintiff, and said that when he saw the machine the brake touched the rim of the wheel, and the pulleys of the driving-belt were not in alignment. He also noticed that the interrupter plate was broken. His Honour Judge Emden asked if an expert was in court on behalf of the defendants, and on being informed that such was the case, and that the said expert maintained that the machine was rideable, he suggested that during the adjournment for lunch the experts should each ride the machine, and afterwards give their evidence. On reassembling Mr. Tyler continued his evidence, and said that he still considered the machine unrideable, although he admitted that he had seen it ridden. He had not succeeded in riding it himself. He had not tried to do so. Mr. C. W. Brown was called on behalf of the defendants, and said that he had seen the machine at Mr. Wheldon's house at the request of the Motor Traction Co. He found that the brake-pads touched the wheel, but he put this right with his fingers, as the pads had only shifted owing to the machine having been wheeled backwards. The brake now acted perfectly. The pulleys were in practical alignment. He found that the insulating plate of the interrupter was broken, but this was clearly owing to rough usage,

probably when the machine was conveyed by train by the plaintiff. The damage was not material, and could be put right at a trifling cost. The machine was perfectly rideable. Witness had ridden it during the adjournment, after Mr. Tyler had failed to couple up the driving belt. The engine was stiff and the belt harsh owing to non-use, and yet the machine started at once, in spite of the fact that the accumulators were partially run down on account of electrical leakage, which must always take place under such circumstances. Mr. Thomas then proceeded to address the Court on behalf of the plaintiff, and pointed out that, although the machine had been ordered in March last, and it was now July, his client was still without a motor-bicycle.

His Honour, in giving judgment, said that there could be no doubt that the machine was only at fault in mere matters of adjustment, and the points raised by the plaintiff appeared to him to be trivial. The motor trade was young, and it could hardly be expected that it had reached perfection so soon. The conditions of the industry must be remembered. People who bought motors should be prepared to learn something of their construction and how to adjust them. In his opinion, based on the evidence of the expert who had ridden the machine, there was no structural defect in the bicycle, and there was nothing about it which would prevent it giving reasonable satisfaction to a reasonable man. He must, therefore, give judgment for the defendants with costs, and they were also entitled to recover the balance due on the purchase price of the machine.

HIRING MOTOR-CARS—A SEQUEL.

At the Doncaster Borough Police Court W. J. Clark was the defendant in two summonses issued at the instance of W. E. Clark, of the firm of Messrs. W. E. Clark and Co., motor-car and cycle agents, carrying on business at Station Road, Doncaster, and Bennitthorpe, the first charging him with committing an assault upon complainant on the evening of the previous Wednesday, and the other with using obscene language at the same time and place. In opening the case, Mr. Andrews said the defendant occupied the position of district inspector to the Royal Society of Prevention of Cruelty to Animals. On the date in question complainant was in his firm's Station Road premises, when the defendant, who had previously been there for a motor-car, entered the premises and came a second time for a motor-car, the one in the first instance not having been supplied. The motor-cars at that time had just returned from the Dukeries. Addressing the complainant, the defendant said he had come for a motor-car, to which the former replied that he could not allow him to have one at that hour of the night, between eight and nine o'clock. Defendant was rather persistent, and finally complainant yielded and agreed to allow him to have one of the motor-cars on condition that one of his (complainant's) men accompanied him, the defendant having previously stated that he wished to proceed only as far as Balby. Defendant left the premises with the motor-car, accompanied by one of complainant's men, who was in charge of it, and after being away for about an hour complainant was surprised to see the defendant and the car between his (complainant's) house in Bennitthorpe and the Rockingham Inn. There were with him in the car a lady and a gentleman, and complainant naturally spoke to the defendant and expressed surprise. When spoken to defendant made use of obscene language. After some altercation the defendant struck complainant and hit him about the head. Complainant had to send the driver of the motor-car to seek the intervention of the police. The request by the complainant that payment should be made was a perfectly reasonable one. After a long hearing, the magistrates retired to consider the evidence. On returning into Court, the Mayor said that the defendant would be fined 20s. and costs for the assault, and 5s. and costs for the other offence.

MOTOR-CYCLE RACES.

THERE were ten thousand spectators at the sports held by the West Ham United Football Club on their ground at Canning Town, E., on Saturday, when motor racing formed a large part of the programme. In the ten miles motor-cycle handicap the result was as follows:—Final heat: J. Van Hooydonk (Phoenix), 5 min. 40 sec. start (handicap time 11 min. 6 sec.), H. Martin (Excelsior), 1 min. (13 min. 8 1-5 sec.), 2; J. J. Leonard (Werner), 2 min. (14 min. 55 3-5 sec.), 3; G. A. Barnes (Excelsior), 1 min. 30 sec. (15 min. 22 2-5 sec.), 0. Van Hooydonk led from start to finish, and won by more than a mile; two laps separated Leonard and the virtual scratch man. Martin broke several records en route, including that for five miles, which distance he covered in 7 min. 7 sec.

H. Martin had a walk-over in the five miles motor-cycle race.

During the afternoon H. Martin made an attack on the five-miles motor record (flying start). He rode his miles on his Excelsior motor-bicycle in 1 min. 19 1-5 sec., 1 min. 19 sec., 1 min. 20 3-5 sec., 1 min. 22 2-5 sec., and 1 min. 23 3-5 sec. respectively—total for the five miles, 6 min. 44 4-5 sec., against the old record (his own) of 7 min. 25 3-5 sec. The time for the second mile, 1 min. 19 sec., constitutes a new one mile flying start record. His times for two (2 min. 39 1-5 sec.), three (3 min. 58 4-5 sec.), and four miles (5 min. 21 1-5 sec.) are also new records for those distances.

Later in the day R. Yates on a Humber attempted to break Martin's newly-made record of 7 min. 7 sec., but failed, covering the distance in 7 min. 14 2-5 sec.

On Saturday the annual athletic meeting of the Railway Clearing House Athletic Club was held at the Crystal Palace. One of the chief attractions

was a five miles motor-cycle race between F. W. Chase, scratch, and T. E. Newman, who had 300 yards start. Chase went to the front soon after the start, and held the lead till the finish, winning by nearly two laps. Time, 6 min. 58 sec. The previous best was Chase's 7 min. 16 sec.

A SAN automobile mail service between San Juan and Ponce, Porto Rico, was inaugurated on the 1st inst.

MR. H. HEWETSON has completed 4,000 miles on the Benz car which will shortly be sold by auction for the benefit of King Edward's Hospital Fund.

MR. C. D. PHILLIPS, of Newport, Mon., is giving trial runs on a Stirling dog-cart in that part of Wales, with a view to popularising the motor-car.

MESSRS. DALTON AND WADE, of 146, Spon Street, Coventry, have been appointed sole agents in the Midland district for Compins patent spring seats for motor-cars, tram-cars, etc.

THE average cost per horse owned by the London Improved Cab Company has reached 8s. 5-3d. per week. This is the highest point recorded for many years, the average for the previous five years being 7s. 4-1d. per horse per week.

At a complimentary lunch to Mr. S. F. Edge, given at the Hotel Cecil on Tuesday, the winner of the Gordon-Bennett Cup said there was no reason why we should not attract more customers to London, whether for English or foreign automobiles. There was certain to be a big demand in this country for springs, axles, lubricators, wheels, and tyres, but, unfortunately, we were still lacking manufacturers who were ready to lay down expensive plant for the production of some of these parts, and frequently there was a want of adaptability. With regard to the race for the Gordon-Bennett Cup, his car could do sixty-five miles an hour on the level. There were no doubt places where eighty miles could be done, but they were so comparatively few that his own view was that top speeds would have a tendency to come down.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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COMMENTS.



THE decision of Mr. Justice Farwell in the case *Mayner versus Earl De la Warr* sent a feeling of consternation throughout the automobile world. For weeks past motorists have been looking forward to a repetition of Whit Monday's races, and the rumoured presence of several well-known Continental *chauffeurs* gave added interest to the event announced for Monday next. But the legal decision reported on another page has upset all calculations, and it has now been officially decided that the races will be held at Welbeck Park, by the permission of the Duke of Portland, on Thursday, the 7th inst., commencing at 10.30 a.m. Of course this change will prevent the meeting having anything of the popular interest that would have attached to Bexhill on Bank Holiday, but from the point of view of the motorist it may not be without its advantages.

The Scene of the Races.

ALTHOUGH the races are announced to take place at Welbeck, the actual scene of the contest will be at Clipstone—on a private road leading to Cavendish Lodge—three miles from Mansfield. The competing cars will be weighed at Nottingham, where facilities will be afforded from 4 to 11 p.m. on Wednesday next, and from 7 to 8.30 a.m. on the following morning. Then they will make their way to Clipstone *via* Mansfield.

The Latest Entries.

MOST of the entries announced last week for the Bexhill meeting will hold good for next Thursday's event. In addition to those then given we learn that the Baron Turckheim will drive a 16-h.p. De Dietrich car, and Mr. Lorraine Barrow a 24-h.p. De Dietrich. There will be a good representation of Darracq cars, driven by well-known French *chauffeurs*, and entered by Sir J. Pender, Mr. E. W. Hart, and others. M. Girardot will also drive a car, and Mr. Rolls will probably be on the Mors on which he took part in the Paris-Vienna contest. Baron Stern will have his 40-h.p. Mercedes; the Earl of Shrewsbury will be represented by Clement cars, and the Marquis Feute Meun will drive a Mors. Mr. A. Creyke has entered the "Easter Egg," and Mr. Frank Lawson a 20-h.p. Cannstatt Daimler. Messrs. Harvey du Cros and C. Sangster have also entered vehicles. The change of venue has apparently encouraged entries from members of the provincial clubs, and the presence of Mr. W. E. Nicholson, of Leeds, Mr. C. W. Pennell, of Lincoln, and others who have become known in connection with their local automobile organisations will be welcomed.

Dashwood Hill Climb.

FOLLOWING the speed trials in Nottinghamshire, the A.C.G.B.I. will hold a hill-climbing competition on Dashwood Hill, on Friday, the 8th inst. Only cars that participate in the meeting at Clipstone will be allowed to take part in the competition on the Oxford road, and entries must reach the Automobile Club not later than to-day (Saturday).

Motor Fire-Engines.

SINCE the recent disastrous fire in Queen Victoria Street, London, the authorities of the Metropolitan Fire Brigade seem to have been aroused to a sense of the necessity of testing the latest improvements with regard to fire appliances. Recently we gave an illustration of Mr. Croker, head of the New York Fire Brigade, on a steam-car, with which he goes to fires in the American city, and, as is well known, Commander Wells, of the London Brigade, has a similar vehicle. But one automobile will do little to retard London fires, and we are glad to learn that, during the present week, the chief of the London Fire Brigade has submitted to the Fire Brigade Committee of the London County Council the model of a new motor-tractor he has devised. This is so constructed that it can be used to draw either an engine or a ladder mounted on a van, an arrangement which Commander Wells thinks will be more serviceable than a motor fire-engine, which cannot be adapted to any other purpose. At the same time a new motor fire-engine is in course of construction in the brigade workshops, and will probably be ready for trial in a few weeks' time. This will be added to the equipment at the Whitefriars Station, where two new firemen will be appointed specially to work it. Should the experiment prove successful, as we have little doubt it will, it opens up new possibilities in the way of fire extinction, for which all will be grateful.

The Motor "Fire King."

ON page 448 we give an illustration of Messrs. Merryweather's motor "Fire King," ascending Dartmouth Hill, Greenwich, at the rate of ten miles per hour. The gradient is one in six. This is specially interesting at the present time in view of the attention now being given to the subject of motor fire-engines by municipal and other authorities. At Folkestone recently a contest was arranged between the motor fire-engine and a local horsed steamer, the alarm being given from the "Metropole," about three-quarters of a mile from the station. The "Fire King" won, beating the horses by 2½ minutes, and getting a jet to work over the roof within ten minutes of the alarm being given.

Doctors and Motor-Bicycles.

DR. SHEPPARD, of Liverpool, has ridden over 1,800 miles on a Singer motor-bicycle, and is so well satisfied that he now uses only one horse where two were formerly necessary; stableman's wages and a monthly cab bill have been saved since he adopted the machine; and he can give prompt attention to urgent cases, no matter how distant they are. Of course, he has had some troubles, but these, as he confesses, have arisen from want of knowledge. His experience is that proper lubrication is the most important item to attend to, and that is required about every 15 or 18 miles. If a thick lubricant be used it will go for 35 miles, but the engine does not start so easily. Two gallons of the best petrol will run the motor 200 miles. Dr. Sheppard seems to have had several side-slips during his early motoring days, caused by crossing tramway lines too obliquely when wet. Now he has learnt wisdom, and always turns off the power and pedals. His wife has also a Singer motor-bicycle, and this gentleman evidently regards it as eminently suitable for the requirements of the medical profession.

Police Prejudice in Essex.

THE police authorities of Essex seem to be emulating the example of those of Surrey, Huntingdonshire, Hertfordshire, and other counties which have long been known as prejudiced against the motor-car. In our list of furious driving cases this week we publish particulars of convictions at Brentwood and Chelmsford, which show very conclusively that the Essex magistrates are upholding the police in their action. In the case against F. W. Jay, heard at the Chelmsford Petty Sessions, the police-sergeant acknowledged that he stationed a couple of con-



Photo by [R. Banks.]
THE DUKE OF WESTMINSTER RETURNING TO EATON HALL.

stables on the road between Widford and Ingatestone with a ladder to forcibly stop the defendant if he did not pull up. Instead of reprimanding the police for this sort of thing, the magistrates, by implication, seemed to express approval of their ingenuity, for the defendant was fined £3 10s., £1 being added (as the chairman of the bench observed) for not stopping when he was called upon to do so. The level roads of Essex are not likely to be much used by motorists if this un-English conduct on the part of the police continues.

"Speeding the Wedding Guests."

THE use of the motor-car in connection with the matrimonial alliances of our great families is increasing rapidly, and during the present season several automobiles have been engaged in driving the newly-married couples to the station on their honeymoon trips. On Saturday last Earl Beauchamp and Lady Lettice Grosvenor were married at Eccleston, near Chester, and later in the day the Duke of Westminster drove several of the wedding guests, including Dr. Gore, Bishop of Worcester, to the station in his motor-car. This was frequently in requisition during the afternoon, and proved useful in expediting the work of conveying the guests to the station.

Motor-Ambulances for London.

ONLY the sanction of the Local Government Board is now required to secure a motor-ambulance for London. At Saturday's meeting of the Metropolitan Asylums Board it was decided, subject to the sanction of the central authority, to accept an estimate for the construction of an automobile ambulance at a cost not exceeding £1,000. Of course, this is only a pioneer step, and we are still a long way from any general system of motor-ambulances for the metropolis; but the fact that the authorities are awakening to the public demand for the expeditious removal of the sick and injured—as well as for equal celerity in reaching the scenes of fire—is worth noting.

A Necessary Distinction.

EVIDENTLY there are magistrates who recognise that certain of their number have gone too far in their exhibitions of antipathy to motorists. At the Bideford Quarter Sessions the other day the Recorder said that in almost unfrequented districts the vigilance of the police in watching motorists might excusably be less than in towns like Bideford, where the streets are narrow and steep. Another recognition of the fact that along country roads a greater speed should be allowed than in crowded towns, comes from the chairman of the Surrey bench of magistrates before whom Mr. J. Hill appeared the other day. Along the Hook Road the police had measured a quarter of a mile—as we intimated in our last issue—and the defendant had covered the distance in 35 seconds, to quote the police evidence. After hearing the evidence the chairman said there was a vast distinction in driving too fast in a country road and in a crowded town like Kingston—a distinction that we hope the police will recognise.

Road Materials.

MANY persons interested in churches and hospitals in the Metropolis have petitioned the Highways Committee of the London County Council with a view to some less noisy material than granite being used for the paving of tramway tracks. The Committee have considered the suggestion, and sought for remedies. Dr. Kennedy and the tramways manager have brought under notice a material consisting of hard stone finely ground and mixed with Trinidad asphalt under pressure. On the advice of the Committee, the London County Council has decided to make a trial of the material on portions of the tram-line between Westminster and Tooting.

Motor-cars at the Manœuvres.

SOME time ago an attempt was made to raise a corps of motor-tricyclists for supplementary service for the War Office, but the prejudice of those in charge prevented much encouragement being given to the scheme. We are glad to learn, however, that the successful demonstrations of the value of automobiles which have lately taken place, together with the reliable character of the cars used by the Duke of Connaught, Major-General Fraser, and other military leaders, has convinced the War Office of the utility of these vehicles. The latest news in connection with this development is that the authorities have authorised Mr. Mark Mayhew to secure a few automobile volunteers who will be available for the manœuvres commencing on Salisbury Plain to-day (Saturday). Sir Evelyn Wood, who will be in charge of the military operations, will doubtless have many opportunities of judging of the value of the motor-car in connection with such work, and should he report favourably upon their use, we understand motor-cars will be issued to each general's district command.

A Victim of Consideration.

WE have been favoured lately with a good deal of foolish generalisation regarding the inconsiderateness of motor-drivers, while that of other users of the road passes for the most part, unnoticed. Some facts regarding an unfortunate accident at Guildford last week illustrate this, and may well be taken to heart by horse-owners. It appears that the motorist, a man of much experience with horses, had his attention attracted by the attempts of the woman in a cart to quieten the horse by violent jerks of the reins—even before it showed any symptoms of fright, which was not till after he had passed. She admitted that she knew nothing of driving, and the driver of the car had nearly succeeded in quietening the animal when its owner returned, and it was apparently a resumption of the same foolish method on the farmer's part that started it off again. The car, a 4½-h.p.

Cudell, was started off down the hill, which varies from 1 in 15 to 1 in 10, by the horse dashing into its rear, and Mrs. Turnor, who was seated in it, promptly steered the car into the bank, but was thrown out by its capsizing, fortunately without injury. A subsequent inspection of the car at the repairer's shows surprisingly little damage to wheels, axles, or frame, though the seats and coach-work are smashed up. One other incident deserves notice, namely, that a carriage apparently containing a lady passed while Mr. Turnor was attending to the injured man, and neither stopped nor offered any assistance, he having to wait some time before getting the aid of a passing cart to carry him to the hospital, 300 yards off.

A Highway Terror.

NURSEMAIDS with perambulators and ladies with nerves are not the only nuisances that the motorist has to encounter when seeking to enjoy himself on the public highways. Dogs, both large and small, are also to be added to the list of irritants. They are quite as frolicsome in their attitude towards automobiles as they are in their regard for the cyclist, and, although the consequences may not be so dangerous to the motorist as to the rider of a bicycle, they are, nevertheless, to be feared. Some day Parliament will have to consider legislation for the highways, and the unrestricted freedom of the dog will then have to receive consideration and possibly submit to special provisions which may have the effect of retarding their enthusiasm when a motor-vehicle approaches. Mr. W. E. Rowcliffe, the chairman of the Manchester Club, has recently had an experience with a dog which reveals an unpleasant aspect of the matter. He was motoring from Conway to Bettws-y-Coed when a farmer's dog ran out and was consequently run over. Mr. Rowcliffe offered the farmer compensation, which he refused, preferring to have recourse to the law. As will be seen from the report on another page, he has been non-suited, and Mr. Rowcliffe's action in resisting the claim fully justified.

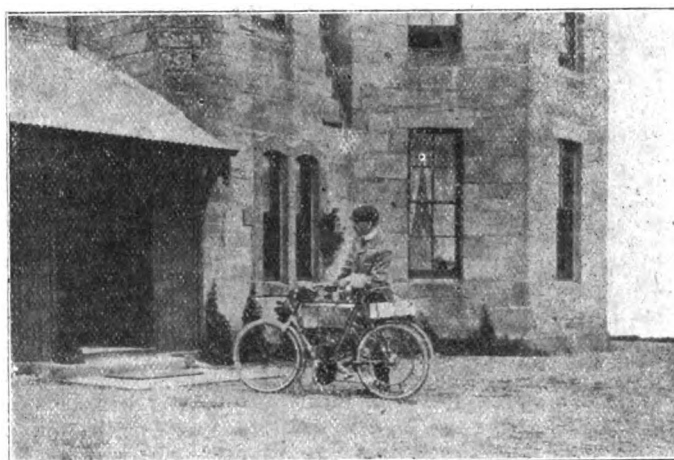
In the West.

WRITING in a Belfast contemporary, Lady Jeune recalls a pleasant motor-car expedition in which she took part some years ago through the West of England. They never went beyond eighteen miles an hour, and used the cars for about six hours daily. "We were away," continues her ladyship, "for nearly a month, and travelled about ninety miles a day. We only took one driver with us, sending on the servants with the luggage every morning to the place at which we proposed to spend the night. We made a halt in the middle of the day for luncheon, and usually only stayed one night at a place, though once or twice we made towns like Malvern and Chepstow our headquarters for a day or two to explore the surrounding country. During our tour we never had an accident or an hour's delay, and nothing could have been a more perfect mode of travelling. Our car climbed high hills quite easily; indeed, an expedition from Bath to Berkeley, in the course of which we accidentally climbed some of the highest points of the Cotswolds, excited the wonder and admiration of all beholders, and no more vivid picture remains in my mind than the perpetual protests our little motor made at being called on to perform such superhuman feats. There is a certain hill we ascended going to Wotton-under-Edge, the steepness of which even now makes my blood run cold, but our car took it calmly and with great dignity, contenting itself by making its usual protest at what it was being asked to do."

Tramways as Railway Feeders.

BEFORE the Liverpool Chamber of Commerce, Mr. J. E. Walker, M.I.C.E., of London, has been reading a paper on "Through Traffic on Tramways for Passengers and Goods." Mr. G. H. Cox took the chair in the unavoidable absence of Sir Alfred Jones, the president. Mr. Walker pointed out that at the present time in the case of goods to be conveyed by rail from the docks at Liverpool, no less than six transhipments

were involved, even in cases where full truck-loads could be forwarded, avoiding intermediate handling at junction stations:— (1) Loading at warehouse into lorries; (2) unloading therefrom to stage at railway company's depot; (3) loading from stage to trucks (to say nothing of extra loading and unloading when sent through a depot without rail connection); (4) unloading trucks to depot stage at destination; (5) loading from stage to lorry; and (6) unloading from lorry at consignee's premises. He therefore advocated through traffic at night on the tramways, which would thus become distributors and feeders to the railway systems. Apart from the goods traffic proper, there doubtless would be a considerable parcels traffic. Such parcels traffic would probably be carried on in the daytime, either by trailer cars attached to passenger cars, or by independent self-propelled parcel vans.



MR. E. H. ARNOTT AT JOHN O' GROAT'S. (See last issue.)

Traffic in London.

THE traffic of London is an ever-growing one, and the problem of how to deal with it necessarily becomes more and more complicated. Vans standing outside City warehouses are a frequent cause of the delay of carriages, cabs and buses, while the dawdling habits of the carmen travelling through the principal streets of London are also a nuisance against which motorists have protested in vain. Now, however, the Metropolitan police seem to have made a move, and, following the example of Cardiff, Sir Edward Bradford has issued a circular to railway companies, market gardeners, carmen, and others, stating that in order to lessen the congested state of the traffic instructions have been given to the police to direct all carmen and drivers of vehicles moving at a slow or walking pace to keep as close as possible to the kerb on the near side, leaving the centre of the roads to light and quickly-moving vehicles, and requesting owners to instruct their employees to observe these directions. The idea is certainly a good one, but, like many others, will be found difficult of application. When automobiles constitute the majority of vehicles using the streets of London some reform may be possible.

In the North.

AUTOMOBILISM is going strong in the North of England, and in addition to the active organisations at Liverpool, Manchester, Leeds, and Blackburn, another association of motorists has just been formed at Burnley. Sir J. O. S. Thursby is the President of the Burnley and District Automobile Club, with Lord Shuttleworth—one of the Coronation Peers—Mr. W. Mitchell, M.P., and the mayors of Burnley, Nelson, and Colne as Vice-Presidents. Mr. J. Butterworth is the hon. treasurer, and Mr. P. H. Altham the hon. secretary. Already more than a score of members have joined the Club, and doubtless there will be considerable accessions during the next few weeks.

Equine Education.

WE hear that the Parks and Gardens Committee of the Liverpool Corporation is considering a suggestion made by Mr. Archibald Ford, with a view to obtaining an open space at Sefton Park for the purpose of training horses to the proximity of motor-cars. The idea seems to be regarded with considerable approval in the city of Liverpool, and owners of horses are already informing Mr. Ford as to the days when they will be able to take their animals for the necessary education. We do not see why the local authorities throughout the country should not afford opportunities for automobiles and horses to meet on neutral ground, there to become accustomed to each other. But, as we have often pointed out in previous issues, horses are not the only living things who need educating in the matter. A little more skill, tact, or common sense—call it what you will—on the part of some of their drivers would be an advantage in many ways.

Licensing Drivers.

THE movement for the licensing of motor-drivers grows apace, and now that it has secured the approval of Messrs. Edge, Jarrott, and other well-known automobilists, it is hardly likely to encounter much opposition from laymen. In fact, it seems perfectly reasonable that those who are allowed to handle cars in the crowded streets of our great cities should at least have shown that they are capable of doing so without hindrance to other traffic or danger to the public. At the same time, it must not be expected that the licensing of drivers will altogether destroy the risk of accident. These are generally the faults of the victims themselves, who are heedless of passing dangers, and often rush blindly across the street; and then express astonishment if a motor-car should intimate its near presence by something in the nature of a shock. Still, if it will satisfy the public, we suppose the licensing of motor-car drivers will tend to an easy conscience all round.

The Hunting Season.

WITH the approach of the hunting season some of the journals that are devoted to out-door sports are apparently trying to work themselves into a fury because motor-cars have been used as covert hacks in connection with some of the leading meets. It is pointed out by the *Field*, for instance, that some sporting farmers who have hitherto been quite willing to extend their hospitality to huntsmen, are likely to withdraw their generosity should motor-cars become familiar sights at hunting meets. But really we do not think there is very much in the idea, especially in view of the large number of masters of hounds who keep motor-cars, and also the number of farmers who are giving attention to automobilism in connection with agriculture. In fact, the motor-car will become far more of a friend to the farmer than the huntsman. Last week we showed how it is being utilised in the Midlands in connection with the sale of fruit, and the Agricultural Organisation Society is also considering the adaptability of motor-cars for the conveyance of farm produce generally. Bearing these facts in mind, and also the introduction of the agricultural motor illustrated in last week's *Journal*, we hope those who claim to be the friends, patrons, and preservers of the hunt will not make themselves ridiculous by trying to drive the motor-car from the covert side.

For Heavy Work.

At Manchester the matter of the adoption of motor-wagons by the municipality for the collection of street refuse, &c., is being taken up. It seems rather strange that such a wideawake corporation as is possessed by the great Lancashire town should have apparently overlooked the advantages of automobiles in connection with municipal work. During the last few weeks we have published the opinions of several experts

on this subject, and everything seems to tend to the belief that from motives both of economy and efficiency, motor-wagons are likely to be added to the possessions of many of our leading municipalities.

Motor-Car Trips.

PREVIOUSLY we have referred to the service of motor-vehicles established by the Hemel Hempstead Motor Company. They have two motor-vehicles, known as the "Shamrock" and the "Rose" respectively, which are being largely used in the locality both for private and public work. One new feature is the development of a service of trips to about a dozen different places within a radius of 20 miles of Hemel Hempstead, which are being arranged for parties of six persons. The return fare varies from 1s. 6d. to 4s. per head, the latter being charged for the trip to Aylesbury, a distance of 17 miles. Excursions to Ashridge Park, Totternhoe, and Windsor are also being arranged, and on Tuesdays there are trips to Watford, a distance of 8 miles, the return fare in connection with which is 1s. 9d. The terms for private hire have also been arranged by the company on reasonable terms, and we note with interest the one condition imposed on the hire cars, "the hirer must not drive the car himself."

SIR THOMAS LIPTON has been motoring from Southampton to London.

THE roadway of Constitution Hill was closed for repairs on Monday, and will remain so for about ten days.

MAJOR WILLOUGHBY and Captain Hill have just placed orders for Daimler carriages.

MR. F. W. CHASE has challenged Mr. Martin to a motor-bicycle race any distance up to fifty miles.

HALF a dozen motor-cars were seen at one time in Palace Yard, Westminster, on Tuesday.

WE regret to hear of the death of Mr. Harry Walker, of Headingley, Leeds, from the result of a collision with a van while he was riding a motor-bicycle.

It is rumoured that King Edward VII. has presented his daughter Princess Charles of Denmark with an automobile as a Coronation gift.

AT Harrow, a few days ago, Mr. R. Tessier, riding a Rex 2-h.p. motor-bicycle, made a two-miles grass track record of 3 min. 55 secs., and one of five miles in 9 min. 59 secs.

THE staff of the *Lynn News* have had an enjoyable outing by motor-car, going from King's Lynn to Cromer in a vehicle placed at their disposal by Mr. Frank Morriss.

MR. H. P. SALSBURY is about to make a business trip on a 9½-h.p. Clement car in the interests of the British Automobile Commercial Syndicate and also of the Talbot tyres.

ON Wednesday a party of about a dozen English automobilists left Charing Cross for Belgium, to attend the great motor-car race in the Ardennes.

WE learn that the Napier car which Mr. S. F. Edge steered to victory in the Gordon Bennett race has been purchased by Mr. Arthur Brown, of Luton.

THE Surrey County Council have authorised the purchase of a motor-car at a cost not exceeding £250 for the use of the county surveyor. Evidently the County Council is wiser than the magistracy of Surrey.

AT the annual show of the Acton Horticultural Society there was a cycle gymkhana preceded by a parade of cycles and motor-cars. Mr. Sharp's Napier motor-car won the prize as being the best decorated car.

AT the Yorkshire Agricultural Show at Leeds, Mr. Greenwood, of that town, exhibited Enfield motor-bicycles and Singer tri-voitures. Messrs. Rice and Company showed two motor-cars, and the Yorkshire Patent Steam Wagon Company had a steam motor-wagon on view.

AT the election in Leeds on Tuesday the town clerk used a motor-car to convey him on his round of visits to the polling stations. Automobiles were also requisitioned on behalf of the candidates, and "imparted quite an animated aspect to the proceedings"—to quote one newspaper reporter.

MANCHESTER TO MACCLESFIELD.

ON Saturday last the members of the Manchester Automobile Club, accompanied by several friends, took a run to Macclesfield, being the guests of Mr. Gerald Higginbotham, at "Ivyholme," a picturesque residence, charmingly located on a considerable eminence on the outskirts of the town and commanding exceedingly fine views of the surrounding country.

his 12-h.p. Belsize car. To him the success of the run—the eighth of the season—was largely due.

No furious driving was indulged in, as it was known that the police were on the *qui vive* between Alderley Edge and Macclesfield, and members had been thoughtfully warned in good time.

Immediately on their arrival the guests were received by Miss Clarke and Mr. Gerald Higginbotham, with whom they took tea, Mr. W. E. Rowcliffe, at the request of host and hostess.

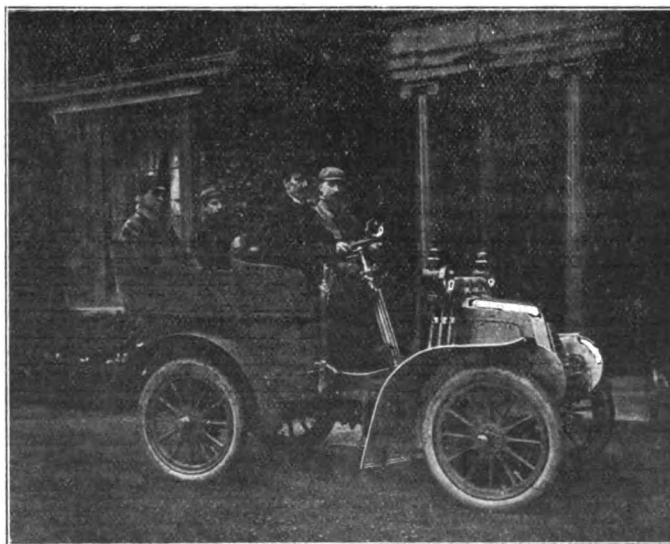


THE MEET OF THE MANCHESTER AUTOMOBILE CLUB AT IVYHOLME, MACCLESFIELD.

The first two cars to arrive at "Ivyholme" were both of low power, Mr. R. G. C. Yates taking first place on his Swift motor-tricycle, closely followed by Mr. W. E. Rowcliffe (Chairman of the Committee) on his 5-h.p. Century voiturette, and soon after half past three the main body of the cars began to come in, until about thirty-five were in attendance, which is by far the largest number yet attained by the Club at any run. Among those present were Messrs. Adam Laidlaw (Daimler), Dr. Miller (Daimler), J. Lowe (Daimler), J. Hall (Panhard), G. P. Dawson (Panhard), W. P. Brown (M.M.C. voiturette), R. Williamson (M.M.C.), Mrs. Jackson and Miss Jackson (Eagle tandem), J. B. Bindloss (Eagle car), H. E. Gresham (Heatley), James Whittaker (Wolseley), E. A. Shirley Price (New Orleans), W. Lloyd Jones (De Dion voiturette), J. A. Bennett (Clement), V. O'Neill (Cottareau), S. Hollingdrake (Progress), J. Higginson (Empress), F. A. Baume (Century tandem), S. Okell (James and Brown), J. Saville (Belsize), D. Q. Henriques (Belsize), J. W. Jones (Belsize), and Mr. Robinson (Belsize). Mr. Jackson and Miss Jackson were on an Eagle tandem, and Mr. J. Hoyle Smith, the hon. sec. of the Club, had three friends on

acting as master of the ceremonies. After tea a pleasant time was spent in strolling about the grounds. It would be impossible to imagine an establishment more complete than "Ivyholme," everything, even to the pump, being worked by electricity generated on the spot. The members were intensely interested in examining Mr. Higginbotham's magnificent installation, partially fitted up by his own hand with fittings manufactured by himself in the elaborately-equipped workshop and forge, adjoining, and which are also patterns of neatness and completeness, the same skilled hand being clearly manifested in every detail. Here again electric energy was put to practical uses. The arrangements also include two motor-houses with inspection pits, which were turned to good account by those afflicted with various motor ailments.

After the accompanying photographs had been taken a start was made for the neighbouring village of Gawsworth, about three miles distant, to visit the ancient tilting ground there. Mr. W. Birchenough, J.P., conducted the party, pointing out the various objects of interest, after which the cars took the road home, thus bringing to an end the best-attended run yet organised by the Club.



MR. J. HOYLE SMITH, THE HON. SEC. OF THE MANCHESTER A.C.

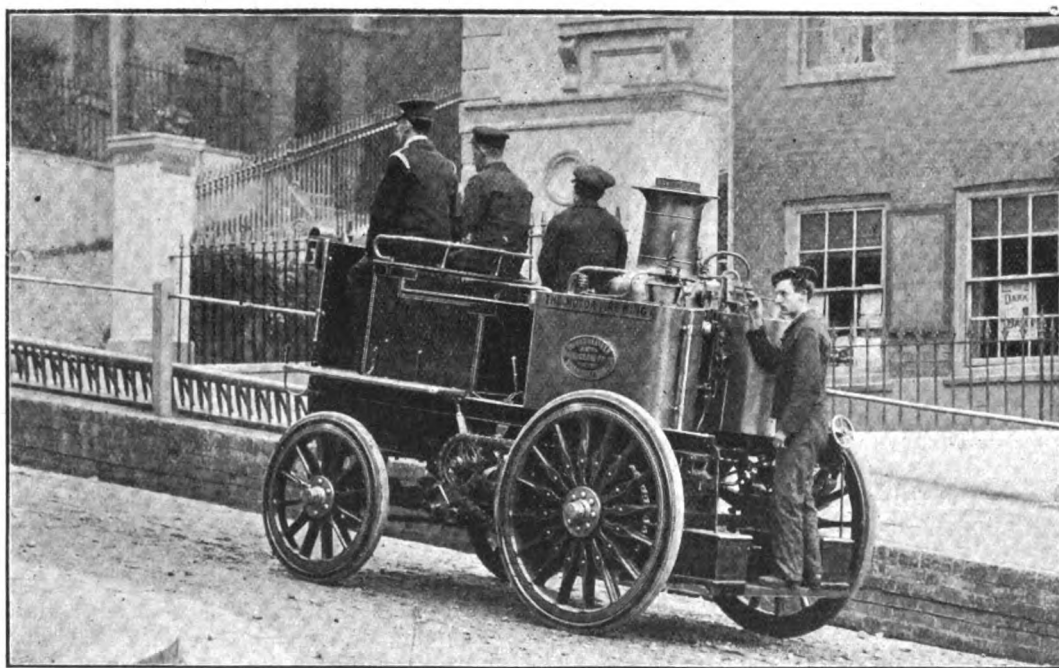
[R. Banks.]

NEW CARS AND HOW TO TREAT THEM.

THE arrival of a new car is generally a long-expected and, too frequently, long-delayed event, occasioning a thrill of excitement in the bosom of even the veteran motorist, which with the tyro is often accompanied by an amount of anxiety regarding the new-comer's constitution and treatment, not inaptly comparable with that of a mother on the advent of her "first." And as the grounds for this will lie both with the newness of the car and that of its driver, these two portions of the subject may be separately considered.

It is unlikely in these days that an absolute novice will receive his car without the opportunity for practical instruction of some sort, as some of us did in the dawn of automobilism; and this should be followed—if not, as it should be, accompanied—by a careful study of the use and function of every part of the mechanism. Where the owner is already familiar with some other type of car, special note should be taken of any important differences in the driving arrangements, as the general tendency to more

piston at first than after a little running, so the supply should not be cut down too much from this symptom, unless persistent. The amount of extra care required by a new car depends, of course, on the thoroughness of its trial by the maker; and it may generally be said that the foreign manufacturer expects more of this to be done by the purchaser than is the case with the English one. All important nuts and bolts should be scrutinised for looseness after a run, especially those supporting detached parts of the mechanism, such as the silencer, carburettor, piping, pump, &c., not of course omitting those of the steering and brakes. It is not always superfluous to verify the freedom of petrol, water, and lubricating oil pipes from obstructions, arising from dirt or waste left in the tanks, while I have known a car sent out with a stoppage in the radiator due to resin left there in soldering. The novice may find the following *resume* of operations useful in the starting of his car, it being impossible, of course, to include variations necessary with some types. First, fill the petrol tank, using a funnel with the strainer. Next, fill water tank—do not use a wet funnel for petrol—and see that the tap at the bottom of the water system is closed. Fill all grease-boxes, if present, see that axle-boxes are lubricated, and that the gear-box is plentifully supplied



THE MOTOR "FIRE KING" ASCENDING DARTMOUTH HILL, GREENWICH. (See page 443.)

or less uniformity in these makes small discrepancies more puzzling. Some that may be noted as existing in popular types are: reversal of brake and clutch pedals, so that the latter is actuated by the right foot; reversal of order of speeds; ditto of direction of the action of the accelerator, or of the throttle, while the introduction of the usual single lever for change speed and reverse has led to mistakes where the driver was habituated to a separate lever for reversing.

Special note should be taken of the position of every lubricator, grease-cup, and other oiling arrangements, remembering that each working part must be supplied with lubricant from somewhere. And here a caution may be advisable to those who, being used to ball-bearings, change to a car with plain ones, that the latter will not suffer neglect of lubrication as peaceably as the former.

As regards a new car, the chief attention it requires is in this same matter of lubrication, which should be free and plentiful, with due consideration for the troubles induced by excessive supply to the cylinder. This usually causes rapid fouling of ignition points; but a new cylinder generally lets more oil past the

with lubricant. For this a thin grease, or mixture of grease and oil, is best; if too thick, the gear-wheels cut a track in it without oiling themselves. The addition of a few ounces of good graphite is beneficial in most cases. Fill all drip or other lubricators with a good motor oil, not too thick to travel along the pipes, and see that the crank-case of motor has its charge of the same, and that the steering-pivots and chains are also attended to. Turn on and adjust lubricators. Put on brake, and see that change-speed lever is in out-of-gear position. Also that tyres are pumped up hard. Turn starting handle to see that compression is good, then open petrol tap, switch on current, and start motor, adjusting mixture if necessary. In case of failure to start, see if petrol reaches the carburettor; if so, whether the inlet valve sticks; then seek for cause of failure in ignition, the vagaries of which have been treated of *passim*. Do not try to start with the petrol tap, throttle, or the switch turned off; it has often been attempted, but seldom succeeds. Drop in your clutch—or its representative—gently, and try your brakes in the same manner. Avoid hills until you feel at home with the car on the level.

R. W. BUTTEMER.

CONTINENTAL NOTES.

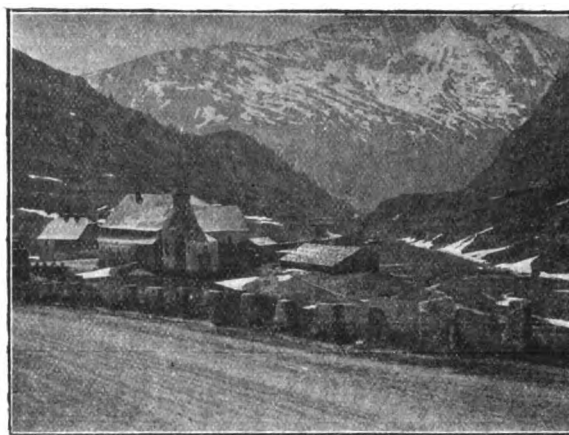
BY the time these lines appear in print the Bastogne race will have been won, and another red-letter day will have marked the progress of the self-propelled vehicle movement. The perennial duel between Panhard and Mors will again have been decided, and it is to be hoped that the C. G. V. cars will have had a fair run, which will enable one to judge of their merits. A lesson in road racing will also have been learned, and we shall know what difference the elimination of neutralisations has made.

TALKING of the Circuit des Ardennes, I happened to meet Tod Sloan, the American jockey, the other day, and he told me that he would drive a Mors car in the race, and meant to make as great a name in motor-car racing as he has attained in horse-racing. He thinks that road racing for motor-cars will shortly become the sport *par excellence*, and a much greater public institution than horse racing. The element of uncertainty which makes horse-racing so attractive is present to a much greater degree in motor-car racing over a long route. Sloan invited me to accompany him in a run on his Mercedes car, which I willingly accepted, knowing that it was a 40-h.p. Simplex, just a month out of the Cannstatt works, and precisely similar to the car on which Count Zborowski achieved such a success in the Paris-

it was nothing to the revelation which it must be to every automobilist, the first time he mounts on a Mercedes Simplex, to see the ease and smoothness with which, without the least noise of any kind, it glides along at ten miles an hour, even without the hum of the electric car. First speed, I suppose, Mr. Sloan? No, sir, third speed if you please, was the reply. It is simply marvellous. No throbbing, shaking, easing of the clutch, and constant racing and governing of the engine; nothing of the sort, the engine just takes the speed you want it to as naturally as a steam-engine when you open and shut the throttle valve. Elastic and docile in the traffic, should you want to pass a carriage, a slight touch of the gas lever and you are increasing from ten to thirty miles an hour and back again all in a few yards.

WE took the road to Versailles, and went gently through the Bois de Boulogne, where Sloan remarked that he held the record for convictions, having had twenty-one *procès verbaux*.

AFTER passing Suresnes we let the car go and simply devoured the road. It did not appear to me that we were travelling; it gave me the impression that the road was rushing up to us, and passing under us, and hills seemed to appear on the horizon and then fly by us, and in about twelve minutes we were in the yard of the Hotel des Reservoirs at Versailles.



THE PARIS-VIENNA RACE: TWO SNAPSHOTS IN THE ARLBERG.

[La France Automobile.]

Vienna race. Accordingly we got on board at the garage of "Paris Automobile," where Fournier is manager. This is a lofty palatial hall with a cemented floor, handsome offices on one side and then open floors or storeys, four or five of them one above the other, made of steel girders and cement, and with an elevator to take the cars up. There is space for many hundreds of cars, and already Mors, Panhards, Mercedes, Renaults, etc., are there in quantities. Paris Automobile is principally a Mors garage, that is, or rather was, their speciality, but just lately they have made large purchases of Mercedes cars, and with Mr. Charley they have swallowed up the production of these cars for 1903 and 1904.

BUT to come back to my story. Mr. Sloan's car was started up, not without considerable difficulty, for, after we had all had a turn at the starting handle, we found that the compression tap for the air pressure which forces the petrol up from the tank to the carburettor was open, so that we got no gas; however, that was soon remedied, and we sailed out of the garage majestically with Tod Sloan at the steering wheel, and I could not help thinking how strange it seemed that such a tiny piece of humanity as Sloan is could so easily master and control the powerful monster which was to carry us at a mile a minute. I was looking forward to the enjoyment of the high speed; but, pleasurable as this was,

COMING back, we did a long stretch down hill on the "fourth" accelerated at over a mile a minute, and my impression was of greater safety than when doing eighteen miles an hour four years ago on a Benz. Two things, however, I noticed. In the first place, the air seems to strike your face in a solid mass, pushing the fleshy part of the cheeks back, and giving one a very clear idea of its resistance to high speeds. In the second place, a look behind is very curious. For about ten or twenty yards there is no particular dust except two thin streams, which look like rivulets rushing away from the car; gradually they widen, rise, and begin to curl, and finally join together in an opaque screen, which hides everything from the view, and is truly awful in its consequences. It is like the sand storm in the desert, where the traveller must get off his camel and cover his face. The future will have to solve this dust terror, which must be banished, and will be, I have no doubt.

EUROPE is being scoured for difficult hills, and really the Alps have never come in so handy as they do now to assist a rising industry. Now that Laffrey, with its four miles of hill, has been accomplished, there is a project for a hill-climbing trial at Mont Ventaux, near Salon, and here there is a hill of between thirteen and fourteen miles in length, with an average of 9 or 10 per cent.; the road is good and wide, with no very sharp turns. The 14th

September is proposed as the date of the event. This last event is to take place, of course, up the southern slopes of the Alps.

On the flat, Deauville is the next interesting event, and will take place on the promenade towards the end of August, either the 21st or 24th, just after the equine races. There will be five classes, namely, motor-bicycles, motor-tricycles, voiturettes up to 400 kilos, light cars up to 650 kilos, and heavy cars up to 1,000 kilos. There are already twenty-seven entries, including three Serpollets, defenders of the cup won last year.

THE history of a summons for excessive speed at Ruffec will be interesting to those who engage in the controversy for or against the marking or numbering of motor-cars. A peaceable automobilist who lives in Paris, and is not distinguished for furious driving, was astonished to receive a summons a little time back, for driving furiously through Ruffec some weeks before. He had, it was true, passed through this town, but under quite ordinary circumstances, and at a reasonable speed, and without anyone making any remark or complaint, and when he enquired into the evidence, this amazing story came out. One of the minions of the local court, a sort of clerk of the court, was lunching on the terrace of a cafe, and saw a car go by. In the evening, over his pipe, he mentioned this to a friend, and said the car was going too fast. The friend had a son who said he saw a car going fast, and remembered the number, or thought he did, and on his extraordinary evidence a summons was trumped up. The automobilist had to engage a lawyer, go to the expense and loss of time of attending the court, and was acquitted.

A MOTOR BICYCLE match for 500 francs—arranged between the Minerva and Kelecom factories—was held the other day at the Velodrome de la Cambre, in Brussels, and resulted in a victory for the Minerva by twelve points. Each side was represented by four riders. The bore and stroke of the Minerva engines used in this contest were 75 by 75 mm.; of Kelecoms, 82 by 86 mm.

AMONG the entries in the motor-cycle section of the "Circuit des Ardennes" I notice the names of Mr. J. Van Hooydonk and Mr. E. H. Arnott, who will ride respectively Phoenix and Werner machines.

A REPORT has been issued on the results of the experiments made with motor-cars in the last annual manoeuvres of the Austrian Army. Two types of motor-car were tried, one for conveying persons and the other for heavy transport purposes. The passenger cars were employed for scouting duty, for carrying messages from the general in command to his subordinate officers, and for conveying officers of the headquarters staff to critical positions where their presence was desirable. The transport automobiles were employed for carrying tents, ammunition, and all kinds of military stores. All the cars tried performed their tasks most efficiently, notwithstanding the fact that they were driven over the roughest ground. The cars were found to be quicker and more trustworthy than horses for all the purposes to which they were put, so that it is more than probable there will be an increase in the use of motor-cars in the Austrian Army.

THE hill-climbing contest up Mont Cenis, organised by *La Stampa Sportiva*, took place on Sunday last. The course was 23 kilometres long, and extended from Susa to the "Hospice." Signor Lancia was the winner of the challenge cup, in 30 mins. 10 2-5 secs., on a 24-h.p. Fiat. He also was first in the heavy car section. Signor Storero (on a 12-h.p. Fiat) was first in the light car class, in 31 mins. 33 secs. Signor Ceirano, on a 7 h.p. Ceirano, headed the list in the voiturette class (41 min. 48 3-5 secs., and Signor Rosselli, on a Rosselli, was first in the motor-bicycle section (1 h. 8 mins, 44 1-5 secs.).

AUTOMOBILISTS AT A COLLIERY.

IN our issue of the 5th ult. we published an article on the Nottingham Automobile Club, together with a portrait of the president, Mr. R. Millington Knowles, J.P., who testified to his interest in the organisation by inviting the members to visit the Cresswell Colliery, owned by the Bolsover Company, of which he is a director. Amongst those who started on the run from Nottingham were—the President on his 6-h.p. Serpollet steam-car (with which he took part in the visit of the Colonial Premiers to Crabbet Park); Mr. G. Caven, Vice-President (6-h.p. Progress); Mr. R. Harbidge (6-h.p. Progress); Mr. M. Ross Browne (8-h.p. Humber); Mr. R. Cripps (Baby Peugeot); Mr. S. Harvey (4½-h.p. Renault); Mr. B. Winter (7-h.p. Panhard); Mr. H. Rimington (12-h.p. Daimler); Mr. A. R. Atkey, hon. secretary and treasurer (8-h.p. De Dion); Mr. Joseph Burton (6-h.p. Serpollet steam-car); Mr. G. L. Schwind, Derby (6-h.p. Daimler); Mr. B. Granger (6-h.p. Progress); Mr. H. W. Bartleet (5-h.p. Clement); Mr. Harry Belcher (12-h.p. Humber); Dr. Houfton (6-h.p. Benz); Mr. A. F. Houfton (8-h.p. De Dion); Mr. C. L. Stevens (6-h.p. Darracq); Mr. R. R. Latham (6-h.p. Progress); Mr. A. Watts (Baby Peugeot); Mr. A. Ward (8-h.p. Humber); and Mr. C. S. Hardy (Baby Peugeot).

Until Mansfield was reached no definite procession was arranged, all meeting at 11 a.m. in that town, from whence the party set off for Cresswell, Mr. A. F. Houfton acting as guide. At Cresswell, which is built on the lines of a "model village," Mr. J. P. Houfton, J.P., the manager of the colliery, received the guests, who were then guided by that gentleman, Mr. Knowles, and Mr. S. Evans, the under manager, over the place. Most of the automobilists went down into the coalpit, and on their return to the surface were entertained to lunch in the assembly-room of the Public Hall by the President, whose health was drunk upon the proposition of Mr. Atkey, that gentleman remarking that they all appreciated Mr. Knowles in the office which he held, and hoped he would long continue in the same.

Mr. Knowles was received with much cordiality on rising to respond. He expressed his pleasure to see the members of the Club there that day, and took it as a great compliment that they had turned up in such numbers. In asking them to visit a colliery he thought it would be a change from the ordinary excursions, and, as they naturally took an interest in machines, he thought it would interest them to look round one of the most modern collieries in the county. He reminded the motorists that Cresswell was the smaller of the two collieries owned by the Bolsover Company, and briefly sketched what has been done in the "model village" for the social advancement of the employees. The colliery was laid out to work about four thousand acres of coal. It was the deep hard seam which ran down the Leen Valley, and was 4 feet 6 in. thick. The two shafts were 450 yards deep and 18 feet in diameter, and 127 yards down cast-iron tubbing had been put in to keep out the water, and thus the pits were dry. Thirteen hundred and fifty men and boys were employed at Cresswell, and about 120 ponies.

At four o'clock the visitors left Cresswell and made a tour of the Dukeries, Mr. J. P. Houfton undertaking the duties of guide. A halt was made for tea at Edwinstowe, and there the excursionists were joined at the Railway Hotel by Mr. E. W. Wells (12-h.p. Daimler), Mr. R. M. Wright, Lincoln (4½-h.p. De Dion), and Mr. Welford (5-h.p. Wolseley). It was, on the whole, splendid weather for travelling on the road, there being no dust, little rain, and little wind, and the day will remain as one of the pleasantest memories in the history of this flourishing Club.

BAD reports reach us as to the state of the road between Marlborough and Burbage.

MOTORISTS passing through Hereford can obtain petrol from the Royal Albert Motor Works, St. Owen Street, Hereford, where Mr. A. W. Marriott has excellent facilities for repairing motor-vehicles.

COMPRESSION AND MOTOR SPEED.

NEARLY everyone, writes Mr. E. M. Roberts, of the Elmore Manufacturing Company, of Clyde, O., in an article on compression, ignition and engine speed, is aware that the higher the speed the higher is the compression that may be employed without deleterious results. The reason for this is, however, a puzzle to many. It is known that when a certain temperature is reached in the mixture of fuel and air that it will take fire without the assistance of an electric spark or other of the usual forms of ignition. As the temperature of the charge is dependent upon the pressure of the compression as well as to the heat imparted to it by the surrounding parts of the motor, other conditions being equal, this ignition will take place at the same point in the stroke each time. If the speed of the engine be increased, this point of ignition will, if changed at all, become later; owing to the fact that not so much heat can be imparted to the charge from the cylinder walls during the interval between suction and ignition. Therefore the ignition due to compression would have at least no greater lead at the higher speeds.

ignitions. It appears to be an established principle among the experienced of explosion-engine designers that such projections should invariably be placed in the path of the incoming charge, in order to prevent overheating. A few designers take the stand that the igniter terminals should be placed in the path of the exhaust gases in order to keep the soot deposit off them. This contention is very well in theory, but the writer's experience points to an opposite effect, especially where high compressions are employed. It is a fact that fairly slender igniter terminals have given no trouble when placed in the inlet valve casing, and even springs have been known to last fairly well in that location.

Mr. Roberts adds that it is true that increase of compression brings its attendant troubles, and the ordinary man is apt to decry high compression for this very reason. Would it not be better to meet these new conditions by the changes in design that are called for? Do not attempt to meet the troubles half-way, but attend to them all. Slightly increase the cooling capacity of the water jacket, increase the bulk of the ignition terminals and place them where they are subject to the cooling influence of the fresh mixture, and, above all things, keep projections off

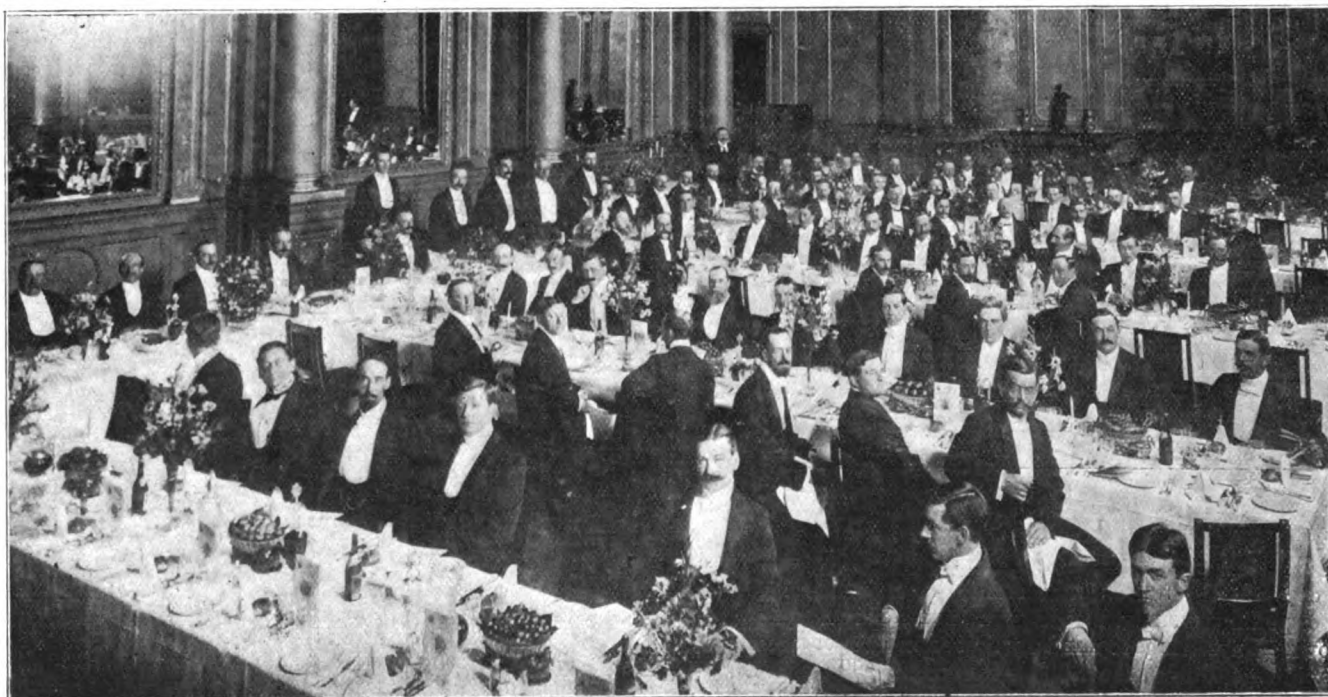


Photo by)

THE GORDON BENNETT CUP—THE BANQUET TO MESSRS. S. F. EDGE AND M. NAPIER.

[Fradelle and Young.

It is a fact well known that with increase of speed it is necessary to increase the lead of the ignition in order to give time for full inflammation of the charge before the piston starts on the expansion stroke. It will also be seen that if the ignition due to compression does not lead the regular ignition, no trouble with it will be experienced. It will also be seen that the lead due to compression will increase with increase of compression, and hence the higher the piston speed, the greater the allowable compression. It has been pointed out to me, remarks Mr. Roberts, when explaining the nature of this relation, that it would be seemingly difficult to start an engine having high compression. This difficulty becomes more imaginary than real when it is remembered that the engine is comparatively cool when it is started, and that it usually has the compression relieved.

Another point worthy of consideration with reference to the subject of high compression is the design of the parts which project into the compression space. Long and slender arms, bolts and studs do very well with low compression, but as the compression is raised they are prevalent causes of premature

the head of the piston, as no part of the motor is less under the cooling influence of the fresh charge and the water jacket. It is a good plan also to look the compression space over closely and take off all fins and sharp corners that are likely to get overheated and assist in producing premature ignition.

JOHN CHILD MEREDITH, LIMITED, have sent us a copy of the new illustrated list of motor parts they have just issued. It includes everything from a screw driver to a complete car.

THE Ormonde Motor Company have issued a useful illustrated list of accessories and sundries suitable for use in connection with their Ormonde motor-bicycle.

MR. LLEWELLYN PREECE, M.I.E.E., considers that the electric car, the Cinderella of the automobile family, is only waiting for the fairy godmother—in the shape of the inventor who discovers a really satisfactory battery—to appear before the public as the ideal car for all purposes, and put her petrol and steam sisters entirely in the shade.

END TO END ON A 5-h.p. WOLSELEY CAR.

THE weather having at last shown signs of becoming somewhat settled after the inordinately long winter which we have experienced, it occurred to me to take a run from North Cumberland to Birmingham on my 5-h.p. car to call at the Wolseley works, so that a thorough examination and overhauling could be given to the car, and get it thoroughly "tuned up" for the summer season. Making an early start on



MR. J. TODD AT BONAR BRIDGE.

a beautifully clear and fine morning, although quite alone, I was able to enjoy to the full the fine scenery in the Lake District. The motor pulling strongly, I had a grand non-stop run to Kendal, which town always brings to mind my first experience of motoring. It was from here, during the 1,000 miles trial in 1900, that I had the pleasure of a seat on Mr. Percy Richardson's Daimler as far as Carlisle, my fellow-passengers being The Lord Justice Clerk of Scotland and Colonel McGrath.

But to return to the little 5-h.p. Wolseley. After replenishing the lubricators I hurried once more southwards, and ran right through to Birmingham (about 195 miles), arriving at Adderley Park Works at eight o'clock in the evening. During the whole of this long run I had no bother of any kind, two small stops to adjust chains and clean the dirt off sparking plug being the only items to record. Previously to this my longest journey accomplished in one day had been from London to Birmingham (about 116 miles). It may be of interest to mention here other samples of "mileage" which I have accomplished at various times. In the Argentine Republic it has taken me two days and a half to cover 160 miles in a diligence. In the same country I have done 300 miles on mule back in 10½ days. On another occasion it took me 13½ days to do the same 300 miles.

To come back once more to our subject. This splendid motor run seemed to have brought back all my love of travel, and this so much so that I made up my mind to try the famous end to end trip whilst I felt in the mood for it. However, I found such a lot to interest me in motor-car construction at the Wolseley works that I stayed a couple of days there, knocking about the works and picking up any amount of useful knowledge.

Having sent the car on to Wick by rail, I joined a friend at Carlisle and followed on next day, arriving there at 4 p.m. on a Tuesday in June, our railway journey having occupied the greater part of the previous night. Having refreshed ourselves with a good meal we unshipped the car at Wick Station, filled up with petrol, and set out for John o' Groat's, which we reached at 7 p.m. The day had been fine and the weather promised well for the morrow. The price of Pratt's spirit at Wick was but 1s. 9d. per gallon, which seemed to me very reasonable for such an out-of-the-way place. Very early on June 18th we took our departure from John o' Groat's, travelling through Wick, passing by Dunrobin Castle and through Bonar Bridge to our first stop at Inverness. From here, after loading up with petrol and lubricating oil, and having something to eat, we continued *via* Carr Bridge to Kingussie, where we arrived at 7.30 p.m. The car climbed Berriedale Hill quite easily with two passengers up, a lot of luggage, and in addition eight gallons of petrol and two gallons of lubricating oil (Price's).

As it may be of interest to motorists generally, I have ascertained the gradients of this hill. From the north there is a descent of one mile, the gradients varying from one in twelve to one in eighteen, with two very sharp turns; ascending the south side the gradient is one in ten for the first quarter of a mile, for the next three-quarters of a mile one in nine. The weather continued fine, but the roads were bad from Brora to Bonar Bridge. Adjustments needed to the car during the day's run were caused by a faulty trembler on coil and the replacement of sparking plug. We went early to bed, and on the following morning made a good



FILLING UP AT WICK.

start and came through the Highlands, keeping touch with the Highland Railway as far as Perth, then away to Burnt Island Ferry, where we were delayed over an hour awaiting the departure of the boat. After crossing to Leith we got the car going again, but unfortunately missed the main road, and eventually put up for the night at Bonnyrigg, just west of Dalkeith. We got away rather late next morning, and made along by way of Galashiels, Selkirk, and Hawick to Carlisle, thence on *via* Penrith, Shap, and Kendal to Carnforth, South Scotland and Cumberland roads being in splendid condition. Here we stayed at a small wayside inn during the night.

Next morning we set out from Carnforth about 9 a.m., and when about fourteen miles from Preston experienced our first stoppage, three bolts giving way on the brake rim of off driving wheel. We returned to a blacksmith's forge which we had passed two miles before, had some bolts made to replace the broken ones, and continued our journey after a couple of hours' delay. Whilst adjusting the brake during B's absence, a man came up to me and asked whether I had broken down. Being curious to see what he would say, I replied in the affirmative. He then asked, "Will you sell the car?" to which I again replied "Yes." He thereupon made the astounding offer of ten shillings for it! When my breath had come back I began to tell him in kindly tones to seek a warmer climate, and other words to the same effect, at which he made a hurried departure with a grieved and chastened expression on his countenance. Things being all ship-shape once again, we continued to Preston, from thence to Warrington (worst roads in England) then through Wellington and Bridgnorth to Kidderminster, where we put up for the night. We got going early the next morning and made good time to Bristol; from thence to Bridgwater over vile roads, which caused us to travel at a comparatively slow rate, eventually reaching Exeter at 8.30 p.m. The next day we had about the stiffest part of our journey to traverse and made rather poor progress, from a variety of causes. In the first place the lanes of Devon and Cornwall are not conducive to fast running, being of the switch-back variety, and also very narrow with sudden turnings. The roads in this part of the country have far worse gradients than any we encountered in Scotland. In concluding this short account I am well aware that far better times have been made over this famous route, but my intention in making this run was not in any way to compete with time, but merely to have the personal satisfaction of driving a good car over all kinds of roads. At the same time I was extremely careful to avoid any trouble with the police, and took great care never to exceed the legal limit anywhere near a town; nevertheless we accomplished the 880 miles in six days at a rough average of about 147 miles per day. Beyond the slight adjustments which I have already enumerated, the car gave no trouble whatever, and is even in better condition now than when we started on our run.

J. TODD.

SIR EDWARD JENKINSON has resigned his seat on the Executive Committee of the Automobile Club.

THE Anglo-American Oil Company are considering the advisability of introducing one gallon cans of petroleum spirit.

THE premises of the Automobile Club in Piccadilly will be illuminated by means of motor-car lamps on the night of August 9th.

ON Sunday last Baron de Gaters made some attempts to lower the flying kilometre record on the road between Bruges and Nieupoort. Three trials were made, the times being respectively 31 secs., 29½ secs., and 30½ secs.

THE fastest time in the recent hill-climbing competition organised by the Motor-Cycle Union of Ireland was made by Mr. J. B. Dunlop, jun., on a 1½-h.p. F.N. motor-bicycle. A quicker ascent was made by Mr. G. Millington on a 1½-h.p. Werner, but unfortunately he was not officially timed.

THE Winton Motor-Carriage Company, of Cleveland, have sent us a copy of the new catalogue of Winton cars they have lately issued. It gives a readable description of the vehicle, and also illustrations not only of the complete car but also of the chassis, from which an idea of the general arrangement of the motor and transmission gear can be gleaned.

IN the recent abolition of the old Lea Gate toll bar, near Preston, there disappeared the last of those hindrances to road traffic in Lancashire, but there is still a toll-bar and "house of assessment" in the West Riding of Yorkshire. It is on the highway between Bentham and Wenning, and the charges are quite arbitrary—namely, sixpence for a horse and trap, a penny for a bicycle, and, according to report, just what can be got for a motor-car.

HERE AND THERE.

MR. C. HEDERBERGE has started running two motor-cars between Buluwayo and the suburbs.

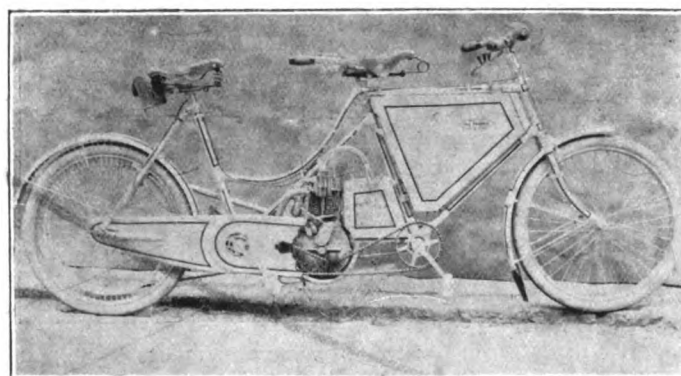
M. SANTOS DUMONT is about to take a series of exhibition flights from Brighton Beach round the Statue of Liberty in New York Bay, a distance of ten miles.

MR. G. E. WADSWORTH is one of Bristol's practical engineers, and at 71, Bath Road, has recently made special provision for the accommodation and repair of motor-cars.

SIXTY miles in sixty minutes was the record travelling made by Mr. Spencer, the aeronaut, in a balloon with which he ascended at Morley, Yorkshire, and came to earth near Thirsk.

A FEAT of hill-climbing on a motor-car was accomplished a few days ago by Mr. George Thomas, who drove a Progress motor-car, fitted with a 8-h.p. single-cylinder motor up Kittle Hill, which is the steepest incline in Gower.

MR. J. VAN HOEDONK, of Holloway, N., has lately completed the motor-tandem bicycle depicted in the accompanying illustration. As will be seen, it is of the "lady back" type, all the control levers being grouped within convenient reach of the front rider's hands. The motor is of the Minerva 70 mm. by



70 mm. type. It will be noticed that the chain connected with the pedals runs over a ball bearing jockey sprocket, this being done to render the trembler and valves of the engine readily accessible. A shield is fitted over the motor to protect the lady's skirt; this has been removed from the machine illustrated in order to show the engine motor clearly.

OWING to the injunction restraining motor-car racing on the Marina at Bexhill, it is proposed to lay down a motor-testing boulevard at Kewhurst, two miles from the town, on Earl De La Warr's estate, and the idea is reported to be meeting with the general approval of the townspeople.

A MOTOR-CYCLE meeting will probably be held by the A.C.G.B.I. at the Crystal Palace on the last Friday of this month, namely, August 29th. The events it is proposed to run off are: (1) hour scratch race for motor-cycles (limited to twelve starters); (2) five-mile motor-cycle handicap for the *Motor-Car Journal* challenge cup; and (3) a 10-mile motor-cycle handicap.

THE growing popularity of motor-bicycles is indicated by the increasing number of races between such machines that are now being organised. On August Bank Holiday no large sports meeting will be complete without a motor-cycle event, notifications of such having reached us from Littlehampton, Guildford, Harrogate, Farnham, Eastbourne, Watford, Spalding, Plymouth and Hastings.

MESSRS. HOLDING AND SON have brought out a coat which is designed to break the wind in walking and when folded up can be put into one's pocket. It has the advantage of not showing the dust or dirt, and will therefore be appreciated by motorists. They have also brought out another light coat made of a species of gabardine cotton and wool mixed. This is produced in all sizes and in many styles suitable for use on motor-cars.

It is reported that Messrs. Rudolf Hagen and Co., of Mungersdorf, near Cologne, has received an order from New York for 200 motor-omnibuses.

THE road between Boston and Skegness has many sharp turns and a deep dyke on either side—making it a very difficult road to negotiate.

THE Automobile Club of Frankfort-am-Maine has decided to bear the legal expenses of an appeal in case a member has been unjustly prosecuted by the police authorities.

HERR HEINRICH SOHNLEIN writes us from Wiesbaden, Germany, to state that the Cormery two-cycle motor described in the *Journal* so long ago as February 23rd, 1901, is identical with the engine he patented in 1891.

THE new Empire Hotel at Buxton will have storage accommodation for half-a-dozen motor-cars.

WHEN in the North last week we called on Messrs. Coulthard's, at Preston, and were pleased to note how busy the firm were, and to observe the number of heavy vehicles which



ONE OF THE LATEST COULTHARD VEHICLES.

were in course of manufacture and erection. The new lorry, built within the tare limit, is being much sought after, and so great is the demand that plans have been prepared for an extension of the works.

A SECTION for electrical motor-cars is being organised in connection with the sixty-eighth annual exhibition of the Royal Cornwall Polytechnic Society to be held at Falmouth from the 26th to the 30th August.

THE German Cycle Dealers' Association has issued an open letter to the motor-car manufacturers to fix a standard for car wheels and not to use individually different dimensions. They state that not only would it be possible to manufacture the rims and spokes in large quantities, consequently making them cheaper, but tyre defects could be much easier attended to.

THE *Golden Penny* has a sketch of a countryman mounted on a cart being closely followed by a motor-car. "All right, measter," says the countryman, "I baint deaf. Yeou can't pass 'ere yet a bit, though!" "But you pulled into the ditch to let that horse and cart pass," replied the motorist, who was flattered by the retort. "Mebbe I did. That were ole Luke Joslin. I couldn't trust his hoss behind my clover—I kin yours!"

THE first motor-car license taken out in Montreal, Canada, has been granted to Mr. U. H. Dandurand. When he made his application for the license at the City Hall he was told that there was no license issued for that kind of vehicle, but he insisted that he wanted to have some recognised permit to use the streets of the city. The chairman of the Finance Committee was seen, and he, after conferring with the city attorneys, decided that the only kind of license which could be issued was a bicycle one, the bicycle by-law providing that the city can collect an annual tax of one dollar on each "bicycle, tricycle, or similar vehicle." The issue of a bicycle license to Mr. Dandurand to cover his motor-car was accordingly authorised.

MESSRS. H. W. VAN RADEN and Co. have taken up the manufacture of induction coils, under licence from the holders of the Carpentier-Rhumkoff patents.

LA SOCIETE TECHNIQUE DE L'INDUSTRIE DE L'ALCOOL EN FRANCE is the name of a new association which has just been formed in Paris.

It is reported that the German Daimler Company, of Cannstatt, is negotiating for the taking over of the works and business of the Marienfelde Motorfahrzeug und Motorenfabrik, of Berlin.

A SERVICE of petrol motor omnibuses of the Durkopp type has just been started between Magdeburg and Ottersleben, Germany. The journey is timed to occupy seventy-five minutes.

THE Automobile Club of Frankfort-am-Maine will hold a series of races on the Oberforsthaus racecourse in that city on August 31st. The categories range from motor-bicycles to heavy cars.

INTERESTING as well as useful is the third edition of the "Handbook to London and Environs," written by E. C. and E. T. Cook, and published by Messrs. Darlington and Co., of Llangollen. Within the five hundred pages of the volume is a mass of information pleasantly conveyed and well arranged, while the plans of London and the illustrations combine accuracy and artistic treatment to a remarkable degree.

A MOTOR-CAR of 5-h.p., and carrying three persons, has lately made the ascent of the well-known circular tower at Copenhagen. The top is only reached by ascending a spiral passage 12 feet broad, which winds between the outer wall of the tower and an inner circular wall. From the base to the top it is entirely without steps, and the gradient is seven inches per ell. The car ascended the tower by this passage, taking one minute to do the journey, and afterwards making the much more dangerous descent with equal success.

IN our issue of April 19th last we gave a short description of the novel combination petrol-electric car built by the Fischer Motor Vehicle Company, of Hoboken, N.J., U.S.A. An omnibus on this system, having a seating capacity of eighteen persons, has been running about London during the past few weeks. We understand that the London Road Car Company has entered into an arrangement with the syndicate formed in this country to deal with the Fischer system, whereby the latter will supply some ten



vehicles and undertake to maintain them at a fixed rate per mile run, under a five years' contract. The accompanying illustration depicts a vehicle lately built for the Rupperts Brewery, New York. The vehicle in question has been submitted to the severest tests, and has, we are informed, negotiated hills with 15 to 17 per cent. grade at an average speed of about five miles per hour. The weight carried on the wagon illustrated is 7 tons and a half, and the cost of oil is stated to have been a little less than $\frac{1}{2}$ d. per ton per mile.

It is reported that one firm alone has supplied more than 300 motor-bicycles this year.

A SUGGESTION has been made in Vienna that the fire escapes and hose should be drawn by automobiles.

THE value of the automobiles exported from the United States during May last is returned at £29,729.

AT the rate things are going it will be only a short time before every city, town, village and hamlet in the United States will have its special rules and regulations with regard to motor-cars.

MEMBERS of the Automobile Club, with their cars, are now admitted into any of the carriage enclosures on the Goodwood Racecourse on payment of the same charges as those applying to ordinary carriages.

THE New York and Chicago Road Association has been formed to promote the building of a short-cut highway from New York to Chicago, making the distance 850 miles of good roads instead of the present route of 987 miles of mostly poor ones.

HAVING special reference to a local accident, the Automobile Club of Bridgeport (U.S.A.) has adopted the following resolution: "That this Club publicly protests against all violations of the speed laws, and cautions its members to so use the public highways as to give no offence to other users with whom the rights to the roads are shared."

A COMPANY is in course of formation to create an automobile exchange in direct telephonic communication with every part of London and with all the principal firms in the trade; thus rendering it always easily possible to obtain a motor-car on hire for a short or long period, or to buy the vehicle on the three years' hire purchase system.

THE Practical Automobile Club is the name of a new association which has been organised at St. Louis, U.S.A. The purposes of the organisation are the education of members and the public in motor-vehicles; to push the construction and maintenance of good roads and streets; to arrange pleasure runs, encourage contests, and establish a club house.

MR. EDWARD CONYBEARE will not have it said that Cambridge is the centre of an uninteresting country, and in writing his "Cycle Rides around Cambridge," which Messrs. W. Heffer and Sons of that town have published, he does much to dispel the notion. For thirty years he has known the locality, and the roads he has sketched for ordinary wheelers will be equally appreciated by motorists, who will find his guide a very chatty and serviceable companion.

THE Italian Ministry of Posts and Telegraphs are about to introduce motor-car services in different parts of the Peninsula. By way of beginning, a concession has just been granted for an experimental service of a year's duration between Ventimiglia and Viopola. The company intends working the line with eight motor-buses, they are to be capable of attaining a speed of from 9 to 12½ miles per hour, and have a carrying capacity of twenty-four passengers per vehicle.

THE watering places and the cathedral cities of the eastern counties are well described in the new volume of Baddeley's Thorough Guide Series (Dulau and Co., publishers). This is written by Mr. C. S. Ward, M.A., and has eighteen maps and plans by Mr. J. Bartholomew. The chapter on the rivers and broads of Norfolk will be of value to motorists travelling that way. Probably in future editions more will be said as to the roads of the district; otherwise the work is admirable.

THE Customs division of the United States Treasury Department has been authorised to permit foreign owners of automobiles to take them into the United States for personal use during a period lasting for three months from date without the necessity of paying duty. A bond will, however, have to be left with the collectors of customs at the ports of entry for double the amount of the duties which would be due, and this bond will be cancelled only upon proof that the automobile to which it relates has been exported.

CORRESPONDENCE.

RE BENZ CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should recommend your correspondent "J. W. Wood" to have the three valves re-ground, seeing, by the way, that the springs on the exhaust and auxiliary valve at back of cylinder are sufficiently strong. The last-mentioned valve appears to foul and collect grit more readily than the other two, and I fail to see the use of its existence.—Yours truly,

GEO. E. DICKER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Mr. Wood's letter on page 439. does not give very full particulars. I assume that his engine does not miss fire. The cause of the slowness is most likely due either to loss of compression past piston-rings or through valves; or else it is due to the end of the bell-crank lever which raises the exhaust valve having worn down, preventing the valve opening sufficiently and throttling the discharge on the in-stroke. This is a frequent cause of the defects stated, but it is one easily remedied.

There is yet one other defect which may cause his troubles; his inlet may be throttled in some way, probably from dust collecting on the gauze covering the inlet to the carburettor or in the safety cage in the mixing-box.—Yours faithfully,

GEO. W. COBHAM.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to J. W. Wood, it is to be presumed that his valves are tight, and not in want of grinding; otherwise the cause is obvious. Leaks about plug, especially round porcelain, which is indicated by smokiness on external part of it, or inlet valve flange should of course be looked for with soap-suds as the most delicate test. Good compression is desirable, but this may even be poor owing to a leaky piston-ring, and yet engine will work pretty well. These causes excluded, he should see if there is any abnormal friction in transmission, owing to either belt rubbing on its fast pulley when off, or in Crypto, or in Crypto band, or band brakes. Finally, he might see if valve-gear gives proper timing to exhaust valve, which should open about ten to twenty degrees of arc before end of working stroke, and close at dead point after exhaust stroke; or failing all these whether throttle opens fully, or gauze-box or inlet pipe has got choked with dirt.—Yours truly,

R. W. BUTTEMER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Mr. J. W. Wood has my sympathy. I experienced the same disappointment with the high speed. There are plenty of suggestions for improving the average speed if one can afford the expense and time. For stiff hills and long journeys, I have used five or even six volts on the plug. By changing the eight-tooth sprockets to nine, or even ten tooth, he would get good speed out of his lower pulley, or he can take off the high speed driving pulley, having it half inch less in diameter, which would decrease speed, but give more power on the level. And I doubt if the fly-wheel of the usual type, Benz 3½ h.p., is as heavy as it should be for power being a slow engine there is hardly enough impetus in the wheel to take it over the compression when the car is changing from low to high speed; the difference in the two speeds is too great. I may say I know of no more reliable engine than the Benz in all weathers.—Yours truly,

L. J. P.

THE DIFFERENTIAL GEAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am surprised to find no challenge to my impeachment of the differential which appeared in a letter from me in your journal of June 14th. If Englishmen would like to see the Gordon Bennett Cup stay in England, they must discard that great bogey, the differential, as ordinarily accepted by most of our makers.

There is as yet no mechanical contrivance on an axle-driven motor-car with a single drive to the axle (excepting free wheels, with clutches, of course) which has an equal pull on both driving under all or any possible conditions; and I would like to suggest to Mr. Edge that the skidding-wheel on his car in the Cup race was the one that had the most against it, perhaps the one that took the low side of the road during the journey. The engine is a great bully in this case, and would pull the light wheel round and round the other if it was not for the front wheels and the steering. If Mr. Edge's car had had a direct drive to the axle on that side that took the low part of the road during the journey, I venture to say he would have made better time and would have found the steering doubly easier, and would have kept the tyres intact as well. A racing machine to carry great horse-power must have the power applied to the two driving-wheels, and that unmistakably a divided axle with a double and separate engine pull would allow the wheels to differentiate independent of free wheels and clutches, and I should consider this style the most perfect up-to-date.—Yours truly,

MECHANIC.

A WORD IN SEASON.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It will interest you to know that a cunningly-devised trap has been set for motorists on the Kingston and Kempton Road, close to the first milestone from Staines. A constable in plain clothes was stationed on Sunday with a stopwatch opposite a cottage about a hundred yards beyond the small bridge over the waterworks stream; three policemen were hiding at the side of the road on the right, a distance of two furlongs, and were signalled to by the plain clothes man.

Also on the road from Staines to Windsor constables and plain clothes men were stationed on the same day under the trees on the right at the end of the long stretch of road on the flat meadow lands running parallel with the Thames. Having had one taste of the police, I was not caught a second time.

Motorists returning by the Portsmouth-Ripley road to town should drive with care when passing Surbiton, as the police are in hiding at the corner of a road facing the river close to the Kingston Roman Catholic Church. When questioned by me last evening they admitted that they were on the look-out for motorists who exceeded the legal limit.—Yours faithfully,

W. A. LUNING.

A NOISY QUAD.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Will any of your numerous readers kindly tell me how I can remedy the loud and disagreeable grating and grinding noise in the differential gear of a motor-quad? I have tried in many ways, but without any result.—Yours truly,

PERPLEXED.



MR. S. T. DAVIS, JR., GOING AT FULL SPEED IN THE LOCOMOBILE WHICH BROKE THE WORLD'S RECORD AT STATEN ISLAND, ON MAY 31ST.

STEAM v PETROL CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I fear, as must many others, that your correspondent "Iron" is running rather too fast when he says "the petrol car is undoubtedly doomed." At present the internal combustion motor may be somewhat crude, but I would, with deference, remind him that this was the case with the early steam engine, of which he appears to be an advocate in its modern form.

Vast improvements in connection with explosion engines are bound to come, and it will be interesting to hear in the future of Messrs. Thornycroft's and the Diesel motor, as applied to automobilism. I myself do not for one moment, however, believe that either petrol or steam engines will survive when we know more of electricity. This, in my opinion, will be the ideal form of travel, but "the time is not yet"; so that meanwhile we must content ourselves with other lines of progress.

In regard to "L. B. C.'s" questions, if he does not intend to drive greater distances than he mentions, a steam "runabout" of the light American type will, I think, answer his purpose admirably. For touring, an English petrol or heavier steam carriage will be found more desirable.—Yours faithfully,

E. H. OWEN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Your correspondent "Iron" airs some rather startling views re Steam v. Petrol in last week's *Journal*. In the first place he enumerates some points which could be improved in a steam-car, and also says that the bonnets are liable to block. "However," he goes on, "the petrol car is undoubtedly doomed." Why? The petrol car has for the last five or six

years shown its immense superiority for all-round work over the steam car, or, if it has not, why do the steam-cars win none of the long-distance races? Why do they do no non-stop runs of any length like the 400-miles one of the Decauville; and why, finally, do they cost, not 1½ times as much for petrol, as "Iron" says, but more like four times as much? For a steam-car of 4½ h.p. can run about fourteen miles on one gallon of petrol, and a petrol-car of the same horse-power can run about fifty. I fancy that a well-designed petrol-engine is decidedly nearer perfection than any steam-engine, and on the petrol-car you have no trouble about steam-pressure dropping or water-gauge getting low; and, above all, most steam-cars are limited to a run of fifty miles at the outside, and then have to take in water.—Yours truly,

J. SHEARMAN.

THE PROJECTED BEXHILL RACES.

In the Chancery Division of the High Court of Justice, before Mr. Justice Farwell, last week, Mr. William Mayner sought an injunction restraining Earl De La Warr and the trustees of the De La Warr estate from permitting the private road called the Marina to be used for motor races and speed trials and from erecting barriers across the same. Mr. Upjohn, K.C., and Mr. Cave appeared for plaintiff; and Mr. Jenkins, K.C., Mr. Boxall, K.C., and Mr. Prior for defendant. In May last Earl de la Warr granted to the Executive Committee of the Automobile Club of Great Britain and Ireland the right to use the bicycle track on the south side of the Marina on twelve occasions during the year, undertaking to close the course and keep it clear of traffic and passengers to the best of his ability. In pursuance of this agreement a race for motor-cars was held on Whit-Monday, and plaintiff alleged that a serious interference with his rights of way was occasioned thereby. Mr. Upjohn said his client had purchased certain parcels of land at Bexhill, forming part of the De La Warr estate, including a plot having frontages on the Marina, and thus obtained a right of user for himself and tenants of the roads on the estate. He had erected two houses, which fronted the Marina, at a cost of about £6,000. Counsel submitted that the Earl had granted rights to the Automobile Club which were quite inconsistent with those enjoyed by plaintiff. At the ends of several roads were barriers to prevent people from getting on the Marina, and Earl De La Warr granted licenses to certain persons, allowing them to draw wagonettes across the ends of these roads for the purpose of enabling spectators to have a good view of the races. Mr. Mayner himself was prohibited from going along the Marina to his own property. The other side now said that that was a mistake. No doubt it was, but he could call other persons who were either occupiers or lodgers of the houses along the front who were refused a passage. Plaintiff, in his evidence, said the motor-cars went at a terrific rate, and it would have been impossible to ride or drive a horse along the Marina on that day. There was a great crowd of people in front of his houses, many having climbed on the garden-walls. In reply to Mr. Jenkins, witness said that different persons hired rooms in his houses for the races. You had a stand put up?—I gave a man permission to put one up. You also let the windows of your houses?—Yes, for the races. You did not object to the races at that time?—I could not tell what a nuisance they would be. You did not try to make any arrangements with Earl De La Warr to get what you wanted, but issued your writ?—That is so. Mr. Fred. Mayner gave similar evidence as to the obstructions.

Mr. Jenkins said he did not claim the right to block the roads leading to the Marina by means of carriages or any other permanent obstruction. He, however, contended that he had the right to have motor-cars running over his private road, whether such vehicles were racing or not, or in the alternative he claimed to be allowed to have them running along his bicycle track. Then he said that, having regard to all the circumstances of the case, it was only a reasonable act on his part to temporarily stop a person having a right of way. That was all what Earl De La Warr had done came to. Mr. H. Prentice, a jobmaster, declared that to have driven a carriage with horses along the Marina whilst the races were going on would have been most dangerous. Mr. G. H. Gray, architect and surveyor, and for many years agent for the De La Warr estate at Bexhill, deposed that there had been no hindrance to carriages getting on to the Marina by way of Dorset Road. He should think there were about twenty-five races, that the motor-cars present numbered 200, and that there were about 20,000 spectators.

His lordship granted the injunction asked for. He said: The plaintiff purchased from the defendants plots of land facing the Marina, and has covenanted to build houses on the land fronting the Marina, and is granted a right of way for horses and carts over that road. Having entered into these contracts with the plaintiff, the defendants contracted in May last with the Automobile Club to allow time races and speed trials of motors for three years, not only over the cycle track alongside the Marina, but over the Marina itself opposite to the land of the plaintiff's; and Earl De la Warr has covenanted that he will "to the best of his ability close the course and keep it clear of traffic and passengers." Now, that is an absolute covenant by him to close the course to the best of his ability; but he does not warrant to keep it closed. That, to my mind, throws great light on the acts that were done. Barriers were placed on the roads over which the plaintiff has a right of way, and these races were run on the cycle track and Marina, which extend very nearly to the end of the plaintiff's property. Now, it is said that these races are not an interference with the plaintiff's right of way. In my opinion it is perfectly clear that it is. The defendant Earl De la Warr's

claim is to run motor races along the Marina as he thinks fit, and his intention is to close the course and keep it clear from ordinary traffic. It is intended that these roads shall in due time be taken over by the local authority and become high roads, and it is clear that motor-car races cannot be held on a high road. I grant a perpetual injunction, which must be limited to restraining the defendants from using or causing or permitting to be used the road called the Marina for the purpose of speed trials or time races for motor-cars or other motor-vehicles, and from erecting barriers across the roads mentioned in the plaintiff's contracts so as to exclude the plaintiff, his lessees or tenants, or their horses, carts, or carriages from the said roads or any of them.

NO LIGHT.

CHARLES F. FRY, Highbridge Road, Sutton Coldfield, was summoned for riding a motor-bicycle in that town on the 5th ult., between sunset and sunrise, without having a lighted lamp attached. A fine was imposed of 2s. 6d. and costs.

SEQUELS TO MOTOR-CAR ACCIDENTS.

At the Clerkenwell Sessions, before Mr. McConnell, K.C., Chairman, Percy Frederick Moseley, a motor-car driver, pleaded guilty to having caused bodily harm to May Mortlock, aged nine, by furious driving. Mr. Leycester, for the prosecution, gave an account of the accident, which has already been detailed in these columns. Mr. Travers Humphreys urged, on behalf of the accused, who bore an excellent character for respectability and expertness in driving, that the child ran into the motor-car and caused the accident. The prisoner's employer would pay the medical expenses and compensation for the child's injuries. His lordship said that what impressed the Bench most was that the affair was an accident. He hoped that the prisoner had received a warning which would lead him to be more careful and keep a better look-out in future. He fined the prisoner £10, and, at the suggestion of the Court, Mr. Humphreys undertook to also pay the costs of the prosecution.

At the Staffordshire Assizes, before Mr. Justice Wright, a case has been heard in which Thomas Samuel Bailey, Eccleshall, was the plaintiff, and John Stubbs, Rickerscote, Stafford, was the defendant. The action was brought to recover damages for injuries sustained by plaintiff personally, and to his motor-car by reason of the negligence of defendant's servant. The negligence alleged was that defendant's servant was driving a lorry in the middle of the road at an excessive speed, and without a light, thereby causing an accident. Plaintiff purchased a motor-car for £150, and on the evening of November 15th last year he and a friend left Stafford about a quarter to five o'clock for the purpose of going to Rugeley. It was a dark night. When near to Wolseley Bridge plaintiff saw a lorry appear out of the darkness. The driver of the lorry had no lights on the vehicle. As soon as he saw the lorry plaintiff turned his motor-car to the left, but there was very little room, and the machine was turned over, plaintiff's friend having his shoulder dislocated and plaintiff himself was pinned underneath the car. The man in charge of the lorry drove away without, as plaintiff alleged, offering any assistance, and it was fortunate that other persons were on the road at the time, and rendered the assistance required. The jury, after a long consultation, found for the plaintiff, assessing the damages at £25.

JUDGE BOWEN ROWLANDS, K.C., and a jury, on Monday, heard an action at Birmingham in which the Oxtan Carriage Company, Ltd., sued Frederick Heath, Prenton, for £20 damages to a brougham, which it was alleged had been caused by defendant's negligent driving of a motor-car. From Mr. Rigby Smith's opening it appeared that on the 18th April Mr. Page, manager of the plaintiff company, drove a horse and brougham in the direction of Neston with the intention of testing a new horse. Shortly after passing Cecil Road defendant approached on a motor-car. Page held up his hand, but defendant drove on, with the result that the horse took fright and bolted. After going about a mile the brougham overturned, and was dragged some fifteen yards farther before plaintiff succeeded in stopping it. Page sustained severe injuries, and the brougham was much injured. Defendant was called, and gave evidence to the effect that he was only going about ten miles per hour. When about fifty yards away from complainant he observed someone put up his hand in the brougham, and at once stopped the car, about fifteen yards off defendant. His Honour, in summing up, said the crucial point was, where the motor-car came to a standstill. The plaintiff and his witnesses said the car did not come to a stop until it had passed the brougham, while the defendant's witnesses contended that he stopped about fifteen yards in front. The jury gave a verdict for plaintiff, £15 damages.

At the Marylebone County Court (London) on Monday, before Deputy Judge Clement Lloyd and a jury, Thomas Huggins, job-master, 23, Sydney Road, Stoke Newington, N., brought an action against Edward de Wilton, 5, Kildare Terrace, Bayswater, W., claiming £30 in respect of the loss of a horse, said to have been caused through the defendant's negligent driving of a motor-car. John Brown, a coachman in the plaintiff's employment, stated that on 4th of June last he was driving a brougham along Adelaide Road, St. John's Wood. When he had got about three-fourths of the way across the Finchley Road, the defendant's motor-car came along the Finchley

Road "like a flash of lightning," and "bashed" into witness's horse. The animal was so terribly injured that it had to be killed. Corroborative evidence was given. The defendant was then called, and stated that he was driving the motor-car at the time of the accident. The motor in question was of six horse-power, and would not travel at more than ten miles an hour. At the time of the collision he was driving at about eight miles an hour. When he saw the brougham coming he immediately took out the clutch to disconnect the engine and sounded his horn. He then saw the driver of the brougham pull his reins and slightly check his horse. Thinking that the coachman was going to turn into the Finchley Road or stop, witness went forward. But still the brougham came across the Finchley Road just in front of the motor-car. Witness put on the brake and turned into the Hill Grove Road, but it was not possible to avoid the collision. Mr. George Verner, who was in the motor-car at the time of the accident, corroborated generally the defendant's evidence, but admitted that he did not hear the horn sounded. The jury found that the accident was caused through the negligent driving of the defendant, and they assessed the damages in the plaintiff's favour at £18 11s. 6d. His Honour gave judgment accordingly, and allowed costs.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	FINES.
Slough	W. Crawley, Edgware Road, W.	Above legal limit.	£5.
"	— M o s e n t h a l, Queen's Gate, W.	" "	£7.
"	J. Reimer, Hatton Garden, E.C.	" "	£5.
"	— C o h e n, Claridge Hotel, W.	" "	£6.
Birmingham ...	M. Williams, Moseley	" "	20s. and costs.
* " ...	H. Hall, Moseley	" "	30s. and costs.
Kingston	J. Hill, Marylebone	26 m. p. h.	40s., including costs.
* Pontypridd ...	J. Doddington	16 m. p. h.	20s.
Lawford's Gate (Bristol)	H. Sharp	17 m. p. h.	£2 and costs.
Stockport	F. G. Wade, Longsight	16 m. p. h.	10s. and costs.
Chelmsford	W. Dewey, Battersea	Above legal limit.	£5 and 4s. costs.
* "	F. W. Jay, East Ham	19 m. h. p.	£3 10s. and 6s. costs.
"	E. P. Stephens, Cromer	Above legal limit.	£5 and 4s. costs.
Brentwood	W. Geipel, Westminster	" "	£2 and 5s. costs.
"	R. Hughes, Westminster	" "	£2 and 5s. costs.
"	J. Lee, Woodstock	" "	£2 and 5s. costs.
"	R. D'Oyley Carte, Strand, W.C.	" "	£2 and 5s. costs.
* "	R. A. Osborne, Writtle	" "	£2 and 5s. costs.
* "	F. W. Worthy, Battersea	" "	£2 and 5s. costs.
"	L. Frazer, Regent Street, W.	" "	£2 and 5s. costs.
"	T. Leon, Russell Square, W.	" "	£2 and 5s. costs.
Northampton ...	J. Watts, Warwick	" "	Adjourned.
Derby	C. Newton, Derby	" "	2s. 6d.
Huntingdon ...	W. Boulton, Headingley, Leeds	25 m. p. h.	£3 and costs.
Harrogate	S. Booth	Above legal limit.	£2 and 11s. costs.
Wigton	T. Carr, Dalston	" "	£5 and costs.
Winchester ...	G. Dawson, Macclesfield	27 m. p. h.	£2 and 11s. 6d. costs.
Southampton ...	F. Over, Alresford	Above legal limit.	7s. 6d. and costs.
Dunmow	C. Edwards, Dunmow	20 m. p. h.	£5 and costs.

* Motor-cycle cases.

For being drunk while in charge of a motor-car, Joseph Hodgson, of Ulverston, has been fined 40s. at the Clerkenwell Police Court.

SAMUEL BOOTH, who was fined at Harrogate, is motor-car driver to Mr. Lucas, one of the magistrates for Essex, a county which is well represented in the foregoing list.

At Dunmow Petty Sessions, on Tuesday, Cuthbert Edwards, motor-car driver to the Countess of Warwick, was fined £5 and costs for driving a motor-car on the highway at a greater speed than twelve miles an hour. The Bench warned defendant that if convicted again for a similar offence the fine would be £10.

In the case against W. Boulton, of Headingley, Leeds, Police-sergeant Storey said he was at Alconbury Hill with another policeman, and they saw the defendant drive a motor-car 570 yards in 47 seconds, which was at the rate of nearly twenty-five miles an hour. On behalf of the defendant it was explained that he had never driven a car before, and was at the mercy of the motorist sent by the makers.

AN UNLICENSED MOTOR-CAR.

MR. S. COWPER-SMITH, of Stansted, Chislehurst, admitted at the Bromley (Kent) Petty Sessions having failed to take out a license for his motor-car, stating that he was unaware it was necessary. Immediately it was called to his attention he took the license out. Mr. H. W. Legg, the local officer of Inland Revenue, proved the facts, and a fine of 40s. and costs was imposed.

A STEAM-CAR ACTION.

In an action brought by Weston Motors, Mortimer Street, W., against Mills and Son, Limited, of Paddington, and heard before Mr. Justice Ridley in the King's Bench Division, the question arose as to whether a steam-car was supplied by the plaintiffs according to contract. The defendants said that the car was faulty in mechanism, but the plaintiff's contention was that the flaws resulted from the driver's ignorance, and that the fire had been lighted when no water was in the boiler. The jury found that the car was in accordance with the purpose for which it was sold, and was accepted by the defendants as such. Mr. Justice Ridley found for the amount claimed, £186 with costs.

UNSUCCESSFUL CLAIM AGAINST A MOTORIST.

At the Conway County Court, before Sir Horatio Lloyd, a farmer named David Hughes, of Blaenddol, Talybont, sued William Edward Rowcliffe, Chairman of the Manchester Automobile Club, to recover £7 for the loss of a sheep-dog, killed by being run over on Easter Sunday by the defendant's motor-car. Mr. Griffith (Llanrwst) appeared for the plaintiff, and Mr. David Jones (Llanrwst) for the defendant. Mr. Griffith stated that on the evening of March 30th the car, which was being driven from Conway to Bettws-y-Coed on the Carnarvonshire side of the river, came at a furious rate to Talybont, and passed the plaintiff's house. Plaintiff heard it coming, and went to the hedge in his field to warn his children to get out of the way. The dog was following the plaintiff's wife, who was coming from the milking, and before it could escape it was run over, and was subsequently drowned to put it out of pain. It was a valuable dog, accustomed to follow the plaintiff with his sheep and ponies, and able to do the work of an ordinary labourer. Plaintiff had to call to the defendant to stop before he did so, and he did not pull up for a distance of about 80 yards. Defendant offered plaintiff £1, but the latter refused it.—Mr. David Jones, for the defence, said Mr. Rowcliffe and a friend, Mr. Higson, were in the car on the occasion in question, and when they approached Talybont they saw the dog in the field. It rushed through the hedge, right in front of the car, intending to attack it. The car was pulled up in 20 yards. At the time of the accident no one was in the road. The defendant gave evidence, and said he was going slowly at the time, as he was about to change the gear to climb a hill. The Judge said his opinion of the evidence was that it failed to prove that the defendant had been guilty of any negligence in his management of the car. Plaintiff was non-suited with costs.

A SERPOLLET steam car recently made its appearance at Helsingfors, Finland.

THE automobile race meeting at Deauville, near Trouville, France, has been postponed until the 24th inst.

On his 6-h.p. M.M.C. Albany dogcart, which was built in 1900, Mr. Alan A. Hickman has just climbed Park Road, Swanage, with one passenger. This road rises 113ft. in 900ft., the gradient being one in eight for 800ft. Arriving half way up, Mr. Hickman stopped at a house and subsequently started again straightaway. In the last hundred feet he encountered a gradient of one in seven.

EVIDENCE of the progress of motoring in the north is found in the well-known Bradford Motor Company, of Birmingham, with their fine stock of Clements, Darracqs, etc., there being over sixty machines in stock at the time of our recent visit. Mr. House, the manager, informed us that he had had a very successful season, and in response to the wishes of a number of customers, they had decided to hold frequent auction sales, the first taking place in August.

THE light car driven by M. L. Renault in the Paris-Vienna race has been purchased by Mr. W. K. Vanderbilt, junior.

It is reported that one of the large motor-car building concerns in France has been purchased by an English syndicate.

THE German Agricultural Society of Berlin is organising a competition for heavy motor-vehicles using alcohol as fuel. The trials are to take place in the spring of 1903.

THE committee of the A.C.G.B.I. is offering a prize of ten guineas for the best design suitable for use either as a club badge or medal. The competition closes on October 1st.

To build motor-cars is one of the objects of an agreement which Mr. W. S. Weller, cycle manufacturer, West Norwood, has made with Weller Brothers, Ltd., a company just registered with a capital of £3,000.

LORD FIRBRIGHT has placed an order with Messrs. Dennis Bros., Limited, for a 12-h.p. Dennis car. The body will be of a special double tonneau design, having seating capacity for six persons.

Lecturing before the French Society a few nights ago on the adaptability of liquefied air to navigable balloons, M. Georges Claude gave it as his opinion that it can never be used for purposes of locomotion.

In connection with the Automobile Show to held at the Agricultural Hall, London, N., in March of 1903, we have pleasure in stating that the number of exhibitors who have been allotted space now exceeds one hundred.

THE *Mail and Express*, of New York, has sent us a copy of a useful little booklet of automobile records it has just issued. As records are just now being broken almost every week, space has wisely been left in the booklet for the insertion of any new times created.

THE Rosebery Garage and Automobile Carriage Works have been established by Messrs. Salmons and Sons, at 27 and 29, Laystall Street, Rosebery Avenue, E.C. There cars can be stored, cleaned, and repaired. Messrs. Salmons and Sons are making a special feature of a waterproof cover to fit tonneaux.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

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To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

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COMMENTS.



THE question of the marketing of fruit has been seriously considered at a meeting of the National Fruit Growers' Federation, when members argued that the want of a proper transport system prevented them growing with advantage to themselves. Some of them suggested that a system of refrigerator cars should be provided by the railways, but apparently the majority were ignorant of the excellent service which the automobile is now doing in the Evesham district in enabling growers to dispose of their fruit first hand without any loss of time, and with considerable profit to themselves. Perhaps some of the provincial Automobile Clubs might during the coming winter arrange lectures or papers for the various local Associations of fruit growers, farmers and the like, so that the advantages of automobilism in connection with home produce may be fully known and widely recognised.

"Sleepy Hollow" and "Busy Ville."

THE postponement of the Bexhill trials upset the arrangements of many motorists—our own amongst others—so that the week end found us staying in town. However, on Monday, the desire for a blow by the sea became too strong to resist, so, after waiting awhile for the weather to break, we started about midday along the muddy roads for Brighton, where, after a short stay at Crawley, the "Ship" was duly reached in time for luncheon. This well-known inn, along with the old White Horse Cellars, Piccadilly, are probably the best known, and most ancient of coaching houses in the south, and the surprise of those "knights of the whip" and "toolers of the reins" of a past generation would indeed be great to find that where horses formerly were stabled, motorists are now informed in large letters that these are used for a "garage." "Old Rip's" astonishment would not be greater.

The Registration of Motor-Vehicles Bill.

WITH regard to the Bill bearing this title, introduced by the Hon. John Scott Montagu, and now before the House of Commons, the feeling is gradually growing amongst motorists that the present is scarcely the proper moment to proceed to a test of strength on the subject; and that time being on our side it will be more politic for the whole matter to be postponed for the present. After all, the number of prosecutions in comparison with the number of motorists is relatively small, and when it is remembered that there are some very high-powered cars in the kingdom, that these are in daily use, and are driven by men who travel thousands of miles in the course of the year, and yet are never complained of by the authorities—well, motorists think that matters might be worse. Especially is this view taken by those who have in mind the remarks of Lord Alverstone, to the effect "that being guilty of driving to the common danger" does not necessarily depend upon the presence of anyone or anything on the road. There might be someone—even though the someone might be a police-

man behind a hedge—unseen, with a notebook and pencil in hand, with which to take down the number of a passing motorist going at less than the present legal rate of twelve miles an hour.

The Welbeck Trials.

ELSEWHERE we give the entries for the motor speed trials at Welbeck, which will rank even higher than those at Bexhill at Whitsuntide in the annals of the automobile movement in this country. The Nottingham Club have rendered much assistance in the matter, and the dinner at the great lace city on Wednesday night was a fitting introduction to the proceedings. Next week we hope to publish the full results of the various contests, not only at Welbeck but also on Dashwood Hill on the Friday following the great speed trials.

More Police Enterprise.

NOT content with stop watches and field glasses, the police under the jurisdiction of the East Sussex Standing Joint Committee are about to be further equipped for their warfare against motorists. The Chief Constable has been authorised to obtain an electric battery, bells and wire, at a cost of £9, for the purpose of enabling the police to check the speed of motor-cars on the public highway. This will probably be regarded with pleasure by some of the prejudiced residents of East Sussex, but it is not calculated to prove helpful to those who have business on the main roads.

Motor-cycle Races.

ON Friday, the 29th, the annual motor-cycle competitions organised by the Automobile Club will be held on the Crystal Palace track. The events include an hour's scratch race for motor-cycles and a ten-mile handicap for all classes of motor cycles. At 6.15 p.m. a five-mile handicap will be run for the *Motor-Car Journal* Challenge Cup. This will be limited to motor-bicycles with engines having a total capacity in which the diameter in mm. multiplied by the diameter in mm., multiplied by the stroke in mm., does not exceed 440,000 mm., and motor-tricycles, in which the diameter in mm., multiplied by the diameter in mm., multiplied by the stroke in mm. must not exceed 576,000 mm. For instance, a bicycle engine having a diameter of 76 mm. and a stroke of 76 mm. would show 438,976 mm. A tricycle having an engine of 80 mm. and a stroke of 90 mm. would show 576,000 mm. The handicaps will be based on a formula which will shortly be published, the handicap being in accordance with the capacity of the engine.

Motoring in Ireland.

THOSE who participated in the Connemara trip of the Irish Automobile Club enjoyed themselves thoroughly, among those taking part being Messrs. W. G. Goff on a 16-h.p. Napier, H. Goff on a 10-h.p. Panhard, G. O'Grady on a 7-h.p. M.M.C., and Yeldham on a Locomobile. Mr. Ernest Hutton,

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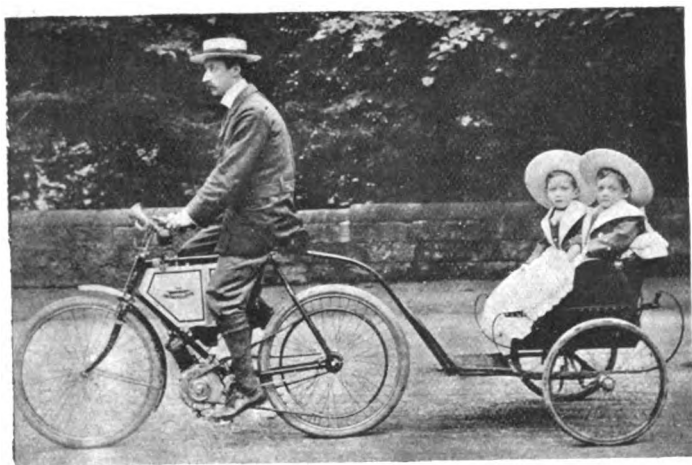
Dr. Colohan, and Mr. Sexton were also of the party. Irish motorists are keenly interested in the suggestion that the Gordon Bennett contest should be run in the Emerald Isle, and already routes are being suggested. Starting from Dublin it has been proposed that the route should be to Fermoy and back *via* Carlow, Waterford, and Lismore, while an alternative is suggested to Tallaght *via* Brittas, Blessington and Ballitore. In either case the route would have to be re-traversed in order to make up the required distance. Why cannot Ulster be included in the itinerary?

The Scottish Automobile Club.

THE Eastern Section of the S.A.C. had a fine run on Friday last week to Dunbar, leaving St. Andrew Square, Edinburgh, at 1.30 p.m. The journey of twenty-nine miles was most enjoyable, but, as it was the first day of the summer holidays, only some eighteen members were present. At Dunbar they witnessed the sports of the Lothians and Berwickshire Imperial Yeomanry as the guests of Colonel Sir William Baird, Bart., and the officers. Owing to the great increase of work and business in connection with the S.A.C., the General Council has separated the offices of the general secretaryship and that of the Eastern Section, hitherto held by Mr. T. M. Newton, C.A. He will continue as general secretary of the S.A.C., while Mr. George Macmillan, Edinburgh, will be the secretary of the Eastern Section. Mr. R. J. Smith, C.A., Glasgow, is secretary of the Western Section. The membership of the S.A.C. now comprises 133 names, the Eastern Section having sixty-seven and the Western Section sixty-six members.

The Leeds Motor Cycling Club.

THE Leeds Motor Cycling Club is now in active work, with Dr. Ryder as first President and Mr. H. D. Elworthy, 8, New Station Street, as hon. secretary. The accompanying illustration is reproduced from a photo of the latter gentleman on his motor-bicycle with his two boys in a trailer. Judging



by the number of motor-cyclists in Yorkshire, the new club should have a large membership.

Motor Racing.

Now that Britishers have shown their prowess in motor-car racing they are not likely to fall behind in the sport. An English car achieved distinction in the Gordon Bennett contest; an Englishman has won the Belgian international trial; and it is worthy of note that the winners in both events were men accustomed to the severe strain of long races, and who are always in a "fit" condition for such contests. Messrs. Edge and Jarrott have each the appearance of always being in training. They keep in excellent condition with a regular amount of exercise, and thus their nervous system is never interfered with by any unwonted

strain on their physical powers. Judgment and endurance will be two essential factors in the equipment of those who indulge in the speedy travelling necessary in such contests.

Automobilism and Agriculture.

RECENTLY, Mr. Hanbury, the Minister for Agriculture, referred with pleasure to the adoption of the motor-vehicle in connection with agriculture in Cardiganshire, and we now learn that Mr. Horace Plunkett, the Vice-President of the Department of Agriculture in Ireland, is experimenting with motor-vehicles for heavy traffic in Ireland. Seeing that he has had some knowledge of the working of light railways, his efforts to secure the use of the automobile are notable. These vehicles certainly provide the means by which farmers who are cut off from the best markets for their produce can establish cheap and rapid communication, not only with railways reaching to all parts of the kingdom, but also direct with the consumer. It has been suggested that in many places in England societies could be formed to own steam lorries for agricultural work on lines similar to those which have proved so successful in providing farmers with expensive machinery in many parts of the Continent.

The Lincolnshire Club.

THE marked success of the meet of the Lincolnshire Automobile Club at the Normanton Inn, Clumber, on Thursday of last week is in very great measure due to the welcome and assistance given them by the Duke of Portland and the Duke of Newcastle. The private roads of Welbeck were thrown open to the motorists, and a special attendant was sent to pilot them through Clumber. A very hearty vote of thanks was passed at the subsequent Committee meeting for the privileges granted. Among those present were Sir Hickman Bacon, President of the Club, the High Sheriff of the county, on a 12-h.p. Panhard; Mr. J. D. Sandars and Mr. G. E. Sandars, both on De Dions; Mr. C. W. Pennell, 18-h.p. Durkopp, and Messrs. W. R. Pennell, A. A. Padley, W. Jevons, C. Nelson, J. Coombes, W. S. Foster, R. Jecock (Gainsborough), J. R. Richardson, and W. Taylor. About thirty members and friends took tea at the Normanton Inn.

At the Manœuvres.

MORE than fifty battalions of the Volunteer force have this week been manœuvred on Salisbury Plain. Sir Evelyn Wood was on a motor-car, as also were Sir Leslie Rundle and Brigadier-General Plumer, his lieutenants. The Plain affords a splendid testing ground for motor-cars, which have mounted the high peaks in good style, facilitating signalling and also helping the laying of telegraph cables. At Colchester about five thousand Volunteers from East Anglia have been in training, and there again motor-cars have been employed by officers, not only in ordinary work but also in pacing the cyclist corps.

A Counter Skid.

IN the complete report of our Automobile Exhibition held at the Agricultural Hall, Islington, we gave particulars and an illustration of Williams' counter-skid, fitted to a heavy vehicle. Last week we were invited to see this arrangement at work on a light car, and, judging from the Hon. John Scott Montagu's remarks, we expected to find a solution to what is undoubtedly a source of danger to automobilists. In this we were disappointed, although Mr. Montagu has announced his intention of backing his opinion by probably having the arrangement fitted to his car. The trials took place in the presence of about twenty-five pressmen and others, round Queen's Square, Holborn. The surface of the square is of asphalt, and in one corner a quantity of soft soap had been spread. The car travelled

round several times with and without the skid, but there was little appreciable difference to be seen whether the car was going slow or at the rate of ten or twelve miles an hour.

Dismissed.

IN our list of cases of alleged furious driving this week there are two dismissals—a number sufficient to cause comment. It would really appear that the police are losing their hold of the magisterial mind, and that there is a prospect—still vague and shadowy, however—of justice being done in our petty sessional and other courts.

Mechanical Road Traction.

THE excellent paper on "Mechanical Road Traction," which Mr. E. A. Edwards, M.I.M.E., read before the Birmingham Association of Mechanical Engineers, in the spring, has been reprinted in pamphlet form, together with the discussion that then took place. This is supplemented with some notes by Mr. John Stirling, of Glasgow, and Mr. Arthur Julian, of Portsmouth, both of whom have had considerable experience in the organisation of public services. We are glad to see the interest that local engineering associations are taking in automobilism, for the discussions thereat will bring out many important points that may eventually be utilised for the benefit of the industry.

Reigate's Regret.

THE experience of Reigate has shown how unpopular to local traders is this antipathy to automobilism on the part of the police. Last year the County Police of Surrey instituted a number of prosecutions against motorists. Some of these summonses were returnable at Reigate, owing to the petty sessional court being held there, although the offences were committed in the county districts outside the borough. The Borough of Reigate has a police force of its own, and they have had no cases whatever to bring before the borough court, and are not responsible for county summonses. At the time many motorists, not knowing this, advocated a boycott of the town in consequence. The result has been disastrous, and at length many of the hotel-keepers and leading tradesmen in the town have written to the Press pointing out these facts and deploring the fact that so few motorists pass that way. Evidently the police of East Sussex are preparing for a similar loss to be inflicted on the people within their area of supervision.

Trial of Delivery Vans.

WE are promised another automobile trial, this time for delivery vans, Messrs. Cadbury Bros., of Birmingham (who, by the way, have introduced a motor-car with considerable effect into one of their cocoa advertisements), having suggested co-operation with other firms in promoting a trial for delivery vans. They have further agreed to contribute towards the funds and to give prizes. The suggestion has already been before the Executive Committee of the Automobile Club, who have agreed to organise such a trial in about a year's time. A meeting of users will shortly be held to consider the suggestion for the trial, etc., and if likely owners of delivery vans will state their requirements with some definiteness, manufacturers will doubtless do what is necessary to meet their wishes.

The Yorkshire A.C.

UNCERTAIN and wet weather affected the last run of the Yorkshire Automobile Club to Boston Spa. The meet was at Harewood Park, and four or five cars whose owners were prepared to face the weather arrived punctually. Fortunately before the start the sun started to shine, and a fine drive to Boston Spa took place via Harewood Avenue and Collingham, and the pleasures were increased by there being no dust on the roads.

After tea the party separated, each member making his own way home. The cars taking part in the run were Mr. Beever's 8-h.p. M.M.C., Mr. Jessop's 8-h.p. M.M.C., Mr. Dougill's 8-h.p. Loidis, Mr. Parker's 8-h.p. Argyll, and Mr. Firth's quad. On the afternoon of Saturday, the 23rd inst., there will be a hill-climbing trial at Harewood Bank, in which it is hoped many members and friends will participate. Automobilists generally will be welcomed, and all cars will be classified according to their power and weight. Entries must be forwarded to the Hon. Secretary, Mr. Alf. W. Dougill, Great Northern Hotel, Leeds, on or before Friday, August 22nd, stating the full particulars of the cars or cycles.



A TRIO OF MOTORISTS.

"Wake Up, England!"

PROUD as we may be of the success that has attended the plucky efforts of the Cup winner, it is a regrettable reflection that in one of the few matters in which they had to rely on outside aid, that proved somewhat of a "bruised reed." We refer to the question of coils. Time was, and not so long ago, when in the matter of induction coils English makers were at the top of the tree, and for a long time this country had the record for the largest construction of this kind. But coil-making is not a thing that can be learnt in a day, as several makers found to their cost when Röntgen's discovery led to a sudden demand for these instruments, while it is a branch of industry in which scientific as well as manual skill is of primary importance; and the former is, alas! held of little account as yet by the British manufacturer. A defect we have often noticed in English coils is a too massive construction of the trembler, with the result that while effective at a moderate speed, it is unable—owing to its inertia—to respond to the call of a high engine speed. Excessive size of the coil need not be objected to, as high insulation is of the greatest importance, and if this is "skimped" the coil may work well for a time, but breaks down after continued use. Nor need the fact of its requiring a fairly heavy current be much complained of, if greater quantity in the secondary current is thereby obtained; a fat spark is cheaply purchased by more frequent accumulator charging. But rapid response to the interrupter, at the highest speeds now required, is indispensable in a good coil, and a light armature is required to secure this.

Doctors and Motor-cars.

FEELING among automobilists is running high at Buffalo, N.Y., in consequence of the arrest of three doctors who were exceeding the regulation speed on their motor-cars, in answer to urgent calls. The President of the local Automobile Club, himself a physician, contended with the Chief of Police that

members of his profession should be accorded this privilege when serious cases were waiting them, but the Chief was obdurate, saying "the result would be that we would have a lot of doctors racing around town in automobiles and killing more people than they saved."

An Echo of Goodwood.

At the monthly meeting, the other day, of the Urban District Council of West-hampnett, near Chichester, the Rev. W. W. Kelly proposed a resolution to the effect, "That it is desirable a number, or other conspicuous distinguishing mark, be carried by all motors, in the interests of public safety, and that a copy of this resolution be forwarded to the Local Government Board." Mr. Kelly disclaimed all animosity towards motor-car owners and drivers, but pointed out that the dangers to which the public were liable owing to the furious driving of motor-cars were so great, and were increasing to such an extent, that it was high time firm steps were taken to prevent accidents. Several mishaps had already occurred in the district, and it was due more to the caution of the public than to the courtesy of motor-car drivers that more accidents had not taken place. The Rev. W. F. Shaw pointed out that in his own parish, while the Goodwood races were on, he had seen these vehicles travelling at a pace of twenty miles per hour or more, much to the danger of little children and pedestrians generally. Several other members testified to the furious driving of cars in the district, and the resolution was unanimously adopted.

A Meet at Luton.

TO-DAY (Saturday) a Coronation fete will be held in Luton Hoo Park, by permission of Mr. J. Wernher. Automobile racing and a battle of flowers are included among the attractions which are being organised by Mr. E. W. Hart. All motorists are invited to assist in making the meeting representative, and in order to make the necessary arrangements for housing vehicles, those who intend to be present should inform Mr. F. C. Ellingham, 3, Crawley Green Road, Luton, immediately.

The Nottingham Dinner.

THE competitors at the speed trials which took place in the grounds of Welbeck Abbey, on Thursday, met the members of the Nottingham Automobile Club at dinner at the Victoria Station Hotel on Wednesday. The company, which numbered over 150, was a distinguished one, and representative of both English and Continental motoring circles. Mr. E. W. Wells, vice-president of the local Club, presided, and proposed the toast of the Automobile Club of Great Britain and Ireland, for which the Rt. Hon. Sir J. H. A. Macdonald responded, and urged upon British people the necessity of making the automobile of commercial value as well as a means of pleasurable sport. Mr. A. F. Bird (Birmingham), was entrusted with the proposition of the toast of the Nottingham branch of the Automobile Club, to which Mr. A. R. Atkey, Hon. Sec., responded, giving the interesting information that not a single conviction had been recorded against local members. The name of the Chief Constable of Nottingham was also associated with the toast, and, in the course of a few chatty remarks, Mr. S. Clay stated that no serious offence calling for his interference as an official had taken place in Nottingham, which showed the judgment and sound common sense of the local enthusiasts.

New Speed Records.

ON the road between Ablis and St. Arnault, on Tuesday, Mr. W. Vanderbilt jun., established new records for the flying mile and the flying kilometre. He drove the Mors car which he rode in the "Circuit des Ardennes," covering the flying mile in 48 2-5 sec., and the flying kilometre in 29 2-5 sec. The former record for the kilometre, which was held by M. Serpollet, was 29 4-5 sec.; that of the mile, made in America by M. Four-

nier, was 51 1-5 sec. The times were taken by Messrs. Tampier and Gaudichard, official timekeepers to the A.C.F.

EN ROUTE TO WELBECK.

LEICESTER, TUESDAY.

AT half-past three this afternoon, with the sky overcast, and every prospect of a thunderstorm, we made a start from town for the north on our 12-h.p. M.M.C. The route taken was *via* Hampstead Road, the Heath, and Barnet. The roads were in good order and the car was pulling well. A few miles the London side of Barnet a Wolseley car was seen, half on the pavement, with apparently a broken axle, one wheel smashed to pieces and the other lying broken near by. How it came in that position we did not learn, and we heard afterwards that the car belonged to Lord Willoughby D'Eresby. At Barnet Captain and Mrs. Locock were met, and we had the pleasure of Mrs. Locock's company for the remainder of the day. Further on we came across two Darracqs, a puncture on one of the cars delaying the occupants. At St. Albans we passed a voiturette, and shortly afterwards Mr. Astell in his cream-coloured New Orleans, in company with another car of a similar make. A stoppage at Northampton was made for a cup of tea, and here Mr. Astell joined us. The last few miles had been very dusty, but the roads were in splendid condition. Through Market Harboro' the journey was continued without incident, excepting only for a warning from Mr. Astell of the fact that a policeman was behind a hedge with a watch in his hand. Our electric ignition being out of order, we were running on tubes, and the bursting of one of these caused a slight delay, as also did dirt and water in the petrol, but Leicester was ultimately reached in good time, and here a halt was made for the night.

NOTTINGHAM, WEDNESDAY.

Rain, pouring hard continuously till after four o'clock, and we had consequently a wet journey here over well-kept, hard and firm surfaced roads. The headquarters for the night are adjoining the Great Central Victoria Station, and the whole hotel has been booked up, the overflow extending to a number of the other hotels in the town. At mid-day there were very few arrivals, and at six o'clock, in the yard adjoining the hotel, were seen Mr. Owers' 16-h.p. Napier; Mr. Edge's Napier; Mr. Astell's 14-h.p. New Orleans; Mr. Charles Cordingley's 12-h.p. M.M.C.; Capt. Locock's 10-h.p. Wolseley; "Sir Charles," the original Napier which went through the 1,000-miles, and still in the possession of Mr. Kennard; Mr. Gorham's 22-h.p. Daimler; Mr. Ginder's special steam racer; two other Locomobiles; Mr. Instone's 22-h.p. Daimler; Mr. J. Stocks' 10-h.p. De Dion Spider; Mr. C. W. Pennell's Durkopp; 30-h.p. Wolseley, driven by Mr. Callan; Mr. Cecil Edge's tricycle; Mr. A. Perman's 12 h.p. Gladiator; Mr. Bird's 16-h.p. Panhard; Mr. Phillips' 8-h.p. Rochet-Schneider; Mr. Edmund's "Antrona"; and about the town at other garages were several M.M.C.s; Mr. Williamson's "Sapho"; a two-cylindrical Progress; four Serpollets; Mr. Midgley's 16-h.p. Napier, etc. Many who had entered cars had evidently been deterred by the weather from travelling by road and had come by train, the hotel lounge being full of well-known motorists.

WE learn that it has been decided to form a motor-cycle club in Liverpool. Local riders wishing to join should communicate with Mr. J. Kirkland, 11, Lord Street, Liverpool.

THE Halifax Automobile Club held a run to Chester last week end, but, owing to the inclement weather, only five cars started on Saturday. The route taken was *via* Todmorden, Rochdale, Middleton, Stretford, Sale, and Bollington. Here members partook of tea, afterwards proceeding *via* Northwich and Kelsall to Chester. Comfortable headquarters were found at the Blossom Hotel, which has plenty of storage for motor-cars, including an inspection pit. The following day (Sunday) it was intended to proceed to Llandudno, but, owing to the inclement weather, it was decided to return home. The trip was thoroughly enjoyed.

THE CIRCUIT DES ARDENNES.

BY AUTOMAN.

PASSING through the covered courtyard of the Grand Hotel in Paris a fortnight ago I espied Mr. C. Jarrott taking his *petit déjeuner* in front of the restaurant which forms one side of the enclosure, and we had a long petrol talk. His car was not quite ready; he didn't look forward much to the coming race, and wasn't sure that it was going to be the solution of the road-racing problem. The best driver would win the race in his opinion. He thought he would prefer racing straight on over new and untried roads towards a far-off goal, where adventure into the unknown gave a special zest to the effort, to turning round and round the same course six times, up and down the same hills, round the same old corners. During the conversation I was wondering whether I was not talking to the winner, for Jarrott has, I have noticed, always managed to be placed fairly well, and his turn to win was only a matter of time, as he is amongst the most fervent devotees of motor racing. And now his turn has come to be victorious, and apart from the jealousies of the different makes of vehicles, which, of course, will always continue, his success is a most popular one on both sides of the Channel. Everybody over here in Paris likes Jarrott,

cabin with Messrs. Frank Butler, W. D. Astell, and C. Johnson, with Mr. and Mrs. Mark Mayhew next door. The train was crammed, and the employees seemed at their wits' end to carry out the service and give everyone satisfaction.

Soon after ten the train arrived at Bastogne, and was shunted into a siding for the night, and I went into the village to reconnoitre in the pouring rain. The principal hotel, with its eight bedrooms, was crowded with Belgians and French, discussing the prospects of the morrow over the convivial glass. I went the round of the *cafés* and found them all full, and with intention to remain open all night; indeed, they could hardly do anything else, for all the beds, even those of the proprietors and the servants, were let, and the latter therefore had no place to lay their heads. A contingent arriving by the ordinary train made matters worse, and everything in the shape of a couch was requisitioned. Captain Pretty, after vainly searching the hotels, was recommended to apply to a bedstead manufacturer, who rapidly fixed together a partly-made four-poster in the workshop, which thus received its "baptism of fire" from the sympathetic Ipswich volunteer cyclist—the first British disciple of the alcohol-propelled motor-car.

There was no need for an alarm clock in our cabin, for by 3 a.m. Mr. Butler was astir, and there was no more peace for the wicked; if he was not telling us about the early birds singing, he



COLLIN ON DARRACQ CAR.



JARROTT READY TO START.



AN AWKWARD CORNER.

and he was cheered to the echo alike by Belgians, French, and Englishmen, as he brought his panting Panhard to a final standstill in the streets of Bastogne, after having completed his ninth round.

On the day before the race all the known modes of modern locomotion were called into service to convey the lovers of the new sport and those interested in its progress to the frontiers of Belgium, and whilst the English contingent were crossing the Channel, the French express train from Paris was crowded with *chauffeurs*, and the road from Paris to the Ardennes (which is the same route as that taken last year in the Paris-Berlin race) had its dust disturbed by many a pneumatic tyre. I had the offer of a seat on M. Leon Serpollet's car, but an engagement in Brussels prevented me from accepting it, and so I took the morning express from Paris to Brussels, and found myself at once "*en pays de connaissance*," surrounded by old friends and the companions of the Paris-Berlin and Paris-Vienna special trains.

From Brussels a special train had been organised by the A.C.B. to leave the Gare du Nord at five minutes past seven on the Wednesday evening of last week, and when I was shown to my berth by the conductor I soon became conscious that the four-berthed cabin was already full of Gladstone bags, dress suit cases, and overcoats of an unquestionably British appearance, and sure enough I had been accidentally told off to a

was ringing the bell, or trying the lavatory door, with a running fire of comment, wrathful, cynical, or comical, as the case might be. In self-defence, we all got up. The morning was fine, though there were clouds here and there over the sky, which looked as if they might at any moment close up and obscure the sun. Altogether, however, the conditions seemed the best for the race, for the over-night rain had been just sufficient to lay the dust, without making the roads "skiddy," and the weather looked as if it would not be too unkind to the pneumatic tyres, which, of course, are under the greatest strain when the sun shines very hot from a cloudless sky.

The race, it will be remembered, was over a triangular course, with Bastogne as the apex and Longlier and Habay-la-Neuve at the angles at each side of the base; the total length of the course was 85½ kilometres, or just over 53 miles, and this was to be covered six times by the motor-cars and twice by the motor-cycles. The start and the finish was at Bastogne, at the sharp angle where the Paris-Berlin road joins that leading from Bastogne to Martelange.

In order to insure an early start, and so that none of the competitors might oversleep themselves, the fire brigade turned out early, and made the morning hideous with their trumpet calls, till, like the English contingent in the special train, everyone was obliged to get up in self-defence, and at an early hour a crowd

was collected around the starting point. It soon became evident that the local police and military force would be too small to cope with the crowds, but, assisted by the Committee of the A.C.B., and with a good nature, which is characteristic of a French or Belgian crowd, if you take them the right way, a passage-way for the cars was soon reserved, and no accident, however slight, to any spectator marred the proceedings of the day.

minute past five when the signal was given, and his Panhard car bounded down the road and disappeared behind the dust. Guders, on a light Panhard, started one minute later, followed by two Belgian Daimlers, and so on minute after minute. I stood watching Vanderbilt struggling with a rope, for his fourth speed had gone wrong, and he had to fix a cord to hold it in gear. He was nothing daunted, however, and went off last at 5.57 a.m.,



GUDERS ON LIGHT PANHARD CAR.
EDMOND ON DARRACQ CAR.

AT FULL SPEED.

JARROTT AND HIS MECHANICIAN, AFTER THE RACE, MAKE ENQUIRIES
REGARDING THEIR TIME.

BARON DE CRAWHEZ'S CAR AFTER THE ACCIDENT.

A NASTY CORNER.
GREGOIRE ON GERMAIN CAR.

START OF THE MOTOR-BICYCLE RACE.

Out of seventy-five entries there were eighty-six motor-cars started. The first was Baron Pierre de Crawhez, the President of the Automobile Club of Luxembourg and Namur and the moving spirit in the organisation of the race. It was just one

but already a rising clamour had announced that Pierre de Crawhez was on the horizon finishing his first round, and a minute and a half before the starting signal was given to Vanderbilt, the former came charging up the hill at a terrific speed, and

went round the corner and down the road again like a flash of lightning. From that moment out it became evident that the race would be most exciting to the spectators, far more so than a long straight race, where it is so difficult to follow the running of the various competitors.

Pierre de Crawhez's first round took 54½ minutes, and was accomplished at a speed of over 58 miles an hour. Gabriel, on a Mors, was next to arrive at 6.14, having done the lap in 56 minutes; De Caters on another Mors and Jenatzy came next, almost together, at 6.16. Curiously enough, they practically started together, and the Mors did the first lap in 65 minutes, whilst Jenatzy took 66 minutes. It was, however, the first and last lap for De Caters, whose car was smashed up on the second round. Girardot, too, came up with the two cars above mentioned at 6.16, but as he started four minutes after De Caters, his time for the first round was 61 minutes. At 6.20 De Knyff, with his field-glass, announced the arrival of Jarrott, who took 58 minutes for the first round.

Just about this time a rumour of an accident filled the air, and a call was made for a doctor. We soon learned that Jenatzy had come to grief. What really happened to him it is difficult

at such a speed. I ran to the spot, which was only fifty yards away, but before I could get there I met de Crawhez walking back towards a tourist car, dust stained, but uninjured, quite cool and collected. What had happened was that in swerving to pass Coppee, and in trying to avoid the ditch, his front wheel, or probably axle cap, touched the spokes of the hind wheel of Coppee's car, and de Crawhez's wheel burst, whilst the tyre flew up in the air and the rim went careering along the road towards Bastogne. The sudden strain burst the opposite front wheel, and the car ran on the stumps of the spokes into the ditch, and along 20 yards, shaving the side off two or three trees, and coming to a standstill in the condition shown in one of the accompanying pictures. Pierre de Crawhez had been running splendidly, and, of course, had the great advantage of being the first to start, and having, therefore, no cars to pass on the first lap, his accident was very hard on him; but still he had completed the first 100 kilometres in 62 min. 35 sec., and as this time was not beaten in the race, he carries off the Ratzinski cup.

Continuing my stroll towards Martelange, I noticed Vanderbilt, Zborowski, and Girardot going strong, and Jarrott waved his hand in recognition as he rushed down a hill at seventy-five



DE LA TOULOUBRE ON DECAUVILLE CAR.



VANDERBILT ON HIS MORS CAR, AFTER THE RACE.



DURAND ON LIGHT MORS CAR.

to say. One of his front wheels burst, but whether it was owing to the tyre coming off or not will never be known. The car, of course, went into the ditch and turned over, throwing the driver out and pinning the *mecanicien* underneath. Jenatzy, jumping up with only a cut forehead, and seeing his *mecanicien* under the remnants of the car with only his hand sticking out, drew the worst conclusions and fainted. However, help was soon at hand, and the car was lifted off the *mecanicien*, who got off with a broken arm and some damaged ribs.

Soon after this I took a stroll down the road in order to get some snap-shots and see the competitors at full speed. I had just been watching Baras on his Darracq being towed home with a broken crank-pin, when Coppee passed me on a Belgian Daimler, and then at full speed Pierre de Crawhez followed on, tooting for all he was worth to clear the road and get Coppee to keep to his right. I was just saying to myself that it was too bad of Coppee not to give him room, when I saw de Crawhez swerve to his left near the ditch to pass him by, and as I looked there was a sudden cloud of dust and the stoppage of the "ronflement" of de Crawhez's Panhard. There was no possible doubt an accident had occurred, and I shuddered to think of the result

miles an hour. The sky had clouded in and the sun was no longer visible by ten o'clock, when I met Captain Pretty, and together with him turned my steps towards the winning post, in order not to lose the pleasure of cheering the winner, whoever he might be. The crowd at the winning corner had meanwhile increased. Toward eleven o'clock the excitement grew greater and greater, and especially as the fortunes of the day had eliminated twenty-three cars during the first two laps. Charron had come to grief in a collision with Augieres and Roland, and De Caters had run off the road in the dust, Roland finding himself in the ditch with a broken clavicle, and De Caters, uninjured, left his car in fragments on the wrong side of a wall which he negotiated.

At a quarter past eleven, Jarrott rushed up to the post, the winner, as it afterwards turned out, by about nine minutes. His car was quickly surrounded by an enthusiastic crowd of friends and admirers, and many were the handshakes he had to give whilst the busy photographers snapped him off in all positions. His genial, open face showed how pleased he was, and how differently he viewed the question of the Circuit des Ardennes from when I met him in Paris. About a half-hour after, when

he had washed off the dust, he came up to the Control with his *mecanicien*, and I asked him what was his opinion of the new form of road racing. Jarrott told me that it was sure to become popular and an annual event, that the absence of stops and "slows," controls, time cards, *neutralisations*, is a great boon to the racer who has now nothing to think of but the biggest speed he can safely keep up. The passing of other cars is awkward, but not nearly as bad as it seems. "Why look at my time," said Jarrott, "disregarding the seconds I did the first lap in 58 min., the second in 57 min., the third in 60 min., the fourth in 57 min., the fifth in 61 min., and the sixth in 60 min.; how's that for regular running and at over 54 miles an hour? Pierre de Crawhez only did the first lap without any passing in three minutes less time than I did my fourth lap."

By half-past twelve the racing was over as far as the heavy cars were concerned, though the last car to complete the race only arrived at 6.10. Nine minutes after Jarrott, Gabriel came in on a Mors, followed by Vanderbilt twenty minutes later on another Mors. Notwithstanding the condition of his fourth speed, he made a splendid run, and to show how little he was tired by the competition, he started off for Paris after lunch. The fifth to come in was Count Zborowski on his Mercedes, on which he had done all the laps in a little over an hour. Girardot came in sixth on a C.G.V. car, this being the first time one of these new cars has been able to show its capacity. Thirty-three cars completed the six laps out of the fifty-six that started, leaving formidable discount of 40 per cent. of breakdowns and accidents. Amongst the light cars the great success of the day comes to Rigolly, who on a Gobron-Brillié was fourth in the general classification and at the head of the light cars. It is also interesting to note that he used alcohol as fuel exclusively. The voiturette class was one by Corre on one of his own cars. In the tourist section only two cars competed, and they were both Belgian Daimlers from the Ateliers de Germain; both completed the course, covering the laps in about an hour and three-quarters each. Count Zborowski's car was furnished with a set of pneumatic tyres made by Messrs. Falconnet and Perodaud, who have now taken up the manufacture of tyres of this kind, and whose first trial resulted in a success. No incident of any kind, I am informed, occurred to the tyres which have a new covering specially prepared to resist puncture and wear. The following is a list of the times of those who completed the six laps:—

Driver.	Car.	Time.
		H. M. S.
1 Jarrott	Panhard	5 52 39
2 Gabriel	Mors	6 2 45
3 Vanderbilt	Mors	6 22 11
4 Rigolly	Gobron-Brillié	6 42 16
5 Zborowski	Mercedes	6 46 40
6 Girardot	C.G.V.	6 55 55
7 Heath	Panhard	6 57 3
8 Guders	Panhard	7 1 46
9 Edmond	Darracq	7 4 30
10 Berteaux	Panhard	7 26 47
11 De la Touloubre	Decauville	7 36 38
12 Ullmann	Decauville	7 37 50
13 Augieres	Mors	7 43 50
14 Collins	Darracq	7 44 20
15 Durand	Mors	7 48 53
16 Tart	Clement	7 50 15
17 Barbaroux	Clement	7 59 6
18 Perrin	Delahaye	8 0 14
19 Comte de Laugier	Delahaye	8 3 37
20 Lorraine Barrow	Dietrich	8 9 3
21 Stead	Dietrich	8 18 26
22 F. Coppée	Germain	8 32 35
23 Dernier	Gobron-Nagant	8 58 2
24 Hautvast	Pieper	9 11 29
25 Wattecamps	Germain	9 15 24
26 Page	Decauville	9 26 29
27 Corre	Corre	9 34 39
28 Gregoire	Germain	10 12 58
29 Van der Speck	Germain	10 32 15
30 Conrard	Gobron-Nagant	10 32 15
31 Luza	Prunel	12 12 37
32 Kuhling	Vivinus	12 21 14
33 Thellier	Passy	12 25 26

The classification in the various categories is as follows:—

DISTANCE, 512½ KILOMETRES.

HEAVY CARS.		H. M. S.
Driver.	Car.	
1 Jarrott	Panhard	5 53 39½
2 Gabriel	Mors	6 2 45½
3 Vanderbilt	Mors	6 22 0½
4 Comte Zborowski	Mercedes	6 46 40½
5 Girardot	C. G. V.	6 55 55½
6 Heath	Panhard	6 57 3½
7 Augieres	Mors	7 43 50
8 Lorraine-Barrow	de Dietrich	8 9 3½
9 Stead	de Dietrich	8 0 0
10 F. Coppée	Germain	8 32 35
11 Wattecamps	Germain	9 15 24
12 Hautvast	Pieper	9 11 29

LIGHT CARS.		H. M. S.
Driver.	Car.	
1 Rigolly	Gobron-Brillié	6 42 16½
2 Guders	Panhard	7 1 46½
3 Edmond	Darracq	7 4 30½
4 Berteaux	Panhard	7 26 47
5 De la Touloubre	Decauville	7 36 38½
6 Ullmann	Decauville	7 37 53
7 Collins	Darracq	7 44 20
8 Durand	Mors	7 48 53½
9 Tart	Clement	7 50 15
10 Barbaroux	Clement	7 59 6½
11 Perrin	Delahaye	8 0 14
12 De Laugier	Delahaye	8 3 37
13 Dernier	Gobron-Nagant	8 58 2
14 Page	Decauville	9 26 29
15 Conrard	Gobron-Nagant	10 32 15

VOITURETTES.		H. M. S.
Driver.	Car.	
1 Corre	Corre	9 34 39
2 Luza	Prunel	12 12 37
3 Kuhling	Vivinus	12 21 14
4 Thellier	Passy	12 25 26

TOURIST CARS.		H. M. S.
Driver.	Car.	
1 Gregoire	Germain	10 12 58
2 Van der Speck	Germain	10 32 0

COUPE RATZINSKI (100 KILOMETRES).

Driver.	Car.	H. M. S.
1 P. de Crawhez	Panhard	1 2 25½

500 KILOMETRES (RECORD).

Driver.	Car.	H. M. S.
1 Jarrott	Panhard	5 45 54½

At three o'clock the race for motor-cycles took place. There were three tricycles—they all started together—whilst there were twenty bicycles, which were started two or three at a time. Osmond was an easy winner of the tricycle class, completing the two laps in five hours and fifty-one minutes, although his brakes were all gone, and he had the greatest difficulty to slow down at the turnings. Derny, on a Clement bicycle, won his class in three hours and nine minutes, whilst Elskamp, on a Minerva, came in seventeen minutes later, and Arnott, on a Werner, twelve minutes after him. Appended are the results:—

MOTOR-CYCLES (DISTANCE, 170½ KILOMETRES).

Driver.	Car.	H. M. S.
1 Osmond	Dion-Bouton	2 53 18
2 Joostens	Korn	3 8 45

MOTOR-BICYCLES.

Driver.	Car.	H. M. S.
1 Derny	Clement	3 9 47
2 Elskamp	Minerva	3 26 39
3 Arnott	Werner	3 38 53
4 Philtiens	Philtiens	3 32 30
5 Masson	Clement	3 43 59

Shortly after six o'clock the special train steamed off for Brussels, and thus brought to an end what had been a most interesting event, and one which will create a precedent in motor-car racing.

PRESS dispatches from Kenosha, Wis., state that Mr. E. Pennington is endeavouring to interest local capitalists in the manufacture of a motor-car which he claims to have invented.

A TOUR extending a distance of over one thousand miles was brought to a successful conclusion at Marshall, Mich., recently. Mr. and Mrs. J. M. Redfield were the tourists, starting from Clinton, N. Y., on a Winton car on a Saturday and reaching their destination ten days later. The trip was made without incident and most of it in pleasant weather.

CONTINENTAL NOTES.

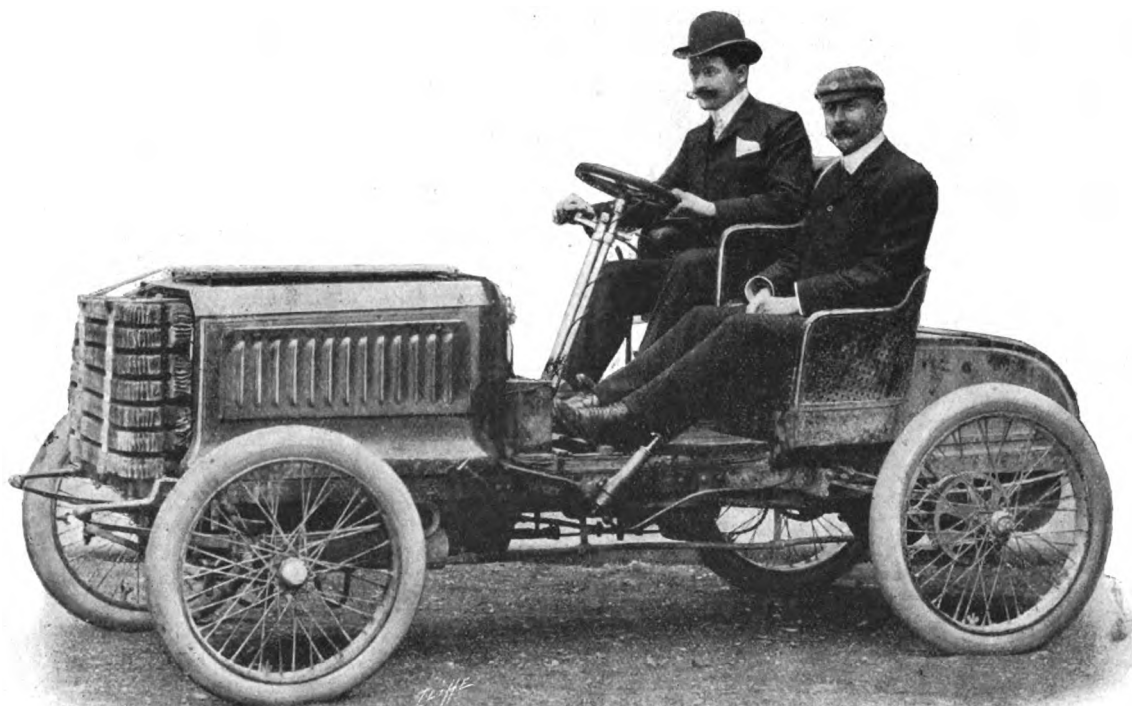
BY "AUTOMAN."

THE "Circuit des Ardennes" is a thing of the past as far as 1902 is concerned, but it will no doubt turn into an annual event, and it will certainly be the precursor of many similar events in other countries. Indeed, I hear on very reliable authority that a "Circuit" has already been found in France, where for 500 kilometres *chauffeurs* will be able to run on good roads without any neutralisations. From the point of view of the spectator there can be no question as to the interest in the new form of road racing. To see the competitors pass the winning-post the first time round gives one quite a new excitement and interest in the competition, and brings the difficulties, dangers, and chances of the race home to the mind.

THE names of the English *chauffeurs* are very hard for the

the legal limit, just as his *confrere* is on the Surrey roads. In this case he stopped a car which he noticed had no number on, and immediately prepared a *proces-verbal*. When asked to give his name the automobilist replied that he was Prince Albert, the heir to the Belgian throne. The Dutch bobby was sufficiently overcome to take his hat off most respectfully, but being no respecter of persons as far as duty is concerned, he is proceeding with the charge of offence against the law.

ON Friday last week, when I returned to Paris from the "Circuit des Ardennes," I found awaiting me a correspondence which has passed between Mr. Austin, of the Wolseley Tool and Motor Car Company, Ltd., and the proprietors of the *Motor-Car Journal*. The only knowledge which I had of this correspondence was that conveyed to me by the editorial note which appeared in the issue of the *Journal* of the 19th July. The following two extraordinary letters merit the careful attention of the fair-minded public, who in purchasing a paper expect to find therein the truth without fear or favour, and unalloyed by any con-



MR. E. W. HART ON ONE OF THE LATEST 20 H.P. DARRACQ RACERS.

foreigner to pronounce. Jarrott's name is the easiest of all, although there are two forms of pronunciation for it amongst the spectators, one section shouting "Bravo, Jarrotte!" whilst the other section cries "Bravo, Jarro!" This is a trifle, however, for when we come to Rolls he gets invariably *Rolz* with a short o like the o in Polly. Stead comes out *Steed*, and when it comes to Heath the Frenchman is utterly flabbergasted. He cannot pronounce H aspirate, and much less so th, so Heath becomes *Eet* or *Ate*, which is quite unrecognisable and needs a great deal of explanation.

THERE are two events following on after Bastogne, namely, the kilometre races at Deauville, where the weighing in will take place on the 25th inst., and the races on the 26th inst. After this will come the Ostend races which are about to be organised, and for which the King of the Belgians may give a cup.

A CURIOUS story comes from Zeeland, where it seems that the ubiquitous policeman is in search for motor-cars exceeding

siderations of whether or no the increase or decrease of advertisement will be the result of the news recorded:—

TO THE EDITOR OF *The Motor-Car Journal*.

DEAR SIR,—In your issue of July 12th we have noticed a paragraph relating to the "Wolseley" cars. The remarks made therein by your correspondent we consider to be quite uncalled for and exceedingly impertinent in their tone. There can be no mistaking the inference intended to be drawn from these remarks, viz., that want of lubrication was the cause of the failure of the "Wolseley" cars in the Paris-Vienna and Gordon-Bennett cup races. Now, although we had more than our full share of troubles, yet at no time did we experience any difficulty from this cause. To state that the piston seized is either a deliberate mis-statement, or your correspondent did not take the trouble to confirm his statements before sending to the press. As a matter of fact we have never known the piston of a "Wolseley" motor to seize, whilst on the vertical type of motor this is by no means an uncommon occurrence. However, it is not our intention to enter into any discussion regarding the failure of our cars in the Continental races. On the other hand, we join most heartily in the congratulations due to Mr. S. F. Edge, who, with the Napier car, was enabled to win the Gordon Bennett cup for England.

In conclusion we must ask you to immediately apologise for the offensive manner in which your correspondent has presumed to dictate to us through

your columns, and must also ask you to insert a full and ample retraction, to appear in your next issue, as we most certainly do not intend to submit to treatment of this sort from anybody.

Trusting you will give this matter your immediate attention.—We are, yours faithfully,
WOLSELEY TOOL AND MOTOR CAR CO., LTD.
July 14th, 1902. H. AUSTIN, Manager.

Messrs. Cordingley and Co.

DEAR SIRs,—In reply to yours of the 26th inst., it appears to us that you are treating this matter in a very casual manner.

We are fully determined to have this matter put right, and that immediately, and we consider that we have given you ample time to make a proper and fitting apology.

Unless we hear from you by to-morrow's post to the effect that you are doing something on the lines that we have suggested to you, we must ask you to herewith cancel immediately all advertisements that we may have on hand with you, and to return to us any blocks, etc., which you may have in your possession.—We are, dear Sirs, yours faithfully,

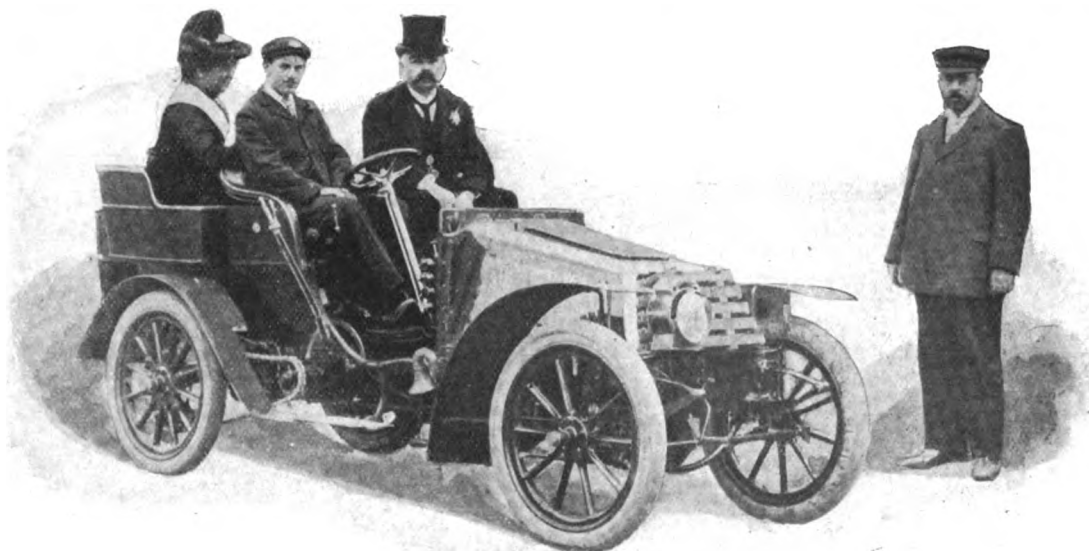
WOLSELEY TOOL AND MOTOR CAR CO., LTD.

July 26, 1902.

H. AUSTIN, Manager.

It is with great regret that I note the intemperate tone of Mr. Austin, not only in attempting to dictate how I should record history, but also to lay down the principle that his judgment is to be taken against that of the greatest experts in the motor-car trade, who have made and designed more cars than Mr. Austin, and who have for a series of years won all the races in public

letter he remarks that I made a statement that the piston seized whereas I said nothing of the sort. The only facts I recorded had reference to broken shafts. Now I have had a very considerable experience, I am sorry to say, of broken shafts, and although the broken shafts in question have been most certainly due to the piston gripping, I have never had a case where the piston seized, which is, I should think, a fairly rare occurrence in motor-cars, for when the cylinder from any reason begins to grip the piston comes to a standstill as a rule before it has had time to seize. Now I have long held the opinion that the Wolseley Company would eventually, like all other motor-car manufacturers on this side the Channel, abandon the horizontal for the vertical type of engine. It is impossible to blind oneself to the fact that those strong powerful concerns on the Continent which have clung obstinately and persistently to the horizontal cylinder, have seen every race of late years, without exception, fall to the cars with vertical engines. While I willingly recognise, as I always have done, the skill and energy of Mr. Austin, I have always been sorry to see him on what, in my opinion, would eventually turn out to be the wrong track. I, however, withheld my opinion until his cars had a fair chance of competing in the open field. If they were unsuccessful, I cannot help it, and with all the good will in the world, I cannot make out Mr. Austin to be the



MR. C. LUPTON, THE MAYOR OF BRADFORD, ON A 16-H.P. PIEPER CAR (see page 470).

competitions. For one and all are unanimous in condemning the horizontal engine for motor-cars.

It is true that Mr. Austin may be right and they may be all wrong, but, at any rate, they have just as much right to their opinion as he has to his. I have just as much right to mine, and I do not propose to allow anybody to dictate to me on the subject. Readers of the *Journal* will remember my last year's criticism on what the well-known Rene Knyff then called the monstrous Napier car, and I do not imagine for an instant that either Mr. Edge or Mr. Napier found my criticism particularly agreeable. It was the weight I criticised, and I advised them strongly and repeatedly to turn their skill and energy in the direction of reducing this. They may, like Mr. Austin, have thought my criticism impertinent and uncalled for, but, at any rate, if this was the case, they were polite enough to keep it to themselves, and in the light of this year's events and the great success they have obtained, I am sure they would be the first to admit that I was right.

To come back to Mr. Austin, he has evidently not read my paragraph with regard to himself carefully enough, for in his

winner of the Gordon Bennett cup, nor even can I class him amongst the cars that arrived in Vienna. Not being able, therefore, to change the facts, I suggested in the columns of the *Journal* that the horizontal cylinder might have something to do with it, and I contend that if Mr. Austin will take my warning as it was intended, and act on it promptly and quietly, he will in my humble opinion find the result as satisfying as the one I have cited above with regard to the Napier car.

TIME is flying by very quickly; improvements in motor-cars are coming very rapidly, and the advance that the maker who is on the most successful lines has got over the others wants a great deal of catching up. It is no excuse whatever for a competitor in one of the public races to say the car was not ready or that he had not had the time, for this remark applies to nearly every car which arrived in Vienna. Indeed I personally know of several cars that were never out on the roads at all until the day before the race, and yet they arrived in Vienna.

TALKING of the passing of the horizontal engine, I noticed that in the "Cirquit des Ardennes," the last of "that bright band," in the shape of Delahaye, had two light cars with vertical

engines in the race, they coming in eighteenth and nineteenth of the whole category, and eleventh and twelfth of their class.

MESSRS. PANHARD AND LEVASSOR, who have acquired the French and British rights in the Lohner-Porsche system of combination petrol-electric cars, have sent a number of men to Vienna to be trained in the construction of these vehicles at Messrs. Lohner's works.

It has been decided that the next automobile exhibition under the auspices of the A.C.F. shall be held in the Grand Palais, Paris, from the 10th to the 25th December next.

THE Dutch Automobile Club will hold a reunion at Scheveningen on the 27th and 28th inst. The programme includes a procession of decorated motor-cars.

LA SOCIÉTÉ DÉPARTEMENTALE DE L'HERAULT pour l'Encouragement à l'Agriculture has decided to organise a "Circuit de l'Hérault," to be held in connection with the Alcohol Exhibition which is being prepared for October next. The competition will consist of consumption trials for automobiles using alcohol as fuel.

M. HENRI DEUTSCH DE LA MEURTHE, who met with a motor-car accident on Monday, when driving from Meulan to Paris, has purchased the light car driven by M. Marcel Renault in the Paris-Vienna Race.

ALL the hotels of the Great Southern Hotels Company, Limited, in Ireland, keep a stock of petrol.

KING LEWANIKA and his party have been enjoying a visit to Balmoral, journeying thither from Ballater on a motor-car.

THE Automobile Supply Company, Limited, has been registered with a capital of £21,000 in 20,000 £1 shares and 20,000 1s. shares.

THE Automobile Club has returned 50 per cent. of the money paid by members for seats to view the Coronation procession—that was postponed.

REPRESENTING Messrs. Bayliss, Thomas and Company, Limited, Mr. H. W. Stevens has concluded a Scottish journey on an Excelsior motor-bicycle.

MESSRS. KIMBALL AND MORTON, LIMITED, of Bothwell Circus, Glasgow, have put down a dynamo for the special purpose of charging the accumulators of motor cars, etc.

AT St. Germain, Paris, oil has been sprinkled over the dusty road, which is much used by motorists. The oil proved very effective in keeping the dust down, and further experiments will be made with it.

AN International Exhibition of the Industrial Appliances of Alcohol is to be held at Lima, and the Peruvian Consul, Southampton, has issued a pamphlet calling attention to the possibilities for the use of alcohol for motor-cars in Peru.

ON the De Dion car of Mr. A. R. Atkey, Lord Belper has had his first long automobile ride, having been driven from the opening of a new asylum at Saxondale, near Nottingham, to his home, ten miles the other side of the great lace centre.

A FIRST-CLASS garage is now connected with the New Pier Mansions Hotel, Grand Junction Parade, Brighton, open free of charge to hotel visitors. There Mr. E. Dudgeon has every convenience for the storage of cars, and can supply petrol, etc.

THE New Grappler Pneumatic Tyre Company, Limited, have issued a new price list of their vulcanised motor tyres. We note that they now stock heavy tyres to carry 1,200 lbs. per wheel, and that for tyres expected to carry more than 250 lbs. per wheel, when loaded, they recommend their own rim, and are prepared to rebuild all wheels with these, provided their own make of tyre is ordered.

THE EDUCATION OF THE HORSE.

THE following suggestions are extracted from a circular which has just been issued by the Automobile Club of America:—

"On meeting a horse, if he throws up his head suddenly and puts his ears forward, he is frightened and will probably shy. If the driver of a motor-car would pull up and, if the horse continues to be frightened, will stop his motor, the horse can be driven past it. The driver of a motor-car, if there is difficulty in getting a horse to go by, should lead the horse past. In doing this the man leading the horse should stand between the automobile and the horse.

The following method of training horses has proved very successful. Select a small square where the road is wide, or a mile of wide road where there are no ditches. Have the horse or horses to be trained driven five or six miles sharply before the lesson begins. A well-fed animal just taken from the stable is apt to cut up on the least provocation. The horse to be trained, if possible, should be harnessed alongside a horse that is accustomed to motor-cars. If this cannot be done he should be driven. It has not been found satisfactory to lead or ride a horse in breaking him in to an automobile.

Send the motor-car along at about six miles an hour. Have the horse follow it at a distance of about 10 feet. Let him follow the car for about fifteen minutes. Then have the horse pass the automobile, leaving it on the right hand. The horse will probably shy a little. Do not attempt, if the road will permit, to hold him up to the motor-car or to whip him on the near side, but let him shy. As soon as he has passed the automobile he will probably break into a run. Do not check him too suddenly, but speak to him, and he will soon come down to a slow trot. Then have the motor-car speeded and pass the horse, leaving him on the right hand. Repeat these operations five or six times for another fifteen minutes.

Next day the morning's proceedings should be repeated for say ten minutes. Then the car should be stopped and the horse should be turned so as to face it. The engine should be run slowly. The horse will shy a little. He should repeatedly pass the car for say ten minutes. Then the automobile should be set in motion slowly and he should pass it for ten minutes more, after which he should be sent to the stable. The occupant of the car should call out to the horse when he is passing, in a loud voice, "Whoa, boy."

The third morning he should be taken out and made to repeat or review all that he has learned on the first and second mornings, which should occupy fifteen minutes. It will be found that he will probably not shy at all. The horn should be blown gently at first and later on vigorously.

It will be found, if these instructions are carefully carried out, that there are but few horses that cannot be made to pass a motor-car at a high rate of speed with safety in three lessons of thirty minutes' duration each. The point we particularly desire to impress is to always let a horse shy in passing a motor-car, if the road will permit. There are occasions where the road is so narrow and the ditch so abrupt that a horse must not only be kept up to the car, but he must be struck smartly with the whip to keep him from turning around and to prevent his capsizing the vehicle in the ditch.

It is quite useless to whip and spur a horse up to a motor-car and to try to force him, by giving him pain, not to be afraid of it. It is also a bad practice, in driving a horse past an automobile, to stop the horse and have the car proceed past him. He is frightened and very apt to turn around. The proper way is to stop the car and let the horse be driven past it. We desire to impress on you, and on all owners of motor-cars, that if the drivers of the same would go slowly in passing horses, and, if they saw that the horses were frightened, would stop, there would be no accidents caused by horses."

HERE AND THERE.

SEVERAL motor-car races—the first of the kind in Portugal—are to be run off at Lisbon on Sunday next.

FROM Autolite, Limited, we have received a copy of the catalogue they have just issued of their Autolite acetylene motor-car lamps and generators.

THE Manchester Automobile Club will have a week-end run to Southport to-day (Saturday), and to Chester on the 6th prox. Runs to Tarporley on the 23rd inst. and to Nantwich on the 20th prox. are also in contemplation.

ON page 468 we reproduce a photo of Mr. C. Lupton, the Mayor of Bradford, going for a spin on a 16-h.p. Pieper car supplied by the Bradford Motor Car Co., of the Drill Hall, Manningham Lane, Bradford, to whom reference was made in our last issue. At the recent Yorkshire Agricultural Show at Leeds the two 8-h.p. Pieper cars exhibited by this company attracted much attention.

As recently recorded in these columns, a company with the title the Oldsmobile Company of Great Britain, Limited, has been formed to introduce the light American "runabout" on to the English market. A depot has recently been opened at 100c, Queen Victoria Street, London, E.C., where a number of these cars can now be inspected. We have already given an illustrated description of the vehicles in the *Journal*, but we may mention that it is fitted with a 4-h.p. horizontal motor, and an exceedingly simple method of gear manipulation. A feature of the Oldsmobile



A HEAVY LOAD ON AN OLDSMOBILE.

is that it is made in one style and one finish only; it weighs complete 7 cwt., and has a range of speed varying from three to twenty miles per hour. Although in general use it is only a two-passenger car, it is so built as to accommodate double that number, by the addition of a dos-a-dos seat at the back, which can easily be attached. Under test, one gallon of petrol has driven an Oldsmobile a distance of forty miles, but thirty-five miles is the average claimed by the company. Mr. Peckham, the manager, informs us that since its introduction on the English market, the Oldsmobile has met a large demand, his only trouble being in getting delivery of the vehicles from America, where they are equally popular.

THE BERG AUTOMOBILE COMPANY is the latest addition to the list of American automobile manufacturing concerns. The company, which has been incorporated under the laws of New Jersey with a capital of £80,000, has made arrangements with three large manufacturing establishments, one to build the various parts on an interchangeable plan, another to make bodies on designs brought from Paris by Mr. Hart O. Berg, and the third to assemble the parts ready for market.

TO-DAY (Saturday) the Irish Automobile Club will hold a run from Dublin to Malahide.

PRINCE ALBERT OF THURN AND TAXIS has just acquired a 20-h.p. German Daimler car.

A COMPANY has just been formed in Brussels to be known as La Societe Internationale des Transports Automobiles.

THE Farman Automobile Co., Limited, has been registered with a capital of £60,000. Among the subscribers are Messrs. W. C. Bersey and A. T. Pering.

WE learn that Mr. J. B. Dunlop, of Dublin, the inventor of the modern pneumatic tyre, has placed an order for one of the new 12-h.p. "Argyll" cars, fitted with "Aster" two-cylinder motor.

IN view of the large number of motor-cars plying for hire in various parts of the country we shall be pleased to receive photographs or snapshots of such vehicles on active service.

ON Monday the Duke of Portland drove from Welbeck in a motor-car to meet Viscount Kitchener at Worksop. On Tuesday they attended the annual show of the Welbeck Tenants' Agricultural Society.

SEVERAL new members have lately joined the Liverpool Self-Propelled Traffic Association, including Sir W. B. Forward and Messrs. Thomas Duncanson and E. R. Pickmere, of the Municipal Offices, Liverpool.

MR. C. JARROTT, the winner of the Ardennes race, landed at Folkestone on Saturday, and came up to London on his racing car. Later in the day he set off to Norfolk, where he has been enjoying a brief holiday.

MESSRS. H. W. VAN RADEN AND CO., of Coventry, have just issued a useful price list of appliances and accessories for electric ignition. Prominent among the articles dealt with are woven glass accumulators, high speed trembler induction coils, contact breakers, and sparking plugs.

TWO competitors in the Paris-Vienna race, Mr. Weigel and Mr. Austin, had the E.I.C. plugs fitted to their cars, and they ran throughout the journey without having to interfere with them in the slightest degree. We understand that the Wolseley Company fit no other plugs than the E.I.C.

IN answer to Mr. J. W. Wood's inquiries regarding his Benz car, Mr. Frank Cox, of Swanley Junction, writes that if Mr. Wood will send or bring his car to him he will put it right on the basis of no cure no charge. Mr. Cox considers himself an expert with the 3½-h.p. Benz and delights in rectifying faulty engines.

AT the Health Exhibition in connection with the Congress of the Sanitary Institute, at Manchester, in September, a special medal will be offered for motor vehicles adapted to the following municipal purposes:—Water carts, road sweeping machines, slop and scavenging cars, dust carts, ambulances and disinfecting vans, and fire engines.

THE Queen Mother of Italy is a philosopher. The other day her motor-car broke down at an obscure little village, and she was delayed five or six hours. Meanwhile the official of the Court of Rome had gone in search of her Majesty, who was ultimately discovered in a garden of a tiny inn seated tranquilly at a table and enjoying an *al fresco* meal.

MESSRS. TURTON BROTHERS, of Smalley, Derbyshire, have sent us a sample tube of Elliot's "Belt Grip," which they have lately introduced. The preparation, which, as the name implies, is intended for use on the belts of motor-cars and cycles, has been tested for two years and has been in actual use during that period, although it has not been put on the market until now. The claims made for it are that it will stop all slipping, that it preserves the belt, and that it will enable a belt to be run even under water. Messrs. Turton state that a belt treated with the preparation can be run slack enough to give an easy drive on the level, and still give a perfect drive uphill. Another result is that, there being less tension on the belt, the connections are not so liable to break.

SEVERAL motor-cars passed through Alnwick on Bank Holiday.

THE Automobile Club of Bordeaux has decided not to organise a race from Paris to Bordeaux this year.

THERE is some talk of organising a trial of heavy motor-vehicles in the United States; it will be the first of the kind in the country.

AN American contemporary refers to the competitors in the Paris-Vienna race as "the dashing heroes of the goggle and peaked cap."

AT the inquest concerning the death of Mr. Harry Walker, of Leeds, who died from injuries received while riding a motor-cycle, a verdict of "Accidental death" was returned.

MR. F. FORSS counted 100 motor-cars go past his residence in the High Street, Maidenhead, on a recent Sunday—a fact he has communicated to the local town council, with a request that a water-cart should be allocated to damp the dust in that thoroughfare.

MR. SHARPE, one of the Brentford magistrates, commenting on the narrowness of the roads, said the other day that His Majesty the King was recently stopped in Brentford High Street for twenty-five minutes, while in his motor-car, owing to a block in the traffic. Brentford, of course, is between London and Windsor.

THERE is some talk of establishing an automobile racing track in the neighbourhood of Spa.

WE had a short run a few days ago in company with Mr. A. Perman on one of the latest 12-h.p. Gladiator cars. Unfortunately a storm somewhat dampened the outing, but during the brief interval of fine weather we had an excellent demonstration not only of the speedy qualities of the car, but also of its hill-climbing capabilities.

THE Watch Committee of the Corporation of Leamington have finally placed the order for a motor tender for the Fire Brigade in the hands of Mr. Charles T. Crowden, of the Motor Works, Leamington. The motive power will be supplied by a four-cylinder petrol motor developing 20-h.p., and capable of propelling the vehicle at a speed of about twenty miles an hour. Four speeds and a reverse motion are included in the transmission gear, which is on the Panhard system. Seats are provided for six men, and provision is made for carrying a small fire escape, scaling ladders, chemical engine, and three hundred yards of hose.

THE Carmarthen Town Council has declined the use of the park for a sports meeting which was to have included a motor-car competition.

It is announced that the proposals of the German Daimler Company, of Cannstatt, with regard to the taking over of the works and business of the Berlin Motorfahrzeug und Motorenfabrik Gesellschaft, of Marienfelde, Berlin, have been accepted by the shareholders of the latter concern.

To go from Nottingham to Coventry and back by train is almost a day's journey, but Mr. G. P. Mills, on his Raleigh 1½-h.p. motor-bicycle, has made the journey there and back several times in 5½ hours, the distance being a little over a hundred miles.

AN order has been issued by the United States Secretary of the Interior excluding motor-vehicles from the Yellowstone Park. It appears that the authorities of the park consider motor-cars to be dangerous, and it is upon their recommendation that the order to exclude them has been issued.

MR. PHILIPSON, of Messrs. Atkinson and Philipson, Newcastle-on-Tyne, with Mr. Rowland Barnett, Mr. Hawdon, and Mr. Kirsopp, took some of the members of the Institution of Mechanical Engineers in motor-cars to see George Stephenson's cottage at Killingworth during the meeting of that body at Newcastle-on-Tyne last week.

THE fourth meeting of the Aero Club of the United Kingdom was held at the Crystal Palace on Wednesday.

ACCORDING to the *Telegraph*, Hyde Park has become a more fashionable drive than the Bois de Boulogne.

THE motor Fire Kill illustrated in last week's *Journal*, has this week taken part in fire brigade demonstration at Leyton.

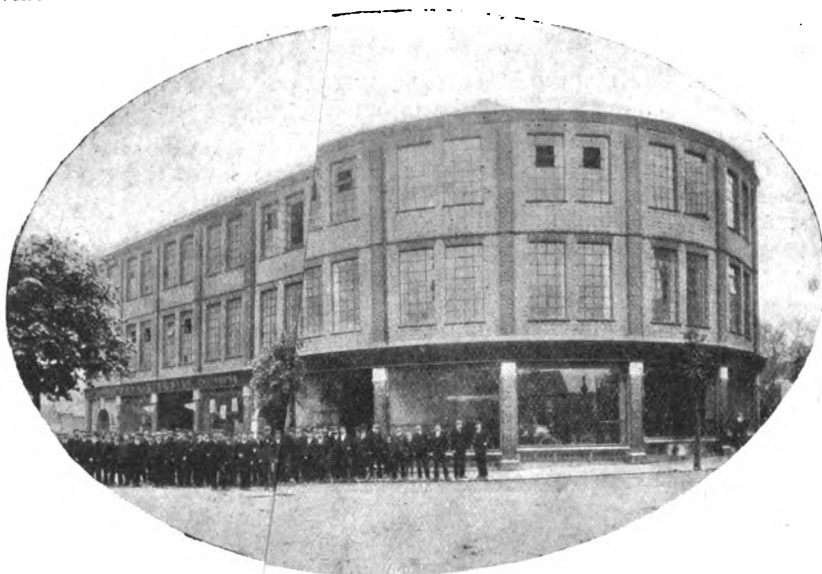
A MOTOR-CAR and a tram-car collided in Biggin Street, Dover, the other afternoon. The damage was chiefly confined to the motor-car.

THE toot-toot of motor-horn was frequently heard in Chichester last week, a large number of cars being in the town for the Goodwood meeting.

MOTOR-CAR bng is one of the objects of the East Anglian Engineering Company, Limited, registered at Stowmarket with a capital of £10,000.

AT the "CinPort" Motor Works, High Street, Sandwich, Mr. A. J. Addis is able to store and repair motor-cars. He is open on Sundays for urgent cases of necessity.

ONE day last week we spent an interesting and instructive hour in going to the new works Messrs. Dennis Brothers, Ltd., have lately completed in Guildford. As will be seen from the accompanying illustration, the new factory occupies a large



area, and at the present time is giving employment to over 100 workmen. With the exception of the motors, practically every part of the Dennis cars is turned out at the works, in which we inspected, among others, the frame building, turning, assembling, plating, and carriage building and painting departments. Mr. R. Dennis, the managing director, informed us that at the present time he has orders on hand for over 100 cars, an eloquent testimony in itself to the popularity of the Dennis motor-vehicles.

THE Western Section of the Scottish Automobile Club will hold a run from Glasgow to Garelochhead on Saturday, the 16th inst.

RA MAKKONEN, the Abyssinian Envoy, whose first ride on a motor-car has already been chronicled in our columns, has been indulging in similar trips in Paris.

THE London Electric Mobile Syndicate, Ltd., has been registered with a capital of £6,000 to develop improvements in electrical and other motor-cars.

THE Motor Union have contributed two amounts of ten guineas each towards the expenses of defending two members of the Nottingham and Scottish Automobile Clubs respectively.

UNDER the name of the Coventry Motor Fittings Company, Messrs. W. S. Tyler and C. Hatfield have commenced business at the East Street Works, Coventry. They are prepared to accept orders for special fittings for all types of motor-cars.

MR. J. WRIGHT, of Saffron Walden, is able to undertake repairs to motor-cars.

A MOTOR-CAR service has been started between Hove and Hove railway station.

THERE are now seventeen hundred and sixty-two members of the Automobile Club of Great Britain.

A GARAGE for motor-cars is being established by Messrs. David McGeoch, coachbuilders, of Paignton.

AT 82, Gloucester Road, South Kensington, Messrs. Rawlings Brothers are executing repairs to motor-cars.

THE Austrian Automobile Club is organising a hill-climbing competition up the Semmering for September 7th next.

A CORRESPONDENCE on the excessive speed of motor-cars seems to be well maintained in some of the Devonshire newspapers.

THE American Georges Richard Company has been formed in New York with a capital of £2,100,000 to manufacture automobiles.

MR. C. L. F. DUHAN, of Yokohama, is at present in the United States, proposes to ride from Peking to Vladivostok by motor-car.

THE Municipality of Johannesburg is considering the advisability of establishing a motor-car service throughout the town and suburbs.

MESSRS. TAMPLIN AND MAKOVSKI, LIMITED, of James Street, Haymarket, W., carry out repairs to automobiles at their Red Hill works.

DURING the twelve months ending on June last 218 automobiles were imported into the United States, of an aggregate value of £101,308.

THE Newport Chamber of Commerce has sent us a copy of their annual report for 1901, which includes a useful commercial guide to Newport, Mon.

THE Bexhill Urban Council has given instructions that proceedings should be taken against owners of motor-cars from Hastings plying for hire in their area.

THE Irish Motor Union is at present arranging a conference with the Irish Cyclists' Association, in order to take over the control of motor cycle racing in Ireland.

THE Motor Union is about to take the case of Mr. de Wilton, who was recently summoned at York to the furious driving of a motor-car, to a higher tribunal.

MOTORISTS in passing through Dumfries will find a store of petrol, lubricating oils, etc., at 21, St. David Street, where Mr. Hugh Rae undertakes repairs of all kinds.

COMPLAINT is made of the noise caused by the motor dust-vans owned by the Corporation of Liverpool as compared with the motor lorries employed by private firms in the city.

IN "Naughty Nancy," with which Miss Cissie Loftus will open her season at the Savoy in September, a motor-car elopement will be an important incident. Miss Loftus is an expert motorist, having driven a car for two years.

A HEAVY vehicle competition between Leipzig and Eisenach, Germany, was run off in two stages last week. There were only five competitors, the winning car being a 9-h.p. De Dietrich omnibus, which occupied 12 h. 10 min. for the journey.

NEW members of the Automobile Club include Baron de Forest, Sir R. Williams-Buckley, Bart., Sir P. F. Rose, Bart., Sir C. McLaren, M.P., Sir A. J. Macdonald, Mr. Arthur Lee, M.P., the Hon. M. S. Bower, Major Ramsay and Major W. Jenks.

THE Maidenhead Advertiser says that motorists passing through the town at a reasonable speed will be permitted to go on their way rejoicing; but they are not likely to be so easily enticed, being perfectly familiar with the story of the Spider and the Fly.

CORRESPONDENCE.

RE BENZ CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to Mr. J. W. Wood's letter in your issue of July 26th respecting his 3½-h.p. Benz car, I should advise him to take the air valve out at the back of the cylinder and give it a thorough grinding, and also fit on a stronger spring. If such does not alter the trouble, I should be inclined to think that the explosion chamber is leaking through the asbestos packing, which makes an air-tight joint between the explosion chamber and the cylinder. The best way to remedy the evil is to disconnect the combustion chamber from the cylinder and make a new joint; also grind down the exhaust valve and see that the spring is not weakened; if so, fit a stronger spring. The mixture might also require altering. I find that a 3½-h.p. Benz car will run on a warm day on a light mixture at a high speed, while on the low speed more gas is required.—Yours truly,

FRANK APPERLEY.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Your correspondent who writes about want of power in a Benz 3½-h.p. engine has my sympathy, for I had the same trouble until I mastered the mysteries of the back valve. I consider that this valve has far more importance than is recognised generally.

Colliery officials tell me that in a pit explosion the explosive effect is much greater nearer the air intake than at the actual seat of explosion. May not a similar effect occur in the Benz engine, which appears to me to require a fairly rich mixture to ignite, but much more air to get a good explosion. In my engine now I have a very heavy explosive, and I can go fast up a smart slope on the top speed, and can tackle hills on the top and second speeds even better than the 4½-h.p. cars—good as they are.

The back valve spring wants to be lighter than the one on the inlet valve with plenty of play, say 3-16 drop on to the check spring. Another point of importance is not to use lubricating oil on the valve stems, but paraffin. There are many other details, too long for this letter, which I would gladly give direct to anyone using the 3½-h.p. Benz car.—Yours truly,

R. M. H. WALFORD.

HANDICAPPING MOTOR RACES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read Mr. Van Hooydonk's remarks, and I can only say that if a 76 by 76 engine does not beat a 70 by 70, why then it ought to. The owner, driver, or somebody is not getting the proper efficiency out of it, and the 70 by 70 engine and its rider are all the more entitled to the race. I advocate the cubic contents because, firstly, diameters are so deceiving; secondly, because diameter and stroke are two quantities; and thirdly, because the engine ought to be (and generally is) proportional to the volume swept out by the piston on the exhaust.

It is much easier to compare the two engines cited by calling one 344 and the other 268.8. I consider the 344 engine beats the 268.8 over two minutes in ten miles.—Yours faithfully,

C. R. GARRARD.

BRITISH WORKMANSHIP.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It is gratifying to find from your correspondent's letter that the British public are at last beginning to realise the excellence of British workmanship. The Napier has clearly demonstrated its qualities, and there are many other firms who, if they do not go in for racing, turn out a splendid article. I have recently received delivery of a Progress light car, fitted with a 9-h.p. De Dion motor. With the exception of the engine, it is Coventry-made throughout. When I peer into every nook and cranny, I cannot discover a single bit of bad, careless, or inferior workmanship. This is saying a good deal, and I challenge any of the light foreign cars to outlive it in point of longevity. This particular car can do a mile in 1 min. 50 sec. on a good road, and eight miles in 20 min. on an up-and-down one. Is not that good enough for ordinary motorists? The price, too, is strictly moderate. I have no interest in any particular car, and merely quote this, as hitherto I consider our British manufacturers have not been appreciated at their full worth by their countrymen. Let us hope they will soon change their attitude, and buy at home instead of rushing over to Paris, where outward show often takes the place of intrinsic merit.—Yours faithfully,

M. E. KENNARD.

PROPOSED LEGISLATION.

MR. NORMAN D. MACDONALD, of Edinburgh, has sent us the following copy of a letter he has addressed to the Executive Committee of the A.C.G.B.I. :—

[COPY.]
The Executive Committee, A.C.G.B.I.

SIR,—I see you are considering letters as to the Bill before the House of Commons. I want to make it clear that I write as an individual, and not as the Chairman of the Scottish Automobile Club. At the same time, I think I express the mind of most of the S.A.C. members in my general remarks.

The proposal to number or name motor-cars is a most objectionable

one, both in principle and practice. If it were made part of a general law which compelled all private vehicles to carry numbers I should have nothing to say, except as a person of taste. To brand one class of pleasure or business vehicles as specially dangerous, or likely to be cad-driven, or whatever the point is, gives away not only our principles but our whole case. Once we have submitted to this indignity the sad experience of British conservatism makes it pretty certain that it can never be undone. The whole thing most needlessly strikes at the freedom of the subject by forcing him to put on to his property a hideous thing which he does not want.

In practice it will be worse. To the common and job-desiring policeman it will only suggest that some stigma of special wickedness (or tendency to) is attached to motor-cars by the wisdom of Crown and Parliament; and to your English J.P.'s it will be the certain sign that these "novelties" come into the catalogue of things to be severely dealt with in the public interest, like drunken cabmen and the street vendor who uses the bag of deceitful weights. The last state will then be worse than the first, because, after all, when we do come under the ordinary law it is the Bench who must decide on the evidence whether it was a case of danger or public nuisance in each prosecution. To be put under common-sense law *plus* a mark of Cain will not make half-educated and instigated witnesses any better, nor help an oath-breaking magistrate to hold the scales of justice more level, or to keep his eyes blindfolded to his own stupid, narrow prejudices.

The whole matter is being rushed at in needless haste. The general body of autocarists have not asked for such things, and no time has been given for the public of this very slow country to educate itself. This is in very rapid progress now, and I strongly urge that the whole thing should be hung up for, say, eighteen months, and then, possibly, a Bill introduced to remove the "fourteen miles an hour," and to place us neither better nor worse than any other moving body on the roads; and also in England and Ireland to introduce the Scottish law and procedure, so far as it can be, as to appeals, etc. I fear it is hopeless to get England to cast off the yokes of untrained and unpaid magistrates, or the prosecutor, who is merely a policeman or a revengeful member of the public who walks into court off the street, in favour of high-class skilled servants paid and appointed by the Crown, who have no duty to perform except to see strict justice done, such as we happily have, and always had, in Scotland.

After all, we are getting along well enough. Except in certain districts just round London I think the public mind seems all in favour of us now; and I do not think any serious or stupid tactics of persecution have been practised on road or bench outside those limited districts, or if there were a few such, they are buried history now.

London and the South of England are the home of probably the most conservative, slow, and non-mechanical civilised race extant, and they will only come round either when they cannot help it, or their pockets are touched. But they must have time, and be treated with good temper. To throw sops to them in the shape of placques with fine bold figures will only stiffen their necks and give them excuses for blind hatred translated into actions.—I remain, yours faithfully,

NORMAN D. MACDONALD.

DOCTORS AND MOTOR-CARS.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—Doctors are usually poor business men, and in the selection of motor-cars may be expected, in the majority of instances, to make the common mistake of buying a vehicle because it is attractive to the eye and is cheap, rather than because, after a thorough investigation, competent experts have declared it to be a practical vehicle that has passed the experimental stage.

There could be no greater mistake than for the physician of average means to buy a cheap car. They are the most expensive in the long run. I have owned two, and my first venture was the purchase of a £150 machine that two experts were unable to keep in running order. My second purchase was a car which cost me £250. After using it for six months and covering 3,000 miles I have gained an experience which has cost me £60 approximately, and will enable me to make some statements for prospective purchasers that may add something to the knowledge of this subject.

In the case of a doctor whose time is never his own, it will be necessary to employ a man and train him to take care of the car. There could be no greater fallacy than the suggestion that a motor-car is a simple machine to care for. There are many parts in a petrol car that require frequent examination and adjustment; besides, the machine needs daily washing and oiling and refilling with petrol, as well as the cleaning of exposed working parts, which become covered with dust or mud, and unless carefully attended to are subject to rapid deterioration. A doctor whose practice the entire year demands the use of but one horse might find time enough to properly look after his own motor-car. The doctor with a practice that is worth not less than £600 a year will need two horses, and when two horses are necessary the motor-car becomes in my opinion an economical factor.—Yours truly,

COUNTRY DOCTOR.

THE Rhode Island Automobile Club has decided to hold a race meeting at Narragansett Park, in September.

THE WELBECK MEET.

By permission of the Duke of Portland, the Automobile Club of Great Britain and Ireland organised a series of motor speed trials at Welbeck on Thursday, the 7th, over a specially constructed course one kilometre in length. The competing vehicles were weighed, at the public weighing machine, Derby Road, Nottingham, on Wednesday afternoon and evening, and the races commenced at 10.30 p.m. on Thursday under the supervision of a committee of which Mr. Mark Mayhew, L.C.C., was chairman and Mr. A. F. Bird vice-chairman, Mr. Warner Turner (agent to the Duke of Portland) and Mr. S. F. Edge were hon. marshals of the course, the Nottingham Automobile Club acting as hon. local representatives of the organising club. The following were the entries in the different events:—

TOURIST SECTION.

Class A.—MOTOR CYCLES (Handicap), open to motor-cycles of all kinds, irrespective of weight, power, or number of wheels, provided that they weigh under 250 kilos. (4 cwt. 3 qr. 20 lb.).

Entered by.	Maker.	B.h.p.	Weight.	Rider.
E. H. Arnott ..	Werner ..	2	110 lbs.	E. H. Arnott.
Wm. Exe ..	Ormonde ..	1½	108 lbs.	E. H. Lancaster.
E. Iliffe ..	Daw ..	2½	153 lbs.	F. R. Wade.
H. Belcher ..	Humber ..	2	135 lbs.	B. Yates.
E. L. Leman ..	Bovey ..	2	112 lbs.	Collins.
S. F. Edge ..	Werner ..	2	110 lbs.	West.
A. Dixon ..	Orient ..	2½	180 lbs.	W. R. Wills.
L. Savory ..	Orient ..	3	170 lbs.	Green.
.. ..	Orient ..	3	180 lbs.	Westlake.

Class B.—SCRATCH RACE for LIGHT CARS (except steam and electric cars).

Entered by.	Maker.	B.h.p.	No. of Seats.	Weight. cwt. qr. lb.	Driver.
R. Dennis ..	Dennis ..	10	2	10 2 20	R. Dennis.
J. Clifford ..	Beaufort ..	12	4	13 2 0	C. Lorenzen.
W. J. Crampton ..	Decauville ..	10	2	11 2 0	R. Moffat Ford.
S. F. Edge ..	Gladiator ..	12	2	11 3 0	A. E. Perman.
C. H. Guest ..	De Dion ..	8	4	13 0 0	C. H. Guest.
Harvey du Cros ..	Ariel ..	10	4	13 2 0	H. du Cros.
W. E. Nicholson ..	Gladiator ..	12	2	11 3 0	W. E. Nicholson.
F. Guy Lewin ..	Baby Peugeot ..	5	2	6 2 0	C. Friswell.

Class C.—MEDIUM CARS (except steam and electric cars). Scratch Race.

Entered by.	Maker.	B.h.p.	No. of Seats.	Weight. cwt. qr. lb.	Driver.
Wm. Exe ..	New Orleans ..	14	4	16 0 0	Wm. Exe.
W. D. Astell ..	New Orleans ..	15	3	15 3 0	W. D. Astell.
M. Stephens ..	Panhard ..	20	4	15 0 0	M. Stephens.
Capt. Langrishe ..	Panhard ..	7	4		Capt. Langrishe.
C. W. Pennell ..	Durkopp ..	16	4	16 0 0	C. W. Pennell.
Dr. E. E. Lehwess ..	Watsonia Durkopp ..	19	4	16 2 0	Frentzel.
Chas. Sangster ..	Ariel ..	20	3	15 1 0	Chas. Sangster.
M. Ross Browne ..	Panhard ..	10	4	15 0 0	M. Ross Browne.
Earl Shrewsbury ..	Clement ..	16	2	13 3 0	D. M. Weigel.
and Talbot.					

Class D.—Cars weighing 17 cwt. and over (except steam and electric cars).

Entered by.	Maker.	B.h.p.	No. of Seats.	Weight. cwt. qr. lb.	Driver.
J. M. Gorham ..	Daimler ..	22	5	23 0 0	J. M. Gorham.
E. M. C. Instone ..	Daimler ..	22	4	23 2 0	E. C. M. Instone
A. Burgess ..	M.M.C. ..	24	2	over 17 cwt.	J. Holland.
C. C. Maudslay ..	Maudslay ..	25	4	22 0 0	C. C. Maudslay or A. Craig.
G. Cornwallis ..	Brush ..	20	4	19 0 0	G. Cornwallis-West.
Hon. C. S. Rolls ..	Panhard ..	24	4	23 0 0	de Silva.
J. A. Holder ..	Napier ..	16	4	24 0 0	J. A. Holder.
Dr. E. E. Lehwess ..	Watsonia Durkopp ..	22	4	23 0 0	Frentzel.
E. Midgley ..	Napier ..	24	4	28 2 0	E. Midgley.
M. Ross Browne ..	Humber ..	18	4	Over 17 cwt.	M. Ross Browne.
L. Williamson ..	Daimler ..	26	4	35 0 0	L. Williamson.

Class E.—SCRATCH RACE for Touring Steam Cars.

Entered by.	Maker.	B.h.p.	No. of Seats.	Weight. cwt. qr. lb.	Driver.
J. W. H. Dew ..	Serpollet ..	10	4	18 0 0	Hardy.
J. W. H. Dew ..	Serpollet ..	10	4	18 0 0	J. W. H. Dew.
J. W. H. Dew ..	Serpollet ..	10	4	18 0 0	J. H. W. Dew.
J. W. H. Dew ..	Serpollet ..	10	4	18 0 0	A. J. Dew.
H. J. Swindley ..	Weston ..	6	2	7 2 10	W. Gutmann.
Wm. Letts ..	Locomobile ..	5½	2	6 1 20	Wm. Letts.
Wm. Letts ..	Locomobile ..	5½	2	6 1 20	Albert Ginder.
C. Peache ..	Gardner-Serpollet ..	20	4	18 0 0	F. Smith.
J. B. Stanford ..	Locomobile ..	8	2	10 0 0	J. B. Stanford.

In all the foregoing classes a silver medal will be awarded the winner, and a bronze medal the second arrival.

SPEED SECTION.

Class G.—SCRATCH RACE for MOTOR-CYCLES, irrespective of weight, power, or number of wheels, provided that the vehicle weighs less than 250 kilos. (4 cwt. 3 qr. 20 lb.).

Prizes.—The winner receives £10 in cash, provided that, if there are not three starters, the winner covers the flying kilometre in 63.4-5 seconds = 35 miles per hour. Second will receive a silver medal.

Entered by.	Maker.	B.h.p.	Weight.	Rider.
			cwt. qr. lb.	
T. L. Spencer ..	De Dion Tricycle ..	6	2 3 20	T. L. Spencer.
L. Savory ..	Orient ..	3	1 2 12	Westlake.
Cecil Edge ..	De Dion Bouton ..	6	4 0 0	Cecil Edge.
E. Iliffe ..	Daw ..	2½	1 1 13	F. R. Wade.
H. Belcher ..	Humber ..	3	1 0 23	B. Yates.
Earl Shrewsbury ..	Clement ..	2		Derny.
and Talbot.				
E. L. Leman ..	Bovey ..	2	1 0 0	Collins.
L. Savory ..	Orient ..	2½	1 2 18	Green.

MOTOR-CYCLE RACE between Mr. Chas. Jarrott and Mr. R. Jackson.

Class H.—SCRATCH RACE for RACING VOITURETTES.—Vehicles under 400 kilos. (7 cwt. 3 qr. 14 lb.), except steam and electric cars. Over the whole course. Driver only, no second passenger.

Prizes.—The winning car to receive £10 in cash, provided that, if there are not three starters, the winner covers the kilometre in not more than 55 sec. = 40 miles per hour. The second to receive a silver medal.

Entered by.	Maker.	B.h.p.	No. of Seats.	Weight.	Driver.
				cwt. qr. lb.	
Alec Govan ..	Argyll ..	8	2	7 3 0	Alec Govan.
J. T. Overton ..	Georges Richard ..	10	1	7 3 0	J. T. Overton
A. W. Heard ..	Century Tandem ..	5½	2	6 0 0	T. Emmerson.
H. T. Edwards ..	Renault ..	5	1	7 0 0	H. T. Edwards.
R. Jackson ..	De Dion ..	8	2	5 1 0	R. Jackson.
J. W. Stocks ..	De Dion Bouton ..	10	1	6 2 10	J. W. Stocks.
Earl Shrewsbury ..	Clement ..	12	1	392 kilos.	Volatum.
and Talbot.					

Class J.—LIGHT RACING CARS.—Vehicles under 650 kilos. (12 cwt. 3 qr. 5 lb.) except steam and electric cars.

Prizes.—The fastest car to receive £20 in cash, provided that, if there be not two starters, the winner covers the flying kilometre in not more than 49 sec. = 45 miles per hour. The second to receive a silver medal.

Entered by.	Maker.	B.h.p.	No. of Seats.	Weight.	Driver.
				cwt. qr. lb.	
R. L. Elliott ..	Dechamps ..	20	2	12 2 11	Rene Cozic.
Hon. C. S. Rolls ..	Darracq ..	20	2	12 2 4	Baras.
Sir J. Pender, Bt. ..	Darracq ..	20	2	12 2 16	Edmond.
Capt. Lloyd ..	Darracq ..	20	2	12 2 8	Papillon.
E. W. Hart ..	Darracq ..	20	2	12 2 0	Wehrle.
Earl Shrewsbury ..	Clement ..	16	2	12 2 0	D. M. Weigel.
and Talbot.					
W. J. Crampton ..	Decauville ..	22	2	12 0 0	Thery.

Class K.—RACING CARS weighing less than 1,000 kilos (19 cwt. 2 qr. 20 lb.), except steam and electric cars.

Prize.—The owner of the fastest car to receive £40 in cash, provided that, if there are not three starters, the kilometre is covered in not more than 40 sec. = 55 miles per hour. Second Prize, silver medal.

Entered by.	Maker.	B.h.p.	No. of Seats.	Weight.	Driver.
				cwt. qr. lb.	
Chas. Jarrott ..	Panhard ..	70	2	19 1 26	Chas. Jarrott.
				(990 kilos.)	
W. G. Crombie ..	Gen. M. C. Co. ..	40	1	16 0 0	Arthur Wood.
H. Austin ..	Wolseley ..	45	2	Under 1,000	H. Austin.
				kilos.	
H. Austin ..	Wolseley ..	30	2	" "	H. Austin.
H. Austin ..	Wolseley ..	30	2	" "	H. Austin.
Richard von Stern ..	Mercedes ..	40	2	" "	Richard von Stern.
Hon. C. S. Rolls ..	Mors ..	40	2	" "	Hon. C. S. Rolls.
Marquis de la Mors ..	Ferte Meun ..	30	2	" "	Marquis de la Ferte Meun.
L. Girardot ..	C. G. and V. ..	—	—	" "	L. Girardot.
Talbot Clifton ..	Panhard ..	70	2	" "	H. Farman.

Class L.—SCRATCH RACE for the Fastest Vehicle.—Race for motor-vehicles of any power or weight, propelled by any form of motive power, and open to vehicles which are also running in any other class.

Prizes.—The winner will receive £20 in cash, and will become the holder of the "Autocar" Challenge Cup, provided that, if there are not three starters, the kilometre is covered in not more than 40 sec. = 55 miles per hour. (The cup becomes the property of the owner of the car winning it two years in succession, or three times in all.)

Entered by.	Maker.	B.h.p.	No. of Seats.	Weight.	Driver.
				cwt. qr. lb.	
A. W. Heard ..	Century Tandem ..	5½	2	6 0 0	T. Emmerson.
H. Austin ..	Wolseley ..	30	2	Under 1,000	H. Austin.
				kilos.	
Chas. Jarrott ..	Panhard ..	70	2	19 1 26	Chas. Jarrott.
Clement Peache ..	Perry Keene ..	150	2	18 0 0	L. Perry Keene.

W. G. Crombie ..	Gen. M. C. Co. ..	40	1	16 0 0	Arthur Wood.
H. Austin ..	Wolseley ..	45	2	Under 1,000	H. Austin.
				kilos.	
H. Austin ..	Wolseley ..	30	2	" "	H. Austin.
Richard von Stern ..	Mercedes ..	40	2	" "	R. von Stern.
				kilos.	
Hon. C. S. Rolls ..	Mors ..	40	2	" 10 2 20	Hon. C. S. Rolls.
W. Letts ..	Locomobile ..	—	2	" "	A. Ginder.
L. Girardot ..	C. G. and V. ..	—	—	" "	L. Girardot.
Talbot Clifton ..	Panhard ..	70	2	Under 1,000	H. Farman.
				kilos.	
E. W. Hart ..	Darracq ..	20	2	12 2 0	Wehrle.
J. W. H. Dew ..	Serpollet ..	10	4	18 0 0	J. W. H. Dew.
J. W. H. Dew ..	Serpollet ..	10	4	18 0 0	A. J. Dew.
J. W. H. Dew ..	Serpollet ..	10	4	18 0 0	A. J. Dew.
J. W. H. Dew ..	Serpollet ..	10	4	18 0 0	Hardy.
Hon. C. S. Rolls ..	Darracq ..	20	2	12 2 4	Baras.
Capt. Lloyd ..	Darracq ..	20	2	12 2 8	Papillon.
Sir J. Pender, Bt. ..	Darracq ..	20	2	12 2 16	Edmond.

Class M.—GENERAL HANDICAP.—Open to all classes of vehicles, irrespective of weight, and whether they have or have not taken part in other competitions.

Prizes.—The winner to receive a ten-guinea cup, presented by Mr. Anzi Lorenzo Barber. Second Prize, silver medal.

In the General Handicap heats will be drawn, and as far as possible a scratch vehicle will be put in each heat.

Entered by.	Maker.	B.h.p.	No. of Seats.	Weight.	Driver.
				cwt. qr. lb.	
W. Letts ..	Locomobile ..	10	2	15 1 0	Albert Ginder.
G. Cornwallis ..	Brush ..	20	4	19 0 0	G. Cornwallis.
				West.	
H. Austin ..	Wolseley ..	30	2	Under 1,000	H. Austin.
				kilos.	
Chas. Jarrott ..	Panhard ..	70	2	19 1 26	Chas. Jarrott.
H. T. Edwards ..	Renault ..	5	1	7 0 0	H. T. Edwards.
E. H. Arnott ..	Werner ..	2	1	0 3 26	E. H. Arnott.
S. F. Edge ..	Gladiator ..	12	2	11 3 0	A. E. Perman.
C. Cordingley ..	M.M.C. ..	12	4	24 3 0	Budd.
Wm. Exe ..	New Orleans ..	14	4	16 0 0	Wm. Exe.
J. W. H. Dew ..	Gardner ..	10	4	18 0 0	J. W. H. Dew.
	Serpollet ..				
J. W. H. Dew ..	Gardner ..	10	4	18 0 0	A. J. Dew.
	Serpollet ..				
R. Dennis ..	Dennis ..	10	2	10 2 20	R. Dennis.
W. G. Crombie ..	Gen. M. C. Co. ..	40	1	16 0 0	Arthur Wood.
H. Austin ..	Wolseley ..	45	2	Under 1,000	H. Austin.
				kilos.	
H. Austin ..	Wolseley ..	30	2	" "	H. Austin.
W. D. Astell ..	New Orleans ..	15	3	" 15 3 0	W. D. Astell.
R. von Stern ..	Mercedes ..	40	2	Under 1,000	R. von Stern.
				kilos.	
Hon. C. S. Rolls ..	Panhard ..	24	4	23 0 0	de Silva.
Hon. C. S. Rolls ..	Mors ..	40	2	Under 1,000	Hon. C. S. Rolls.
				kilos.	
A. Burgess ..	M.M.C. ..	24	2	Over 17 cwt.	F. Holland.
R. E. Phillips ..	Rochet ..	6	2	15 0 0	R. E. Phillips.
	Schneider ..				
E. Midgley ..	Napier ..	24	4	28 2 0	E. Midgley.
J. W. Stocks ..	De Dion ..	10	1	6 2 10	J. W. Stocks.
	Bouton ..				
F. W. Peckham ..	Oldsmobile ..	4	2	7 0 16	F. W. Peckham.
Harvey du Cros ..	Ariel ..	10	4	13 2 0	H. du Cros.
Chas. Sangster ..	Ariel ..	20	3	15 1 0	Chas. Sangster.
Cecil Edge ..	De Dion ..	6	1	4 0 0	Cecil Edge.
	Bouton ..				
R. R. Latham ..	Baby Peugeot ..	—	2	7 3 0	R. R. Latham.
E. P. Reynolds ..	Napier ..	24	5	—	E. P. Reynolds.
Alec Govan ..	Argyll ..	8	2	7 3 0	Alec Govan.
L. Girardot ..	C. G. and V. ..	—	—	—	L. Girardot.
Talbot Clifton ..	Panhard ..	70	2	Under 1,000	H. Farman.
				kilos.	
L. Williamson ..	Daimler ..	26	4	35 0 0	L. Williamson.
W. J. Crampton ..	Decauville ..	22	2	12 0 0	Thery.
J. W. H. Dew ..	Serpollet ..	10	4	18 0 0	A. J. Dew.
J. W. H. Dew ..	Serpollet ..	10	4	18 0 0	Hardy.
Hon. C. S. Rolls ..	Darracq ..	20	2	12 2 4	Baras.
Capt. Lloyd ..	Darracq ..	20	2	12 2 8	Papillon.
Sir J. Pender ..	Darracq ..	20	2	12 2 16	Edmond.
Frank Lawson ..	Daimler ..	28	5	30 0 0	Frank Lawson.

RACING STEAM CARS.

Class N.—STEAM CARS weighing under 650 kilos. (12 cwt. 3 qr. 5 lb.).

Prizes.—The fastest car to receive the "Holder" ten-guinea prize, presented by Mr. J. A. Holder, of Pitmaston, Moor Green, Birmingham, provided that the winner covers the flying kilometre in not more than 49 sec. = 45 miles per hour. The second to receive a silver medal. No prize to be given unless there are three starters of different types.

Entered by.	Maker.	B.h.p.	No. of Seats.	Weight. Cwt. qr. lb.	Driver.
J. B. Stanford..	Locomobile	8	2	10 0 0	J. B. Stanford.

Class O.—STEAM CARS weighing 650 kilos. (12 cwt. 3 qr. 5 lb.) and upwards, but not more than 1,000 kilos. (19 cwt. 2 qr. 20 lb.).

Entrance Fee.—Three guineas. The winner to receive the Salsbury ten-guinea prize, presented by Messrs. Salsbury and Son, Limited, provided that, if there are not two starters, the flying kilometre is covered by the winner in not less than 40 sec. = 55 miles per hour. The second to receive a silver medal. No prize to be given unless there are three starters of different types.

Entered by.	Maker.	B.h.p.	No. of Seats.	Weight. Cwt. qr. lb.	Driver.
W. L. Creyke ..	Serpellet ..	120	2	18 0 0	W. L. Creyke.
W. Letts ..	Locomobile	10	2	15 1 0	A. Ginder.

COMPETITION FOR THE CAR HAVING THE BEST APPEARANCE.

For the best-looking turn-out, but not decorated with flowers or ribbons or otherwise. The winner to receive a silver cup presented by Mr. Chas. Cordingley, proprietor of the *Motor-Car Journal*.

Entered by.	Description.	No. of Seats.
E. W. Peall ..	8 h.p. Renault ..	4
W. J. Peall ..	12 h.p. Daimler ..	4
Ernest Owers ..	16 h.p. Napier ..	4
F. W. Peckham ..	4 h.p. Oldsmobile ..	2
C. Cordingley ..	12 h.p. M.M.C. ..	4
W. D. Astell ..	14 h.p. New Orleans ..	4
Michael Stephens ..	16 h.p. Panhard ..	4
J. A. Holder ..	16 h.p. Napier ..	4
H. R. Beeton ..	7 h.p. Panhard ..	4
A. E. Thompson ..	12 h.p. Darracq ..	4
E. P. Reynolds ..	16 h.p. Napier ..	5
S. R. Bailey ..	10 h.p. Miesse ..	4
L. Williamson ..	24 h.p. Daimler ..	4
E. W. Hart ..	12 h.p. Darracq ..	4

MOTOR-CYCLE RACING.

THERE were nearly 10,000 spectators at the motor, bicycle, and athletic meeting held under the auspices of the Argyle Athletic Club, at Devonport, on Monday. The attraction of the meeting was undoubtedly the motor-cycles, the various machines of the competitors attracting a great deal of interest. The following events were run off:—

Five mile motor handicap, open to light motors, 1½ h.p. and under. C. G. Garrard (Clement-Garrard) won the first heat against T. H. Tessier. In the second heat B. Yates (Humber) beat E. Moon and F. Fordet (both Clement-Garrards), in 10 min. 17 2-5 sec. F. Shakespeare, on a Clement-Garrard (50 sec.), won the third heat. The final proved very interesting, but Yates had the race in his own hands, catching up and passing the others several times. Shakespeare was second, and Fritz and Philipstal third, G. R. Garrard having dropped out towards the end. Time, 9 min. 13 2-5 sec.

Five miles scratch race, open to all classes of motor-bicycles. B. Yates, on a 2½ h.p. Humber, easily won the first heat, Victor Rigal, on his huge 10-h.p. Buchet, being unable to catch up owing to a defect in the motor, having to drop out at the end of the nineteenth lap. Time, 8 min. 20 sec. C. G. Garrard, on a 2½ h.p. Clement-Garrard, won the second heat three laps ahead of G. Heath, on an Onward. Time, 7 min. 45 2-5 sec. Final: 1, Garrard; 2, Yates; 3, Heath. Garrard started off with a great spurt, and got a lap ahead of Yates. He went on at a tremendous pace, but Yates caught him, and at about the tenth lap was half a lap behind Garrard. This distance was practically maintained to the end, Garrard winning by a third of a lap. Heath was third, three laps behind the winner. Victor Rigal then gave an exhibition mile ride on a motor-tricycle, doing the distance in 1 min. 48 sec.

Five mile scratch international contest for the Argyle Vase, value twenty-five guineas, to be won outright, open to all classes of motors. In the first heat Garrard, Yates, and Rigal started. Yates spurred ahead at first, and then dropped behind, Rigal being first for a few laps. Owing, however, to belt troubles, he had to retire. A most exciting contest followed between Garrard and Yates, the former getting ahead of Yates, and winning by a yard or so.

A sports meeting was held on the grass track at the Central Grounds-Hastings, on Monday, before some thousands of spectators. For the first time in the history of the borough motor-cycling was included, the event being a two-mile handicap. The results were as follows:—Heat 1: A. Pierson, 1½ h.p. Minerva; time, 6 min. 32 4-5 sec. Heat 2: P. Mansbridge, 1½ h.p. Cinque Ports; time, 5 min. 17 1-5 sec. Heat 3: A. Willsher, 1½ h.p.; time, 6 min. 12 3-5 sec. Final heat: Mansbridge, 1; Willsher, 2; time, 4 min. 38 sec.

THERE was a very large gathering at the Memorial Grounds, Canning Town, E., on Monday, when the members of the Thames Ironworks C. and A.C. brought off a most successful meeting, considerable interest being shown in the motor-cycle events. F. W. Chase was the "star" performer. Not content with establishing a new record in the five miles motor-cycle handicap, which he won in 6 min. 10 sec., against H. Martin's previous best of 6 min. 58 sec., he turned out later in the day

and made an attempt on the five miles flying start record. In this he was successful all along the line, for, after covering the opening mile in 1 min. 11 3-5 sec., he went on and finished the full distance in 5 min. 50 3-5 sec. This was 54 1-5 sec. better than his own former figures of 6 min. 44 4-5 sec., and the performance was received with great applause and cheering. In the course of the race Chase covered a mile in 1 min. 9 2-5 sec., which is a world's record. Before achieving this wonderful performance he had ridden a mile in the handicap in 1 min. 10 sec., which was a record until broken by himself.

The following are the results of the various races:—Five miles motor handicap (standing start): F. W. Chase, 4½ h.p., scratch, first; H. Martin, 2½ h.p., 30 sec. start, second; H. A. Collier, 2½ h.p., 1 min., third; A. Parry, 2-h.p., 1 min., fourth. Won by a lap and a half; half a length between second and third. Actual time of winner, 6 min. 10 sec.; Martin's time was 7 min. 32 sec.; Collier's, 7 min. 40 sec.; and Parry's, 8 min. 44 2-5 sec. Chase's times for the various distances were: One mile, 1 min. 27 1-5 sec. (old record 1 min. 32 4-5 sec.); two miles, 2 min. 37 1-5 sec.; three miles, 3 min. 47 4-5 sec.; four miles, 4 min. 58 1-5 sec.; five miles, 6 min. 10 sec. Five miles motor record (flying start): F. W. Chase made an attempt to lower the record established by H. Martin on the Memorial Grounds, Canning Town, on July 19th last year. Martin's time on that occasion was 6 min. 44 4-5 sec. Chase beat Martin's record all the way and covered the distance in 5 min. 50 3-5 sec. Five miles motor scratch race: H. Martin, first; H. A. Collier, second; A. Parry, third. Won by half a lap; two laps between second and third. Time, 7 min. 3 2-5 sec.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	FINES.
Birmingham ...	W. L. Wynn, Edg. baston	14 m. h. p.	10s. and costs.
Daresbury	H. Ratcliffe Kendal	20 m. p. h.	5s. and costs.
Slough	E. Zereza, Brompton Road, S.W.	17 m. p. h.	£5.
Stratford-on-Avon	E. de Normanville, Leamington	25 m. p. h.	Dismissed.
Wood Green, N.	L. Hedgeson	Above legal limit.	40s. and costs.
Watford ...	F. Halfeld, Harrow	" "	£2 and £1 5s. 6d. costs
Buckingham ...	F. Whitworth, Biddlesden	22 m. p. h.	Dismissed.
Guildford ...	Viscount Ingestre	Above legal limit.	£3.
Huntingdon ...	Rev. A. Armitage, Guildford	21 m. p. h.	£3 and 3s. costs.
"	A. Seeney, Dorset Square, N.W.	26 m. p. h.	£5 and 3s. costs.
*Stonehouse ...	T. Guilford, Stroud	20 m. p. h.	£3 2s. 6d.
*Northampton	E. T. Arnott, Northampton	Above legal limit.	£5 and costs.

* Motor-cycle cases.

MR. EDWARD ARNOTT has been fined £5 and costs for exceeding, as alleged by a Northampton county constable, twenty miles an hour up a hill of one in eight gradient. Mr. Arnott was riding a two-cylinder motor-bicycle, newly introduced by the Princeps Autocar Company, and stated he knew his motor was a powerful one and consequently drove very carefully throughout the ride in question.

At the Birmingham Police Court, W. L. Wynn, Barnsley Road, Edg-baston, has been summoned for furiously driving a motor-car. Police-constable Doyle, who appeared in cycle costume, stated that on July 21st he saw defendant driving his motor-car along the Hagley Road, at a speed dangerous to passengers. The officer added that the rate of sixteen miles an hour was maintained for a distance of 300 yards, commencing at Sandon Road. He rode alongside the motorist, who promptly told him that he was equally liable for riding furiously on his bicycle. Another policeman cyclist named Crossley corroborated, adding, in reply to Mr. Hailwell Rogers, that the road was fairly crowded, and that people were crossing and recrossing all the time. Defendant stated that he was travelling at a reasonable speed—he thought nine or ten miles an hour at the outside. The magistrates considered the case proved, and imposed a fine of 10s. and costs.

At Stratford-on-Avon, Edgar de Normanville, engineer, of Leamington, was summoned for driving a motor-car at a furious rate. Police-constable Booton said he saw defendant on the Stratford and Warwick road, and the car was being driven at the rate of twenty-five miles an hour. Defendant said he had driven motor-cars for over three years, and had never had a complaint made against him. The owner of the car would make a present of the machine and £100 to any person who could drive at a greater speed than 14 miles along the level. Expert evidence was given to bear out this testimony, and the case was eventually dismissed.

In the case against Mr. S. Leeney, at Huntingdon, the police constable acknowledged that he got out from behind a tree when the car was about a hundred yards away.

VISCOUNT INGESTRE, of the Royal Horse Guards, was one of seven defendants at Guildford on Saturday who were fined £3 each for driving their motor-cars above the regulation speed on the Ripley Road. Police-sergeant Jarrett, who, with his stop watch, was the witness in each case, informed the Bench that "he did not stop anything travelling under eighteen miles an hour."

SEQUELS TO ACCIDENTS.

THE Rev. F. Townsend, 76, Princess Road, Kilburn, was the defendant in an action brought at Clerkenwell County Court by Harry Pierssene, of St. Andrew's Pavement, Stamford Hill, to recover £50 damages for injuries sustained. On the 14th of April last the plaintiff and his wife and daughter were driving in a governess cart in Stoke Newington, and when crossing Manor Road, defendant drove into them with his motor-tricycle, upsetting both cart and pony, and throwing the occupants into the roadway. The statement as to pace was denied by defendant. He laid the blame for the occurrence on plaintiff, who drove out suddenly from a side road with a prancing pony. A jury found that the defendant had been negligent, and awarded plaintiff £25 damages.

At the Maidenhead County Court, before Judge Marten, Mr. H. Parsons, cab-proprietor, Cookham, sued Mr. W. Foster, an engineer and owner of a motor-car, for £18 8s., for damages (£8) done to his landau on May 1st by defendant's motor-car, and for loss occasioned through being unable to use his horse and landau for some time. Janet Hutchinson, housemaid at Mill House, Cookham, sued Mr. Foster for £10 for personal injuries sustained through defendant's negligent driving of the motor-car. Evidence having been given, his honour, in summing up, said he thought defendant was to blame, and that there was no contributory negligence on the part of the plaintiff. He must, therefore, give judgment in favour of the plaintiff. He thought, however, that he must reduce the amount of plaintiff's claim for the loss of the use of his horse and landau to £6, and judgment would therefore be for £14 and costs, in respect of Mr. Parsons' claim. He thought, also, that £7 would be a fair sum to allow Miss Hutchinson, and he gave judgment for this amount, with costs, the money to be paid within fourteen days.

CHARGE OF CULPABLE HOMICIDE.

In Edinburgh Sheriff Criminal Court, before Sheriff Rutherford and a jury, Thos. Morrison, a motor-car driver, was tried on a charge of having, on 14th June, driven his car against Christina Currie, an elderly woman, and killed her. After hearing evidence, the jury retired and returned with a verdict of not guilty, but they desired unanimously to express their strong disapproval of the too common practice of driving motor-cars in crowded thoroughfares at too high speeds, and without due regard to the safety of the public.

CAUSING AN OBSTRUCTION.

At Abingdon, Walter L. Creyke, St. Aldate's, Oxford, was summoned for driving a motor-car on the footway in the Market Place on July 23rd, and further with obstructing the highway on the same date. Mr. Challoner prosecuted for the police, and Mr. A. Walsh, of Oxford, represented the defendant, and pleaded not guilty. The evidence of Sergeant Stevens and Superintendent Holding showed that on the night in question they saw defendant's motor-car jammed in the passage leading from the Market Place into Stert Street, and to reach this position it had to go over the footpath. Sergeant Stevens said that defendant caused an obstruction for ten minutes and ultimately had to back into the Market Place. The bench convicted, and on the first charge fined defendant 40s. and 40s. 6d. costs, and for the obstruction £10 and 40s. 6d. costs.

Mr. Walsh maintained the Bench could not convict for obstruction, as the conviction for driving on the footway and obstruction only amounted to one offence. The Bench, after considerable deliberation, agreed to state a case on the point of law raised.

ACTION ON A CHEQUE.

MR. JUSTICE PHILLIMORE, in the King's Bench division, on Saturday last, had before him the case of "Whamond v. Hill," which was an action brought by Mr. John R. Whamond, liquidator of the Motor-Car Company, Limited, against Mr. John D. Hill, of Portman Mansions, Baker Street, W., to recover the value of a cheque which the defendant had given for a motor-bicycle, but subsequently stopped. It appeared that in May of last year the defendant wrote to the Motor-Car Company and asked them for a quotation for a 2-h.p. motor-bicycle. They said they were prepared to supply one for £37 10s. After defendant had selected a machine the company declined to let him have it for less than £40, denying that they had quoted it at £37 10s. Defendant having failed to find the letter in which the company quoted the machine at £37 10s., an employee of the company agreed to sell the bicycle for £38 15s., and defendant gave a cheque for that amount. Later, the defendant discovered the letter in which the company quoted the machine at £37 10s. and he at once stopped payment of the cheque, and informed the company of the fact. The company, however, presented the cheque, which was not met. The plaintiff, as liquidator of the company, now submitted that if the defendant chose to stop his cheque he must pay for the bicycle in cash. Defendant contended that he was not compelled to take the machine when the company refused to let him have it for the price which they had quoted, and that he was justified under Section 30 of the Bills of Exchange Act, 1882, in stopping the cheque when he found the company's quotation. Mr. Justice Phillimore said in his opinion the plaintiff

was entitled to recover the price which the defendant had agreed to pay for the bicycle. As the plaintiff had brought the action on the cheque instead of for goods sold and delivered, he should enter judgment for him, but without costs.

FAILURE TO CARRY OUT A CONTRACT.

In the Aberdeen Small Debt Court, Sheriff Reid on the bench—two actions against the Northern Carriage and Motor Company, at the instance of the Crescent Cricket Club and two members of the team, representing that club, who, on June 7th last, on account of a "breakdown," were stranded on their way to Alford to play a cricket match, were called. The Crescent Club sued the Northern Carriage Company for £5 16s. 9d., as damage sustained by the complainers in consequence of defenders' failure to fulfil a contract for the conveyance of a team of cricketers from Aberdeen to Alford and back on June 7th last. Matthew Henderson and Leslie Duncan sued the company for £5 and £3 respectively, in respect of personal injuries sustained by the complainers from the overturning of a car belonging to the defenders, while being conveyed from Aberdeen to Alford on June 7th. Mr. Blacklaw represented the pursuers in both cases, and Mr. Munro the defenders.

For the defenders, Mr. Munro held that the company, in a case of this kind, where the accident occurred through no negligence on the part of the company, could not be held responsible for the breakdown. The accident occurred through a tyre slipping off.

Alexander Johnston, a member of the Crescent Club, said that the club had a fixture with the Alford Club on June 7th. The club were desirous of going to Alford by motor-car, and witness was instructed to see the manager of the Motor Company and arrange for getting a car. The manager guaranteed to give the club two cars that would take them to Alford in two hours if the roads were bad, and 1½ hours if the roads were good. The price was to be £2 each car. Witness was instructed to conclude a bargain with the Motor Company on these terms. He did so, and altogether he had paid the company £3. He remembered the manager of the company saying something about not being responsible for delay.

James Garden, who was the driver of the car, said he had been engaged by the manager of the Motor Company to repair the cars belonging to the company. He was told to drive the Crescent Club to Alford. The accident occurred through one of the front tyres coming off and getting mixed up with the steering gear. Mr. M' Rae, manager of the Motor Company, said Mr. Johnston called on him for the purpose of arranging to get the cars. He read to Mr. Johnston certain conditions under which he would hire the cars. He said he would be responsible for nothing. The Sheriff said undoubtedly the contract was for defenders' company to carry the members of pursuers' club to Alford on the day in question. They failed to perform that contract. The manager of the company had said that he had made it a condition, in agreeing to give the pursuers the car, that he would be responsible for nothing, but a condition of that sort would require to be very clearly proved to the court. It seemed to him a contradiction in terms to say that the defenders had made a contract but were not liable to carry out the contract. A special bargain in the contract would require to be very clearly proved. He therefore gave decree against defenders for £5 16s. 9d. The second action was a totally different matter. He held that the pursuers had failed to prove that the accident was due to the defects and unsafe condition of the car, or to the negligence and want of skill of the driver. This appeared to him to exclude any liability on the part of the defenders, and he therefore assailed the Motor Company. Each party must pay their own expenses.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

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THE Motor-Car Journal.

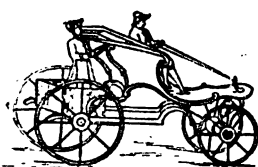
VOL. IV.]

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COMMENTS.



MANU-MOTIVE CARRIAGE 1750

THE new method of locomotion provided an interesting incident on Coronation Day. Field-Marshal the Duke of Connaught, who commanded all the troops on duty, by direction of H.M. the King, used two motor-cars for inspecting the military on the line of route. He rode in the first one with General Sir Henry Trotter, K.C.V.O., passing slowly over the whole ground several times. The frantic efforts of the A.D.C. beside the driver to make the Generals and regimental commanders bring the men under their charge to attention for H.R.H. provided much amusement to the crowd. What between his undress cap and great coat and his lowly seat on the back of a car, few if any could be roused to realise that any person of importance was going by. However, one distinguished motorist, who had served as a commander under the Duke at Aldershot, recognised the occupants of the car as he walked to the Abbey by Whitehall, and was soon seen in conversation with them. In his General's uniform it is doubtful whether even motorists would have known the Lord Justice-Clerk of Scotland, K.C.B., and would have probably passed the group by, thinking that some discussion was going on between two of the Generals on local duty. Whether the motor-car was used as a normal modern War Office means of locomotion, or by special desire of His Majesty, or by preference of his brother, it is at present impossible to say, but undoubtedly it must have been a great comfort and convenience to a hard-working officer who had to start his day very early and cover many miles of route some eight times.

Another Postal Motor-Service.

EVIDENTLY the motor-service established by the Post Office between Manchester and Liverpool is proving a success, for the postal authorities of the former city have decided to substitute motor-vans for ordinary mail-carrying between Manchester and Sale, Altrincham, Urmston, and Flixton, by way of Chorlton-cum-Hardy and Stretford. The service will be commenced on November 1st with 18-h.p. vans by Messrs. Marshall and Company, to carry an approximate load of twenty-five cwt. The vans will leave Altrincham at 8 p.m., arriving in Manchester, a distance of ten miles, at 8.55 p.m., and will return at 4.30 a.m., arriving at Flixton 6.15 a.m.; the total distance covered on the return journey, including intermediate places, being seventeen and three-quarter miles. Messrs. Marshall and Company have been experimenting for some time with vans for loads up to twenty-five cwt., and are now constructing several for firms in the Manchester district.

Sixty-four Miles an Hour.

MR. JARROTT's exhibition of sixty-four miles per hour on the kilometre track at Welbeck was a revelation of speed that many of the spectators had not seen before. On his 70-h.p. Panhard he covered the kilo. in 35 secs., thus breaking the record of 41 secs. established at Bexhill on Whit-Monday by M. Serpollet,

and coming within 5 3-5 secs. of the world's record, established by M. Vanderbilt in France a few days ago. It is a matter of regret that the weather was not more propitious. But Mr. Jarrott's day will come; and Mr. Vanderbilt's record will go.

Tampering with a Car.

ON Friday, Reginald Cockle, motor-car driver to Mr. E. Levita, of Ennismore Gardens, S.W., was taking a 7-h.p. Clement tonneau to Taylor's motor works, in High Street, Wandsworth. He had arrived there, and, having disconnected the engine, dismounted to look for Mr. Taylor. As soon as the driver was gone bystanders declare that a youth mounted the car and pulled the levers about. He must have released the brakes and thrown the engine into gear, for the car commenced running towards South Street, whereat the youth jumped off and ran away. At that moment Cockle appeared, and made a dash for the runaway motor, which was making straight for a shop at a pace of about fifteen miles an hour. He succeeded in hanging on to the car, and stopped it just as the front wheels mounted the pavement. Before that, however, nine people had been knocked down and seriously injured.

Furious Driving Cases.

It has lately been suggested that the publication of cases of furious driving indulged in by motorists should be suppressed—a course which would not, we believe, commend itself to motorists generally. For instance, our list of such cases affords a good idea to those who tour as to the roads whereon the watchful activity of the police is being exercised; it thus becomes a rough sort of index as to the roads to be avoided. Secondly, we are able in this way to expose to the public the persecution to which motorists are exposed, and also to show the absurd want of method with which fines are imposed. Then, too, the uncertain and, oftentimes, irregular ways of the police must be brought to light; and unless such publication takes place, how can that be done? Those who would suppress such information are, we are afraid, only looking at the matter from a partial point of view. Those motorists who recklessly rush through towns and villages are doing much to thwart the progress of the industry, and if they sometimes appear in our list they must attribute that to their own folly, and not wholly to our enterprise. But, unfortunately, most of the motorists who are brought before the courts are guiltless of such terrible speeds. Those who ought to be summoned are frequently out of sight before the police recover from their astonishment.

Strange Cases.

OUR list this week presents some curious anomalies. Three mechanics testing new cars on a road near York were each fined two guineas on the information of the police, who swore that their pace was twenty-seven miles per hour. But Mrs. Moore-Docking, who was said to have driven her car at sixteen miles per hour in Arundel, was fined £10, the chair-

man of the magistrates expressing their regret that they could not inflict imprisonment instead of a fine. At Beaconsfield the wrong man was summoned, and at Stratford-on-Avon the evidence was so contradictory that the case was dismissed. Really we do not see that any harm is likely to accrue to the industry from the publication of such news; if we disfigured our columns with half a dozen photographs of cars in distress, or in pieces, the case might be different.

Nuisances.

IN the course of an article descriptive of a run from Buxton to Derby on Mr. Augustus Beatson's Locomobile, a writer in the *Sheffield Daily Telegraph* says:—"Motoring in the Peak country has its drawbacks as well as its delights. Carters and draymen have acquired a depraved habit of leaving their horses unattended at the doors of roadside public-houses. One man in charge of a heavily-laden wagon drawn by two horses, we find curled up asleep, and on the wrong side of the road. And the dogs, with an absorbing desire to be run over by such a novel juggernaut as a motor-car, are as great a nuisance as the curs that infest the streets of Constantinople." Unfortunately, such experiences are not confined to the Peak district.

Camping Out.

WHEN American gipsies have taken to motoring it need occasion no surprise to learn that English motorists have sought the pleasures of gipsying. The adaptation of a Benz car for camping out purposes has been successfully done by Mr. D. Wickham, of Ware, who, by means of a few upright and horizontal pieces of wood, together with a stretch of canvas has obtained a space of more than six feet in length for sleeping purposes.



When not in use as a dormitory the arrangement can be easily altered so that a table is provided. The change can be effected in about ten minutes, and our photograph suggests an idea which may be useful to motorists when on tour. It certainly would have been a boon at Welbeck. Mr. Wickham has a pit at Ware for the inspection of cars, and will be pleased to help motorists who pass through that town on their way.

Military Automobile Service.

THE use of motor-cars by parsons and soldiers is developing rapidly, and at Colchester the chaplain of the 3rd Essex Volunteers has been conducting Divine service from the *tonneau* of an automobile. Meanwhile the organisation of the corps of automobile volunteers is going on. This will consist of gentlemen owning motor-cars, and who are themselves, or can

provide, sufficiently expert drivers. The members of the corps will be required at two months' notice to serve in manoeuvres extending over two or three weeks in each year, and will hold themselves bound to serve, with their cars, in the event of an invasion. Suitable uniforms will be devised. The members of the corps, while on service, will live in hotels, but if there is any question of rank they will rank as officers. The mechanics will rank as sergeants. Gentlemen members of the corps will receive, while engaged on manoeuvres, 30s. a day, and will provide for themselves, but the War Office will pay for petrol.

5,000 miles in 50 days.

IN fair weather and foul Mr. H. Hewetson has been travelling 100 miles a day for fifty days, on his trusty Benz car. Roads and weather were equally bad the greater part of the time, but the aggregate mileage was reached without a hitch occurring, and it is hoped that, when the car is sold next month for the benefit of the King's Hospital Fund, a substantial sum will be raised.

Edison's Accumulator and Electrical Motor-Cars.

MR. THOMAS A. EDISON believes that by his efforts the storage-battery has now reached perfection. He makes this announcement in an article in the *North American Review*, in which he describes his new iron-nickel battery. In the course of the article Mr. Edison remarks that "In spite of assertions to the contrary, I think the storage-battery carriage, by the aid of the new battery, will come ultimately within the reach of the man of moderate means. Driving through the many miles of streets in the suburbs of New York, I have been impressed with the fact that something like eighty per cent. of the residences have no carriage-houses. The storage-battery carriage, with the new battery, should enable the owners of forty per cent. of these residences to have a serviceable pleasure-vehicle at their beck and call, without hiring a coachman to keep it clean and run it, with no horses to eat their heads off, and no oats and hay to buy. The electric carriage of the future, and of the near future, will in my opinion not only supersede other types of automobiles, but it will be built and run on such practical lines that accidents will soon become things of the past."

The Aeronautical Institute and Club.

AT the last meeting of this society a lecture was delivered on "Wing-flapping Machines and Personal Flight." Dr. E. Barton was in the chair and introduced Mr. Blanchard, the lecturer. After the usual preliminary remarks, definitions were given, and the lecturer referred briefly to the various authorities extant on the subject. He then plunged into the thick of the matter; and, thinking it wearisome to the audience if he were to set forth in detail the various inventions coming under the above head, he thought it better to refer only to one which he considered typical, viz., the one entered in the Patent Office records under the number 3872, of February 27th, 1892. Examining it critically, he could not pronounce as to its merits, such machines never having taken the air. He set forth, however, their drawbacks in clear and well-reasoned language. He went fully into the conditions of the atmosphere, explaining why such machines could not be trusted to give satisfaction to the working aeronaut on account of the ever-shifting conditions of the atmosphere, and he referred in a detailed manner to the flight of birds. Dealing next with the problem of personal flight, he expressed his belief as to such a possibility—even at an early date. Mr. Blanchard prefers the system of a Continental inventor whose name he did not give, but whose scheme he illustrated by means of copious tracings. It resembles in form a huge bat's wing, is operated by the arms and (to a certain extent) by the lower extremities, has a rudder, a balloon-parachute, and, moreover, provides for buoyancy in the operator himself.

Motor-Car Imports and Exports.

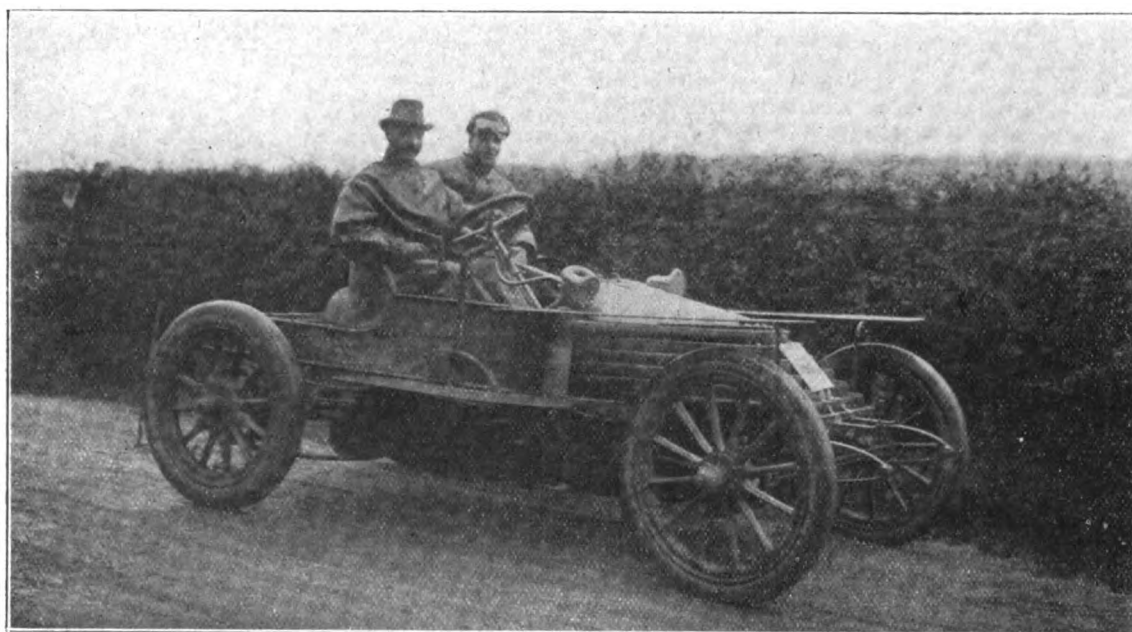
THE returns just issued relating to the British imports and exports of motor-cars and cycles during July last show an increase both as regards the imports and the exports. To deal first with the imports, no less than 419 cars and cycles were imported into this country last month, the value of the same being returned at £108,648. The value of the "parts thereof" is given as £10,278, so that we get a combined total of £118,926, as compared with £95,517 in June last. Some of these imports were only of a temporary character, being re-shipped to foreign destinations. Thus last month the re-shipments comprised fourteen vehicles amounting in value to £3,070 and £316 of parts, bringing down the net imports in July to £115,540. During the first seven months of the current year imports of foreign automobiles and parts in Great Britain have reached a net total of £578,064, representing over 2,220 cars and cycles. As regards the exports of automobiles of home manufacture, the shipments during the past month amounted to twenty-nine vehicles of a value of £12,432. Of parts the exports attained a value of £367, making a combined total for July of £12,799, as compared with £10,513 in June last. It is satisfactory to find that, so far as the year has gone, that is to say, during the seven

A Busy Time.

EARL RUSSELL having informed the committee of the Automobile Club that, in his opinion, there is no chance of the Registration of Motor Vehicles Bill becoming law at an early date, it has been decided to hold a discussion on the subject on Thursday, November 6th, the day before the annual dinner of the Club, which will be on the Friday. On the following day, Saturday, November 8th, the annual run to commemorate the passing of the Act of 1896 will be held, thus providing a busy time for all interested in automobilism.

The Registration of Motor Vehicles Bill.

THE Executive Committee of the Club points out that it is evident that no Bill which does not provide for an efficient means of identification of motor-vehicles whilst in motion on the road will receive the support of the County Councils, a very large number of Members of Parliament, and of His Majesty's Government. Therefore, as matters stand at present, it is necessary to accept identification or allow the twelve-mile-an-hour limit to remain. On considering the question as to whether it is



MR. H. AUSTIN ON THE 30-H.P. WOLSELEY RACER AT WELBECK.

months ending with July, 176 British-built motor-cars and cycles have been exported, their value being roundly £73,000.

Another Exaggeration.

IN connection with the motor car trials at Welbeck some very absurd stories were told by the general newspaper press, and we are afraid some of our contemporaries are scarcely as veracious as is desirable. Motor-car stories of the "tall order" are apparently regarded as legitimate news for certain papers, and the recent fiction as to Mr. Arthur Brown, of Luton, having paid £2,700 for his famous Napier car is a specimen of the news gathering to which the public is treated. Of all the silly stories lately going the round of the press this is one of the most extravagant, and we fancy Mr. Brown must regard himself as a victim of the new journalism. We happen to know how very wide of the mark is the alleged figure, and, as a matter of fact, nothing approaching £2,700 was paid for the car—famous though it undoubtedly is.

better to continue to suffer under the twelve-mile-an-hour limit, or to obtain its removal by submitting to identification, it might be well to bear in mind the fact that the authorities and the public are daily becoming more incensed and irritated by those reckless motorists who, after inconveniencing, nay more, injuring, other users of the highway, drive on without stopping in order to avoid identification. As time goes on and the number of such cases increases, it may be difficult to obtain the abolition of the specific speed limit, or any other concessions for automobilists. This, at least, is the view of the Executive Committee of the Automobile Club.

Up-to-Date.

PERHAPS the most remarkable automobile yet introduced—even in the United States—is that invented by Mr. C. Joquin Dorticus, a Cuban who lives in Chicago. "This machine can be operated for five-eighths of one cent a mile. It can run 150 miles on one charge, recharge in fifteen minutes, and run the same distance back; can stop on the road

and electrically charge another machine that has become useless; can climb hills, and, as it runs, will not only develop electrical energy enough to run, but will store up enough energy to run a 2,000 candle-power searchlight. If one wheel gives out, the other three will run it. If two give out, the other two will run it. If three give out, the remaining one will bring it home. It all lies in a new application of an old principle. Every engine has to have a flywheel as a balance. The usual electrical machine has an engine and a huge wheel. From the engine gears and belts run to a dynamo and revolve its armature and develop the power. I have made the four wheels of my automobile the flywheel of the engine. As the wheels revolve they generate the power." Such is the modest claim put forward by the inventor in a style that reminds us of a gentleman whose extraordinary schemes were once the wonder of the automobile world on both sides of the Atlantic. But it is not the same man; the cognomen of the latest inventor being, as we have said, C. Joquin Dorticus.

Motor-Cars at Luton.

AN automobile fete was included in the Coronation festivities at Luton on Saturday last, but, owing mainly to the unsettled weather of the past week, only a few cars put in an appearance, much to the disappointment of Mr. E. W. Hart, the moving spirit of the meeting. The fete was held in the extensive Hoo Park of Mr. Julius Werhner, on the outskirts of the town, and among those present were Mr. A. Brown (Panhard) now the owner of the Gordon Bennett Napier car, which, by the way, is at present being fitted with a new racing body; Mr. F. F. Wellington (Panhard); Mr. J. W. Stocks (De Dion Spider); Mr. E. W. Bartlet (Century tandem); and Mr. E. W. Hart (Sirene and New Orleans). During the afternoon demonstrations were given of the speeding possibilities of automobiles, notably by M. Edmond on the 20-h.p. Darracq racer he drove in the Paris-Vienna and Circuit des Ardennes races. In the evening Mr. and Mrs. Hart entertained the motorists and friends to tea at Windmill Road, Luton, and, although the party was much smaller than had been anticipated, a very pleasant hour or so was spent.

A Fatal Accident.

WE regret to record that an accident, fatal in its results, took place in Kent on Friday last week. Mr. W. H. Rendle was driving a 12-h.p. Daimler from Ramsgate to Canterbury, when, on the highway, about half a mile from Minster, he noticed a number of horse-drawn pleasure char-a-bancs standing on both sides of the road surrounded by a crowd of people, in front of a public-house called the Prospect Inn. He and Mr. Rendle, senior, who was also on the car, gave ample warning by blowing two horns, and the people made a road for the car to pass through. Mr. Rendle had almost passed between the two lines of char-a-bancs, and was just about to pass the last one, when a man named Thompson, suddenly attempting to cross the road, walked straight into the motor-car and was struck by the lamp on the near side front dash. There was no time to pull up, but Mr. Rendle did what he thought was best by turning sharply to the right, and ran up the bank on the side of the road into a field. Apparently the man, as a result of the collision, was projected on to the front of the car. On the latter striking the bank, however, he disappeared beneath the vehicle, which passed over him, inflicting terrible injuries. The whole affair occupied but a few seconds, and as quickly as possible Mr. Rendle and his father rendered all the assistance they could and quickly drove the poor fellow in the car to the infirmary close by, where he succumbed to his injuries on Sunday. The coroner's enquiry was held on Tuesday, and a large number of witnesses gave evidence. Two of the men in charge of char-a-bancs swore that the motorist was driving at a speed of from twenty-five to thirty miles an hour. Others testified that when Mr. Rendle was about 100 yards from the place where the

accident happened he was going at not more than twelve to fourteen miles an hour, and slowed down on approaching the crowd. Mr. Staplee Firth was present on behalf of Mr. Rendle, and the widow of the deceased was also legally represented. After a very prolonged hearing the jury found a verdict of "accidental death," and added a rider that the driver of the motor-car was not in any way to blame.

The Welbeck Trials.

ELSEWHERE we give a full report of the proceedings on the Welbeck estate, and although the day was anything but one for the camera, some interesting photographs were obtained. Mr. R. E. Phillips arrived at Nottingham on the Monday to superintend the electrical timing arrangements. The two cables which Mr. Edmunds has presented to the Club had been overhauled, and on Wednesday Mr. Phillips and Mr. C. Johnson completed the preparations. The timing apparatus then acted with a consistency which augured well for the day of the trials, but on the Thursday it proved disappointing, and the sympathy of the competitors was with Mr. Phillips, who had delayed his departure for Scotland in order to serve the Club. Lord William Bentinck represented his brother, the Duke of Portland, and was much interested in the day's events.

The Appearance Competition.

MR. C. CORDINGLEY had promised a Silver Cup for the competition for appearance at Welbeck. Seeing that the rain was falling all day long, after consultation with Mr. Cordingley an attempt was made on behalf of the Club to postpone the competition; but it was ascertained later that some of the competitors had come considerable distances on purpose to take part in the event, and it was thought that, provided there were six competitors, it would not be fair to put it off. It was decided to ask Mr. Cordingley and others to act with the Right Hon. the Lord Justice Clerk of Scotland and Mr. Alfred Bird as judges; but when the time came for the gathering of the cars for the competition the donor of the Cup and the other gentlemen had apparently left the ground. The Lord Justice Clerk and Mr. Bird therefore acted as the judges, their award being given on another page of the present issue.

MESSRS. J. THORNTON AND SON, of 86, Clapham Road, S.W., are making a speciality of motor-car repairs.

M. H. P. DECHAMPS was unfortunate at the Welbeck trials, the slipping of a clutch putting his car out of the race.

BARON DE ZUYLEN, the President of the A.C.F., was among those who saw the Coronation procession from the windows of the Automobile Club in Piccadilly, W.

THE annual combined race meeting of the Kingsdale and Finsbury Park Cycling Clubs, to be held at the Clarence Park track, St. Albans, on the 23rd inst., includes a motor-cycle handicap, and an attempt at track record by Mr. J. van Hooydonk on his Phoenix motor-bicycle.

A RECORDING clock, which will automatically record by electricity the times taken in speed trials, is being prepared by Col. Holden. The clock will show records to one-twentieth of a second, and will also afford permanent records of each trial which will be kept in the Records Book of the A.C.G.B.I.

OUR illustration on page 486 shows the Gladiator car which took part in the tourist section of the recent trials from Paris to Nice, and which did the fastest officially timed kilometre during that run. We may add that the car illustrated is one of the many specially constructed for the suppressed Nice-Abbazia race.

ON Monday next Messrs. Woods and Co., acting under instructions from Messrs. Grose, Limited, motor-car agents, will sell by auction at the Horse Repository adjoining the Cattle Market, Northampton, six motor-cars, including an 8½-h.p. Energie car, a Decauville voiturette, a 7-h.p. Daimler service car, a Benz car, and a motor-dogcart made by Grose, Limited.

The Welbeck Trials.



CHEERLESS was the outlook from the Victoria Station Hotel, Nottingham, on the afternoon of Wednesday the 6th. With an impenitence and an impertinence worthy of a Cockney *gamin* the rain poured down and changed the aspect of the scene from that of an August evening to a chill October twilight. Now and again a "toot toot" would cause us to look outside and greet some incoming motorist; but awaiting the drying of clothes after a day's run in a tenacious and persistent rain was not calculated to raise our hopes, however much such a state of things might conduce to raising the spirits. At the nearest *garage* the cars were assembling, and many were being washed down—actually under one shed we saw the paint-

with the enthusiasm that he showed in the 1,000-mile trial. His neighbour was Mr. P. S. Clay, the Chief Constable of the County, and between the Chief Constable and the County Surveyor (Mr. E. P. Hooley) sat Mr. Staplee Firth—a wise location tending to prevent any fusion of the two local forces in view of the motorist who, according to report, is the common enemy of both the police and the roads. But on that occasion the representative of law and order and the maintainer of the public highway were proved to be good motorists themselves—one using a motor-car as he superintends the mending of the ways, and the other being willing to drive a car—if given him by way of pleasantry. Others in the company included Messrs. M. S. Napier, H. Edmunds



OVERLOOKING THE COURSE—SOU'WESTERS AND UMBRELLAS.

brush being plied over the carriage-work of a car as if the owner intended to obtain the prize in the appearance competition. The ostler suggested that if the vehicles were allowed to stand in the open yard a few minutes, the rain would wash away the mud, if not the cars; one facetious local journalist, who gazed upon the vehicles as though looking for the shafts, proposed that they might be adapted for river locomotion, a possibility that did not appear so remote in view of the torrents through which the cars had passed. And between hotel and garage, and garage and hotel, we whiled away the time until the guests began to assemble for the dinner to which they were ushered by the ubiquitous Mr. A. R. Atkey, whose services to automobilism in the county of Nottingham were heartily recognised later in the evening.

The dinner was a pleasant function. Mr. E. W. Wells, one of the vice-presidents of the Club, presided, with Messrs. S. F. Edge and C. Jarrott, the heroes of the sport, on his right hand. Immediately on his left was the Rt. Hon. Sir J. H. A. Macdonald, cheery as ever, and prepared to face the terrors of the elements

Cecil Edge, J. D. Siddeley, M. H. Buckea, W. J. Peall, E. W. Peall, G. Iden, E. M. Instone, E. Kennard, J.P., W. E. Nicholson, S. Jones, A. F. Bird, R. E. Phillips, C. Friswell, A. Brown, E. W. Lewis, E. Owers, F. W. Peckham, E. H. Arnott, C. Johnson (secretary of the Automobile Club), F. T. Bidlake, A. J. Smith (secretary of the Western Section Scottish Automobile Club), G. Prades (editor of the *Auto Velo*), E. Midgley, Dawson Turner, R. M. Wright, J. W. Stocks, E. E. Lucas (hon. solicitor to the Nottingham Club), W. M. Letts, W. D. Astell, Dennis, Crampton, etc.

The loyal toasts having been honoured, that of the Automobile Club of Great Britain and Ireland was submitted from the chair, Sir John Macdonald responding. He hoped that British makers would share in the automobile business of the world. Certainly they were making considerable progress. He thought that more attention should be given to the public service vehicle than had hitherto been the case. The automobile clubs in this country were not merely sporting clubs, but they were associated for commercial progress, and should do what they could to encourage the introduction of power traction on the roads. In conclusion

he extended a hearty greeting to M. Georges Prade, as representing Continental automobile journalism.

Mr. A. F. Bird (Birmingham) in felicitous terms proposed the toast of the Nottingham Club, to which Mr. A. R. Atkey, the hon. sec., responded. Mr. Atkey met with an enthusiastic re-

man was drunk with enthusiasm, and the company dispersed, many seeking the lounge of the hotel, where others who had arrived too late for the dinner told their tales of the rain that still poured with all the vehemence of the earlier hours of the day. But even such a continuous downpour did not wholly dis-

hearten us, and with a sanguineness (that was woefully disappointed on the following day) we hoped for finer weather and drier roads. In such prophetic whisperings the hour of midnight quickly dawned, when the lift carried the company, dissolved into solitary units or small batches, to higher floors to seek a few hours' rest ere the morning call resounded to awaken us to rain—rain again.

Between 7 and 8.30 on Thursday morning those cars that had not been weighed at the weighing station on the public bridge, Derby Road, Nottingham, were put through the process ere starting for the long pull of twenty miles to the course. At the weighing station few complaints were made, for if a touring car happened to be a few pounds over weight the removal of some trifling thing brought it within the limit, but when Mr. Weigel arrived with his Clement cars, and also when some of the Darracqs turned up, there was trouble. These vehicles had been "trained" down to the lowest riding weight, and yet they were said to scale more in England than they had done at the makers' and also than in four or five Continental races. The French

drivers and the English weighers did not understand each other, and the longer they were together the less chance was there of agreeing. A judge would have discharged the jury in such a case, but in the present instance a sharp run was made to the course, and there the matter ended.

Motorists certainly established a reputation for pluck—if



THE ARRIVAL OF ONE OF THE MUD-STAINED DARRACQ RACERS.

ception on rising to make the speech referred to in our last issue, wherein we also summarised the remarks of the Chief Constable, whose name was associated with the toast.

"The Sport of Automobilmism" was entrusted to Mr. E. P. Hooley, who pointed out that much had yet to be done to render the roads perfect for locomotion. Their condition and shape would have to be improved so as to provide an absolutely free passage for everybody. The present shape of the roads with a high bank in the centre and a gutter at each of the two sides was not the best, and he held out the prospect of an early trial of a road with a minimum of disadvantages, and constructed at half the cost of the present system.

It was only fitting that Messrs. S. F. Edge and C. Jarrott should be asked to respond to such a toast, and they had cordial greetings on rising to do so. Mr. Edge welcomed Mr. Hooley's suggestion for better roads, and testified to the good work that was being done by county surveyors throughout the kingdom. A few years ago all the talk on such an occasion would have been of the troubles they had endured; now the cases of breakdown were exceptional. He was opposed to the publication of the cases of alleged furious driving, and concluded by urging that the time had come when the severity of the competitions of the Club might well be increased. Mr. C. Jarrott gave some interesting experiences while racing, and, touching upon the question of numbering vehicles, declared himself opposed to it.

On the motion of Mr. H. Edmunds the health of the Chair-



M. VOLATUM ON THE EARL OF SHREWSBURY'S 12-H.P. CLEMENT.

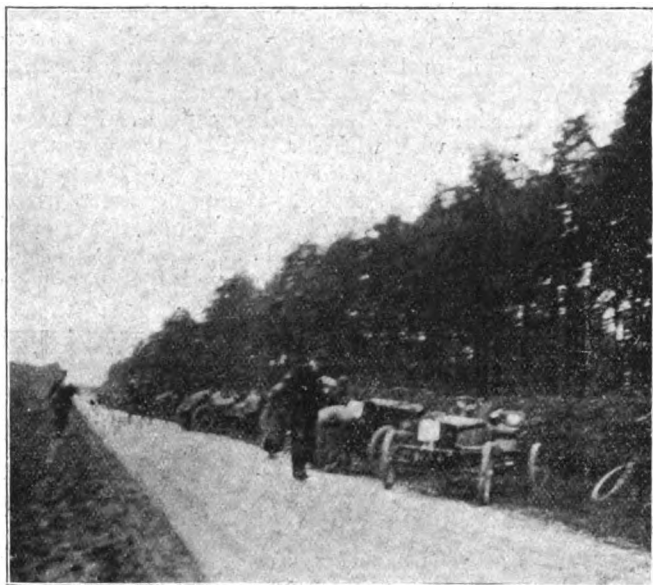
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[Argent Archer.

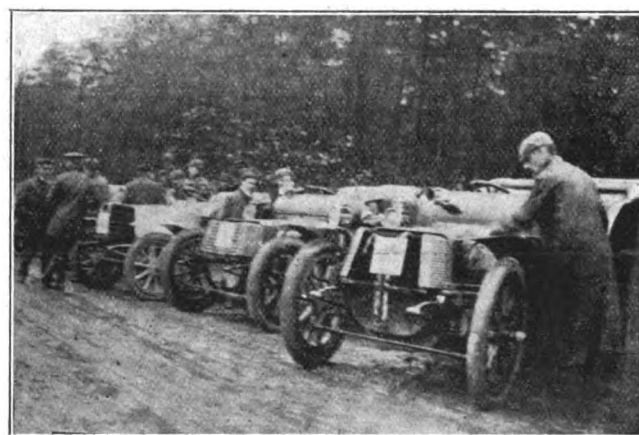
not for foolhardiness—as they dashed along the wet and greasy road that led in switchback style from Nottingham to Mansfield. After leaving the tram-lines, we entered into a lovely

country—a typical English landscape, that would have been enjoyable but for the raindrops that pelted with a violence that seemed to assure us that motorists have few friends among the clouds. There was nothing in the nature of a procession, for while some vehicles started off by seven o'clock, others delayed their departure two or three hours. The Hon. C. S. Rolls was early astir, as was Mr. Edge, Mr. W. M. Letts, Mr. W. J. Peall, Mr. C. Friswell, Mr. H. Austin, and others interested in the competitions. Mr. E. H. Arnott, fresh from his splendid run in the Ardennes, had a new machine, which seemed to improve

Nottingham prevented the early arrival of the Clement cars; Nos. 51 and 52 were away, Mr. J. T. Overton's entry being absent owing to the non-arrival of the car from France in time, and Mr. Alec Govan's Argyll was also much missed. Mr. Govan had fully intended to be present, but owing to the death of his son was compelled at the last moment to relinquish the hopes he had entertained. We would take this opportunity of expressing our sympathy with him, and the condolence of his many motoring friends south of the Tweed will be similarly extended when they learn the cause of his absence. Perhaps Class K suffered more



COMPETITIVE CARS WAITING THEIR TURN.



AFTER THE RACES.

every mile it went, and with which he hoped to achieve distinction on the track. Mr. C. Cordingley's 12-h.p. M.M.C. left a little later, and Mr. Frank Wellington stayed till nearly ten o'clock, when he made good time to Mansfield on his 8-h.p. Panhard, and then steered through the narrow tortuous streets and lanes to the course with a skill that wonderfully impressed the market women, whose eyes wandered wistfully towards the cars as they sped by with drivers already well dampened for the day.

The racecourse was on the Cavendish Drive, a private road leading to Edwinstowe, and the arrangements were admirably designed to prevent confusion and mishap on the course. All along one side of the hedge numbers were conspicuously placed, opposite to which the various competitors were expected to draw up. Needless to say, there were many omissions. Delays at

than any other from absentees, Baron Stern, the Marquis de la Ferte Meun, Count Zborowski, and M. Girardot, all being unrepresented. The Darracqs, too, were not in the line during the early morning, but they came along in rare style in the afternoon, the drivers having the appearance of mud-larks. Not even the mud which clung to him so stubbornly depressed the vivacity of Mr. E. W. Hart, who rushed up the course to find that he was in time for the Scratch Race for the fastest vehicle, in which category the Darracqs distinguished themselves.

But to return to the morning. At the gate leading to the course was a tent where competitors obtained their numbers, and Mr. S. F. Edge, as marshal, reigned supreme, ably seconded by his dog, which has become so familiar wherever the Napier happens to be. No vehicle was allowed up the appointed course

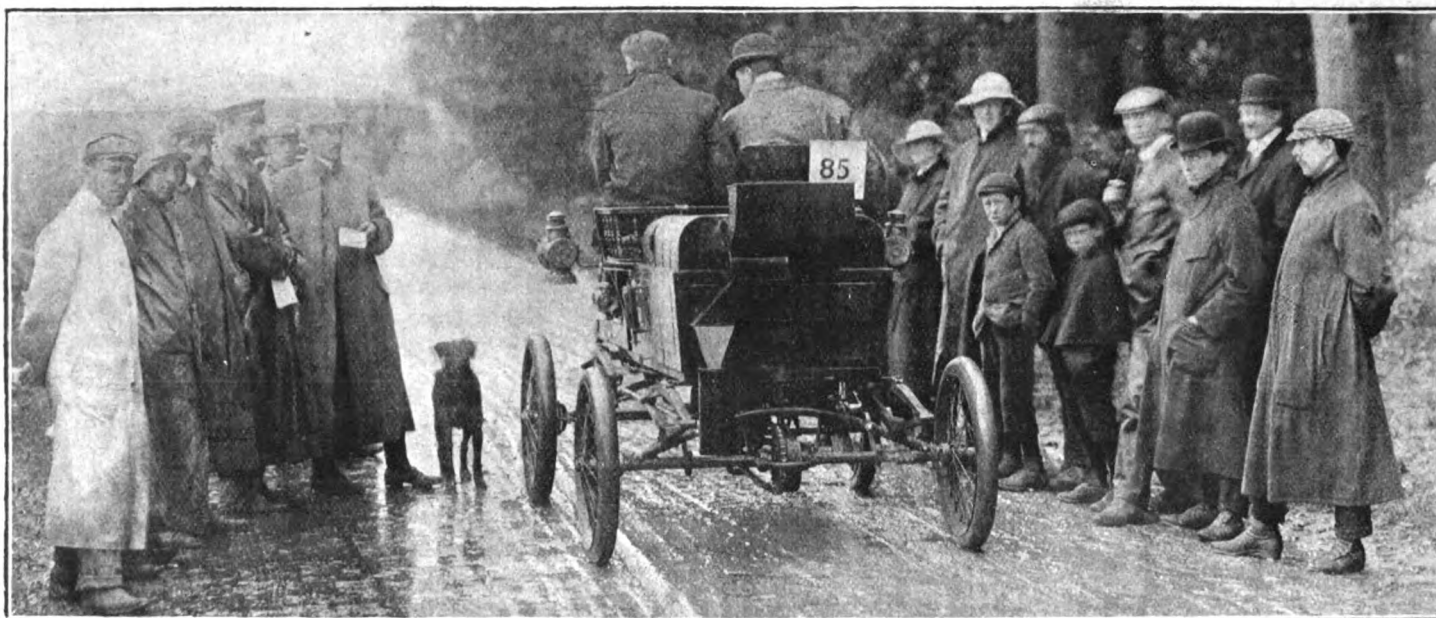
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without the marshal's authority, and so well did he time the despatch of cars on their progress that never a hitch occurred. At a distance of about 800 yards from the gate was another tent, where Mr. F. T. Bidlake timed and Mr. G. H. Smith proved an adept in the use of the telephone. From thence to another tent in the possession of Mr. H. J. Swindley, assisted by Mr. E. W. Peall, was the kilometre over which the cars were timed by the electric timing device. A wire was stretched across the road at either end of the kilometre, but extreme watchfulness on the part of the officials had to be exercised to prevent unsuspecting observers finding themselves level with the mud as they strode forth in blissful ignorance of the trap which tripped. At intervals along the course were police and voluntary marshals, distinguished by a red armlet, while on the newly-painted gates, which occasionally broke the continuity of the hedge on either side, were cards bearing the injunction, "Please do not sit on the gates," just as though motorists were carpet knights inclined to lolling and to easy ways. No! Motorists proved their stamina, and for six or seven hours strove to enjoy themselves as the rain continued without intermittence. Behind the hedge along one side of the track were several cars drawn up so that their occupants could obtain a clear view of

and they had not even the tantalising experience of being able to make pretend. Wise were those who, like Mr. Wellington, had watchful dogs to guard their possessions, and keep one eye on the basket and the other on inquisitive visitors.

Shortly after the appointed time a start was made with the races. In the handicap for motor-cycles Mr. Bert Yates beat Mr. E. H. Arnott, the only other competitor who traversed the course. The latter was, it is only fair to say, handicapped by having a new machine. Curiously enough a similar result attended the corresponding contest at the Bexhill meeting. In the scratch race for light cars in the touring section four entries were absent. Mr. W. E. Nicholson won in 1 min. 8 sec. on his 12-h.p. Gladiator; while the Baby Peugeot, which covered the course at Bexhill in 1 min. 30 3-5 secs., took 1 min. 39 4-5 secs. at Welbeck—a fair proof of the heaviness of the track, which militated against records being made. In Class C Mr. M. Ross Browne, who, with Mr. R. R. Latham, was the only member of the Nottingham Club taking part in the competitions, was entered, but Mr. M. Stephens' 16-h.p. Panhard, driven by M. H. Farman, proved the victor, covering the kilometre in 54 3-5 secs.

In the class for cars weighing 17 cwt. and over, a protest was made against the winner on the ground that he carried two



MR. A. GINDER ON THE SPECIAL 10-H.P. "LOCOMOBILE."

Photo by]

[Argent Arcier.

the course, and there they stood—a point of vantage compared with that of the pedestrians, who had to submit with the patience of Job to the reiterated splashing of mud and slush as the cars sped by.

Mr. C. Johnson was at the further end of the track registering the times and winners, and there the work was no sinecure. Mr. H. Edmunds again proved a sympathiser with the wants of man, and, as on the last occasion of the Trials at Welbeck, provided a full stock of provender for many of his friends. Nearly all who attended had provided themselves with luncheon baskets—great oblong cardboard boxes tied round with white braid in a very fantastic manner. These were placed on cars which were left behind at the entrance gate, and when, as the day wore on, men became hungry and athirst, they sought the contents of these wonderful contrivances. But, alas! the air space in that we had obtained was certainly larger than that occupied by meat and drink! Well, we had tried to appear happy despite the weather; why not believe we feasted on a thinly-covered chicken bone with an accompaniment of ham, and a disproportionate bottle of mustard? Seeing that we were miles removed from a hostelry, or even a tea-room, we made believe we were full, and were happy. But some fared worse. Their baskets disappeared,

passengers instead of four. The contest between the Motor Manufacturing Company's 20-h.p. car and the new 22-h.p. Daimler was very keen, the former beating Mr. E. M. C. Instone by one-fifth of a second, both cars doing very creditably in the competition. As, however, the M.M.C. car only carried two passengers it has been disqualified, and the first and second awards have gone to the Daimler and Maudslay cars respectively. Seeing that at Bexhill the time in the similar class was 56 2-5 secs., the results in Class D at Welbeck were remarkably good. The Daimler was in touring trim with four passengers and an ordinary wooden *tonneau*. Mr. Midgley, who was second at Bexhill, was relegated to the sixth position at Welbeck.

For awhile the rain ceased to fall so heavily, but, unfortunately, the track proved as heavy-going in the afternoon, when the Speed Section was run, as in the morning. A 2½-h.p. Orient motor-bicycle secured a better time than a 3-h.p. of the same make. In the racing voiturette class M. Volatun, on a 12-h.p. Clement, beat Mr. J. W. Stocks on his 12-h.p. De Dion, the time being 49 3-5 sec., as compared with 1 min. 17 4-5 secs., the winning time at Bexhill. The class for light racing-cars proved a run over, Mr. W. J. Crampton's 18-h.p. Decauville travelling the course in 44 secs.—only one second slower than the time in the same

class at the Whit Monday meeting. As at Bexhill, Mr. C. Jarrott won the 1,000-kilogramme class (in 36 2-5 secs.) in considerably faster time than on a 40-h.p. Panhard at Whitsun. Mr. H. Austin, on his 30-h.p. Wolseley, was the other competitor, but could not expect to get near the time of a car of double the brake-power. The general handicap was in the reverse direction of the other contests, and so secured what slight incline there was. It resulted in a win for the Hon. C. S. Rolls, who thus secured the tenn-guinea cup. Mr. J. W. Stocks being second. In this event Mr. C. Jarrott finished in 42 1-5 sec., but being at scratch found it impossible to win. The non-appearance of Mr. W. L. Creyke's "Easter Egg" gave the race for steam-cars to Ginder, who took a 10-h.p. Locomobile over the course in 57 2-5 sec. By the time the scratch race for the fastest vehicle was due the Darracqs had arrived, and rendered a good account of themselves. It was in this race that Mr. Jarrott made the fastest

CLASS D.—CARS WEIGHING 17 cwt. AND OVER (except steam and electric cars).

	B.h.p.	Rider.	Time. M. S.
*Panhard	24	Hon. C. S. Rolls ..	48
*M.M.C.	24	J. Holland	58 ³ / ₄
1 Daimler	22	E. M. C. Instone ..	58 ¹ / ₂
2 Maudslay	25	C. Maudslay	1 0 ³ / ₄
Daimler	22	J. M. Gorham	1 3 ³ / ₄
Napier	24	E. Midgley	1 4 ¹ / ₂
Daimler	26	L. Williamson	1 4 ³ / ₄
Brush	20	G. Cornwallis-West ..	1 15 ¹ / ₂
Watsonia-Durkopp ..	19	Frentzel	1 15 ³ / ₄
Watsonia-Durkopp ..	19	K. Durkopp	1 18 ¹ / ₄

* Disqualified.

CLASS E.—SCRATCH RACE FOR TOURING STEAM CARS.

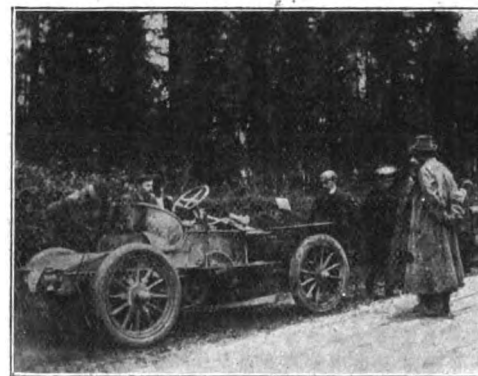
1 Serpollet	10	Hardy	51 ³ / ₄
2 Serpollet	10	A. J. Dew	53 ³ / ₄
Serpollet	10	J. W. H. Dew ..	56 ¹ / ₂
Locomobile	5 ¹ / ₂	A. Ginder	1 17 ¹ / ₂



M. RENE COZIC ON 20-H.P. DECHAMPS CAR.



A VIEW ALONG THE COURSE.



THE WOLSELEY RACER.



THE MARSHAL AND HIS DOG.



B. YATES WITH HIS 2-H.P. HUMBER MOTOR-BICYCLE.



THE HON. C. S. ROLLS' 20-H.P. PANHARD.

time of the day. Below are the results of the various contests:—

TOURIST SECTION.

CLASS A.—MOTOR-CYCLES WEIGHING UNDER 250 KILOS.

	B.h.p.	Rider.	Time. M. S.
1 Humber	2	B. Yates	1 8 ¹ / ₂
Werner	2	E. H. Arnott	1 12

CLASS B.—SCRATCH RACE FOR LIGHT CARS (except steam and electric cars).

Gladiator	12	W. E. Nicholson ..	1 8
Ariel	10	H. du Cros	1 11 ¹ / ₂
Gladiator	12	A. E. Perman	1 14
Baby Peugeot	5	C. Friswell	1 39 ¹ / ₂

The Ariel was disqualified, having been weighed without lubricating tank.

CLASS C.—MEDIUM CARS (except steam and electric cars).

1 Panhard	20	H. Farman	54 ³ / ₄
New Orleans	15	W. D. Astell	1 1 ¹ / ₂
New Orleans	16	Wm. Exe	1 6 ¹ / ₂
Panhard	10	M. R. Browne	1 26 ¹ / ₂

Locomobile	5 ¹ / ₂	W. M. Letts	1 26 ³ / ₄
Weston	6	W. Gutmann	1 28 ³ / ₄

SPEED SECTION.

CLASS G.—SCRATCH RACE FOR MOTOR-CYCLES UNDER 250 KILOS.

1 Orient	2 ³ / ₄	Green	1 17 ¹ / ₂
Orient	3	A. Westlake	1 19 ³ / ₄

CLASS H.—SCRATCH RACE FOR RACING VOITURETTES.

1 Clement	12	Volatum	49 ³ / ₄
2 De Dion Bouton ..	10	J. W. Stocks	55 ¹ / ₂
De Dion	8	R. Jackson	1 8 ¹ / ₂
Century Tandem ..	5 ¹ / ₂	T. Emmerson	1 20 ³ / ₄

CLASS J.—LIGHT RACING CARS.

1 Decauville	22	Thery	44
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CLASS K.—RACING CARS WEIGHING LESS THAN 1,000 KILOS.

1 Panhard	70	C. Jarrott	36 ³ / ₄
2 Wolseley	30	H. Austin	1 1 ¹ / ₂

CLASS L.—SCRATCH RACE FOR THE FASTEST VEHICLE.

1 Panhard	70	C. Jarrott	35
Darracq	20	Edmond	45
Darracq	20	Hemery	46 ¹ / ₂
Darracq	20	Wehrle	47
Wolseley	30	H. Austin	51 ¹ / ₂

CLASS L.—SCRATCH RACE FOR THE FASTEST VEHICLE—(continued.)

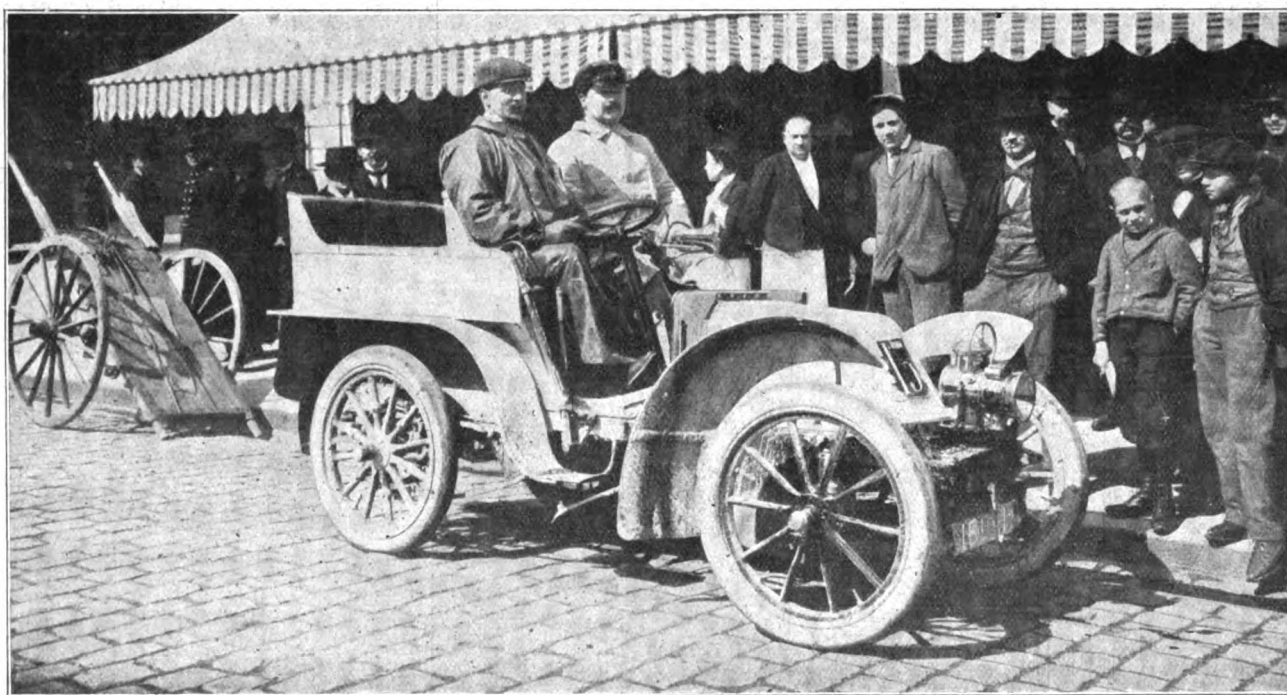
	B.h.p.	Rider.	Time.
			M. S.
Locomobile	—	A. Ginder	51½
Serpollet	10	A. J. Dew	52½
Serpollet	10	Hardy	52½
Serpollet	10	A. J. Dew	1 3½
Century Tandem	5½	T. Emmerson	1 15½

CLASS M.—GENERAL HANDICAP.

	Handicap Allowance.	Actual Time.
	S.	M. S.
1 Hon. C. S. Rolls, 20-h.p. Panhard	24½	56½
2 J. W. Stocks, 10-h.p. De Dion Bouton	20	58½
A. Burgess, 20-h.p. M.M.C.	20½	1 2
W. J. Crampton, 18-h.p. Decauville	5	46½
C. Jarrott, 70-h.p. Panhard	scr.	42½
H. Austin, 30-h.p. Wolseley	8½	55
J. W. H. Dew, 6-h.p. Gardner-Serpollet	8½	59½
J. W. H. Dew, 6-h.p. Serpollet	8½	1 2½
J. W. H. Dew, 6-h.p. Serpollet	8½	1 15
W. D. Astell, 14-h.p. New Orleans	29½	1 16
W. Exe, 14-h.p. New Orleans	29½	1 18½
C. Sangster, 16-h.p. Ariel	23	1 20½

Nottingham, and comfortably ensconced amid a merry company, we fought our battles o'er again, and wondered why those who still keep to the old-fashioned horse conveyance should speak and write of the "mad enthusiasm of motorists." Motoring is good for doctors; so are motorists, judging from the number of chills and the rheumatics that are probably being tended in various parts of the country—unkind memories of Welbeck.

At the hotel headquarters all was bustle and excitement, cars continually arriving and others departing *en route* for Dashwood Hill, where a climbing competition was announced for four o'clock on the next afternoon. Some enterprising individual proposed reaching Oxford, a distance of 111 miles, that night, while others made up their minds that Leicester, Market Harborough, etc., were far enough to proceed in the pouring rain. A number of cars were put on the train, ours amongst the number, and the night was spent quietly in the hotel. After a slow journey of nearly three hours on Friday Oxford was duly reached, where the process of unloading the two Wolseley racers, several Darracqs, New Orleans, the 12-h.p. M.M.C., etc., was being proceeded with. We accepted a seat on the Wolseley racer driven by Mr. Crowdy, and be-



THE GLADIATOR TOURING CAR WHICH TOOK PART IN THE PARIS-NICE TRIAL (see page 480).

S. F. Edge, 12-h.p. Gladiator	26½	1 25
E. Midgley, 16-h.p. Napier	25	1 30
L. Williamson, 24-h.p. Daimler	25	1 43½
Chas. Cordingley, 12-h.p. M.M.C.	41	1 46½
R. R. Latham, 5-h.p. Baby Peugeot	50	1 53½

CLASS O.—STEAM CARS.

Locomobile	10	A. Ginder	57½
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COMPETITION FOR CARS HAVING THE BEST APPEARANCE, the winner to receive a silver cup presented by Mr. Charles Cordingley (see page 480).

- 1 H. R. Beeton's 7-h.p. Panhard.
 J. A. Holder's 16-h.p. Napier
 F. W. Peckham's 4-h.p. Oldsmobile } Commended.

Towards the end of the afternoon the crowd began to thin, and a good many of the cars that had carried spectators made their way back to Nottingham as quickly as they could, bearing in mind, of course, the fact that no motor-car must travel more than twelve miles per hour. As we journeyed along Mr. Wellington was overhauling several cars on his trusty 8-h.p. Panhard steed, but he fell behind when the redoubtable 70-h.p. came along, and later Mr. E. W. Hart rushed by begoggled and besmirched with mud, as though the seat of a Darracq were hardly the place whereon to journey to a Court ball. Arrived in

yond a rather nasty side slip and the loss of our hat the ride to the top of Dashwood Hill was without incident. A number of cyclists and motorists had there gathered and frantically waved their hands, informing us at the same time that the hill was in possession of the police. There were three constables at the top, and as we proceeded one ostentatiously waved a white flag; a policeman lower down took out his watch, and another near the foot checked him. Although they both had their watches in their hands neither was polite enough to tell us the time. In all there were ten policemen and an inspector. A small crowd had assembled at the foot of the hill, and as we learnt all the officials had gone home, we followed suit.

We hear that Mr. Archibald Ford, of the Motor-Car Depot, Liverpool, has, at the request of a number of gentlemen who own horses, arranged for one of his firm's motor-cars to traverse a certain road of about a mile long in Liverpool from 11 a.m. till noon daily. Already a large number of horses are regularly being brought to meet the car, in order to familiarise them with the presence of automobiles on the highway.

SPECIAL ROADS FOR MOTOR-CARS.

FEW questions are of such interest to automobilists as the problems associated with road making and road repair. We have frequently pointed out that the popularisation of motoring will render necessary a vast improvement in the condition and maintenance of the great highways; while an early attention to the road surface will do much to bring the motor-car nearer that state of perfection for which the "man in the carriage" is said to be waiting. The subject is one to be viewed from two aspects—in fair weather and foul. When the sun is bright the roads are frequently dusty, and the celerity of motion peculiar to the motor-car is a great disturber of loose particles on the road; to lessen that inconvenience oiling the roads has been suggested, but, like the equally greasy experiments in stilling the boisterous waves, that is a matter for the future—probably a century or more ahead. The other aspect was apparent at Nottingham last week. True the dust problem was overwhelmed by the rain, but the squirting of mud from the wheel-tracks of the cars was an operation which rendered unrecognisable many of the passers-by, irritating their tempers and spoiling their clothes. And then the appearance of the riders themselves. Those who had to drive the few miles to the scene of the trials on low-mounted racing cars appeared to have indulged in mud-baths. Motor-cyclists, too, required scrapers or razors to remove the Mother Earth that, for the nonce, obliterated their countenances.

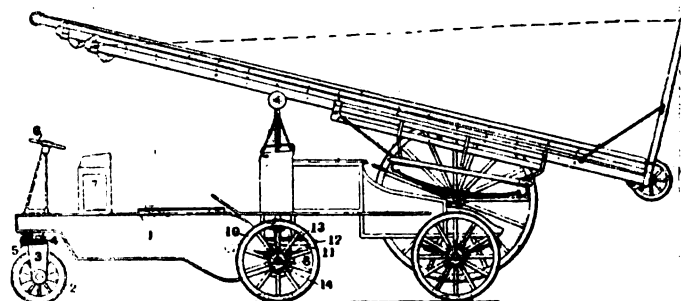
These are external and obvious points of the matter. Another is suggested by Mr. Hooley, the surveyor for Nottinghamshire, who uses a motor-car in his journeys of inspection. We have hardly any scientific knowledge of road-making in England. Between two high hedges in the country will generally be found about six feet of grass on either side of a wide roadway. The latter is bowed in form, so that the natural inclination of things is towards the gutter. What is wanted, said Mr. Hooley at the dinner given by the Nottingham Automobile Club, is that the road surface should be flat, that the grass should be removed in order to widen the thoroughfare, and the whole surface arranged so that speedy traffic and slow moving vehicles should each have their place without interfering with the other. We were glad to hear Mr. S. F. Edge take up the point, and in the name of the motoring fraternity welcome Mr. Hooley's efforts to secure such a desideratum in his own county of Notts. It is understood that a piece of road about five or six miles long will shortly be available which will present some features commending themselves to motorists; and, what will appeal even more to county authorities, the proposed new method of construction will be less expensive than those ordinarily employed. During the last decade a great improvement has taken place—Mr. Edge instanced the reformation attained on the road between Thetford and Newmarket—and especially in the eastern counties have great works been undertaken, but it is not so much in the variation of details as in the wholesale alteration of principles of road-making that reform will have to come. Hence the interest with which we await the development of Mr. Hooley's plans for the county of Nottingham.

Just as the balloon may be said to have hindered the airship, and as the railway schemes of the earlier parts of the last century were a factor in the retardation of the motor-car, so must the locomotive be held responsible for the neglect of road-making, which, prior to the railway era, was—as Mr. B. H. Thwaite, C.E., points out in the August "Nineteenth Century," one of the most important of the constructional sciences. In his article, which is entitled "A Motor-car Way through England," Mr. Thwaite revives a proposal made some years ago to construct a special automobile or cycle way from London to Carlisle, and thence to Glasgow or Edinburgh. The central portion would be reserved for motor-cars, the surface being formed of specially hard creosoted wood blocks with asphalt joints. The foundation would be of concrete. Passing ways could be provided at intervals of a mile which would facilitate the progress of cars. Such a roadway, in the view of the author, would provide the minimum of wear whether of tyre or roadway, and would thus do something

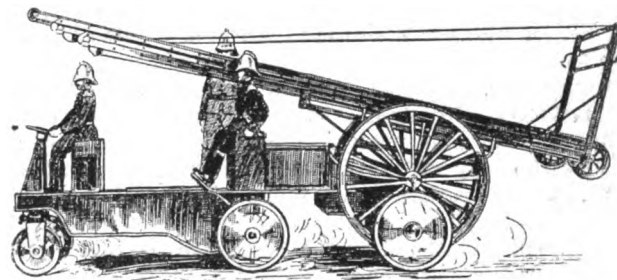
to lessen the expense of tyres as well as of road maintenance. In drawing public attention to the possibilities of such a venture Mr. Thwaite has rendered a useful service to the automobile industry, and Mr. James Knowles deserves the thanks of motorists for introducing the matter in the columns of the "Nineteenth Century." Meanwhile the idea may well be kept before the public, and those who have influence in high places should exert it in attempting to secure an experimental track whereon could be tested the merits of the idea, and also any new notions which inventors may bring forward in the interest of all who use the highway.

CAPTAIN WELLS' MOTOR-TRACTOR.

WE are this week able to publish two illustrations of the motor-tractor which has been devised by Captain Wells, the Chief of the London Fire Brigade, and to which reference was made in our issue of the 2nd inst. The tractor consists of a frame (1), constructed of light steel girders so arranged as to carry a motor of any kind. The steering device comprises two wheels (2) mounted upon a short transverse axle carried in a frame (3) which is pivoted to the tractor body. The steering gear (4), passing through a vertically inclined shaft



(5), is controlled by a wheel near the driver's seat. The axle for the two driving wheels is carried in strong brackets projecting from the rear end of the tractor, and these brackets support upon springs a frame (12), to which is fixed a turning-plate (13). The two parts of the driving axle (8) are connected by differential gear, the main wheel of which is adapted to be driven from the motor. It is claimed that the application of the new tractor to existing vehicles does not necessitate any material alteration in their construction. All that is necessary is to remove the fore-carriage and place the tractor in such a position that its driving axle takes the place of the axle of the fore-carriage, securing it in position simply by inserting the pivot bolt.



Owing to the weight of the tractor and its relative position to the vehicle when going round curves, the possibility of the latter overturning is said to be greatly lessened. In the case of fire brigade or similar appliances, the tractors can be made interchangeable, and each station may be furnished with a number of reserve tractors or appliances. Moreover, the tractor can be used when desired as a separate or independent vehicle.

THE General Motor Car Company, Limited, have opened a garage at London Road, Norbury, S.W. A stock of petroleum spirit and motor-car accessories is kept on hand, while a speciality is being made of teaching would-be motorists the driving of cars.

CONTINENTAL NOTES.

BY AUTOMAN.

AUTOMOBILE road racing on the Continent is now thoroughly classic, but the Circuit des Ardennes has drawn a herring across the track and there is much difference of opinion in regard to the programme to be followed in future. The A. C. B. is justly proud of the success of the Bastogne race, and is already taking steps to make this an annual event. In the first place, there is to be a meeting of the mayors of the Communes crossed by the route comprised in the Circuit des Ardennes, and Bastogne will probably be the meeting place of the small congress which will discuss the measures which should be taken in future in order to improve the conditions of the event. Then there is a scheme afoot to make it a two or three-day event, running different classes of cars each day. Thus there will be no fear of there being too many cars on the road at the same time, and yet there will be no limit to the entries. It is possible that the road may be modified, some of the bad turnings robbed of their difficulties, and generally conditions made which will be more favourable to high average speeds.



TWO WELL-KNOWN AMERICAN MOTORISTS—MESSRS. W. K. VANDERBILT, JUN., AND D. WOLF BISHOP—AT CHARTRES, FRANCE.

Automobile Magazine.

THE meeting this year brought a large amount of money into the district and nearly all the inhabitants profited by it. Those who let lodgings for the night profited most directly, and there was, of course, the usual exploitation which is common in such circumstances. No doubt, as the event becomes permanent, arrangements will be made to satisfactorily accommodate all the visitors who may wish to go and take part as spectators in the event. It will certainly add much more interest both to the competitors and to the spectators to run each class separately, for otherwise nine-tenths of all the interest in the event falls to the share of the lucky winner of the heavy-car class who is pretty sure to be winner in the general classification.

THE eccentric proceedings connected with English racing for automobiles, as pictured in the foreign mind in the light of the late meetings of Bexhill, Welbeck, and Dashwood, is chaotic to say the least. I have tried to explain it several times within the last few days to friendly foreigners who, as a rule, have an admiration for the way in which we carry out matters in England from the point of view of law and order, but it has been time wasted. French automobilists and journalists interested in the sport were just beginning to take an interest in the English events, and were going to considerable trouble and expense to attend those meetings.

IN the *Auto Velo* M. Desgrange wants to know what will happen next year with regard to the Gordon Bennett Cup, and how France is going to have a chance to bring it back. He evidently has in view the organisation and announcement by advertisement of the great event on English soil. He sees in his mind's eye Rene de Knyff, Fournier, Girardot, etc., etc., together with perhaps three Germans, three Belgians, and three Austrians, crossing the Channel with their cars and with all the staff necessary to compete for this important event. Then he sees a sudden and inexplicable appearance on the scene of "Bobby" with the inevitable white baton, with which our English policeman is always supposed to be armed, and the suppression of the race, apologies and regrets from the A. C. G. B. I., and the Gordon Bennett Cup remaining in England. The article ends up by calling upon England to come and run the Cup race in France and thus show what good sportsmen we are.

WHILST on this subject it might be profitable to consider what other countries and other people are doing. Everyone will remember that on the occasion of the Paris-Vienna motor-car race the Government of Bosnia, through their Commissioner, Mr. Moser, issued an invitation to automobilists taking part in the race to push on to Bosnia and visit that country and Herzegovina. It will be remembered that quite a number of *chauffeurs* accepted the invitation, and that they were received in a most enthusiastic manner. Here is a translation of a passage in an official letter which Dr. Horowitz, the Minister of Finances, has addressed to the Austrian Automobile Club: "The Ministry has the honour to present to the Austrian Automobile Club its sincere thanks on the occasion of the automobile excursion into Bosnia which was organised with so much care, and which will serve to lead our newly-founded industry towards yet unknown channels. We most particularly beg the Committee governing the Club, which took so much trouble, and also those who participated in the excursion, to accept the assurance of our gratitude."

THE kilometre races at Deauville promises to be an important and interesting event. There are already sixty-four entries, including Panhards, Mors, Darracqs, Clements, Gobron-Brillies, C.G.V.'s, Serpollets, Gladiators, Decauvilles, etc., etc. Jarrott, Gabriel, Augieres, Heath, Leys, Levegh, Osmont, etc., are competing, so that old battles will be fought over again. The event takes place on the 26th inst., that is to say, next Tuesday week, and the cars will be weighed on the day before. The races will commence with a motor-bicycle competition and will finish with a heavy car competition, so that the interest will be sustained and will, in fact, be greatest at finish. No doubt, a feature of great interest in the event will be the battle between steam and petrol.

TALKING about steam and petrol as competitors for the kilometre it will be remembered that M. Leon Serpollet made the record on his Easter Egg at Nice in the spring of this year. This record has just been beaten by W. K. Vanderbilt, jun., on a Paris-Vienna Mors car, which completed the kilometre in 29½ seconds on the Ablis road. M. Serpollet contends, and with justice, I think, that his record is not yet beaten, for Mr. Vanderbilt chose his own course for the kilometre and had three attempts; whereas M. Serpollet's record at Nice was over a fixed course, and there was only one try for it. The best way, however, to settle the question will be for M. Serpollet to attack the record made by Mr. Vanderbilt in the same conditions that it was run, and this, I am led to believe, is what M. Leon Serpollet means to do.

THE accident which occurred to M. Henry Deutsch, the donor of the 100,000 franc prize which was won by M. Santos Dumont last year in rounding the Eiffel Tower in his air ship, has not had any severe consequence. M. Deutsch was driving the car with which Marcel Renault won the Paris-Vienna motor-car race, and whilst taking a sharp corner the car skidded in the loose dust and fell into a quarry which was only protected

by a light palisading. Both M. Deutsch and his mechanician got off with slight injuries. I am sorry to say that such has not been the case with Dompnet, who drove a Clement car in the Paris-Vienna race and also in the Circuit des Ardennes. Whilst returning from the Ardennes something went wrong with the steering gear of the car and a severe accident took place, in which Dompnet sustained a complicated fracture of the legs, and he succumbed to his injuries last Sunday.

THERE has been an exhibition of sport in St. Petersburg, and the President of the Jury was no less a person than M. Witte, the Minister of Finance. There was a section for motors, and prizes were awarded for motor-cars, motor-boats, motor-cycles, and petrol motors. For motor-cycles the Minerva was awarded a gold medal.

ALL sorts of projects are already on foot for next year's road race, and amongst the principal of these is a scheme for a Paris-Berlin-Vienna contest. This is the outcome of a movement which is on foot to found an International Club, or rather, as far as matters have gone at present, a Continental International Club, for I do not see as yet any mention of inviting England to join in. A congress of German *chauffeurs* which has just been held at Eisenach has decided to accept the invitation of the Bavarian Automobile Club, which has undertaken to organise across Germany this great event. Another project which has been carefully studied by the A.C.F. consists of a 500-kilometre circuit in two laps, and a course has already been found not very far distant from Paris, where there need be no neutralisations, and where there are no level crossings or other difficulties.

A THIRD project is a race from Paris to Madrid, which it is said is looked upon most favourably by the young King of Spain and those who surround him. There are, of course, the roads which in ancient times were used by post-chaisses and diligences before the invention of railways, and the Spaniards would see with pleasure these old thoroughfares come into life again and become the haunt of numberless motor-cars.

THE fifth international exhibition of automobiles, cycles, and sports will take place in the Grand Palais from the 10th to the 25th of December next, organised by the A.C.F., and under the presidency of M. Gustave Rives. There will be sixteen classes, namely, automobiles of all kinds, motor-cycles, and all mechanically propelled vehicles; manufacturers only are admitted to this class, and they are bound only to show automobiles and cycles of their own make. Foreigners are admitted. Sections are arranged for motor-cars; cycles of all kinds; tools and material for the manufacture of automobiles and cycles; tyres; *Chassis* and mechanical parts for automobiles; spare parts and accessories; motors and accumulators; trade class for agents; navigation; aerial navigation; application of alcohol; divers sports and touring; carriage work; clothes and equipments; inventions; books, photographs, publications and papers. The exhibition will be open from 10 a.m. to six p.m. at prices varying from one to five francs. All members of the A.C.F. have a right to a free ticket.

ON Monday of last week Mr. J. T. Overton made a good run from London to the *garage* of the Road Carrying Company, Limited, in Hardman Street, Liverpool, on a 10-h.p. Georges Richard car. Mr. Overton, accompanied by two friends, made the journey in nine and a-half hours' running time. The party was actually on the road for some fourteen hours, the stops including one due to a puncture and several for refreshment. They left the Euston Hotel at 10.30 on the Sunday night, and reached the "Sugar Loaf" at Dunstable two hours later. A fresh start was made shortly after 8 o'clock on Monday morning, and, travelling *via* Coventry, Newcastle-under-Lyme, and Knutsford, the destination was reached at 8 o'clock in the evening.

NATIONAL AUTOMOBILE CLUB BADGES.



The Automobile Club of Great Britain and Ireland.



The French Automobile Club.



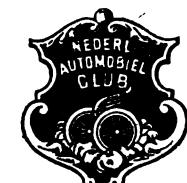
The German Automobile Club.



The Belgian Automobile Club.



The Danish Automobile Club.



The Dutch Automobile Club.



The Italian Automobile Club (Milan Section).



The Austrian Automobile Club.



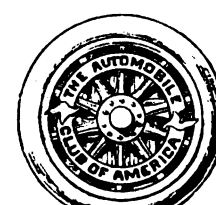
The Swiss Automobile Club.



The Alsace-Lorraine Automobile Club, Strasbourg.



The Bavarian Automobile Club, Munich.



The Automobile Club of America.

ON Saturday the week end run of the Manchester Automobile Club was to Southport, the route being *via* Eccles, Warrington and Ormskirk.

THE magistrates of Mistley, in Essex, have decided to petition the Standing Joint Committee of the county to provide the police with stop watches for the purpose of timing the speed of motor-cars.

THE police have a measured quarter of a mile on the road at Farnham Royal, near Windsor, and the attention of the Chief Constable of Berkshire is being called to the speed of motor-cars passing through the district.

MR. E. J. STEPHENS, of 5, Sarsden Buildings, Wigmore Street, W., has sent us a sample of a liquid metal polish he has just introduced. It is claimed that the polish is specially adapted for the bright parts of motor-cars, including acetylene lamps, etc., and that it is not affected by rain.

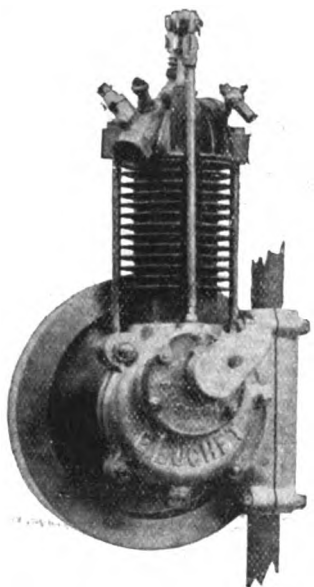
ON Monday and Tuesday the Ivel agricultural motor went through further trials by cutting crops of wheat with a 6 ft. cut reaper and binder, in the neighbourhood of Biggleswade, and to prove its further utility a two-furrowed plough was attached to the motor and a piece of land was ploughed. The motor did its work well with both reaper and binder, and plough, and doubtless more will be heard of this useful machine.

HERE AND THERE.

SIR CHAS. CAYZER, M.P., lately made a trip from London to Barrow on his motor-car, the journey occupying two days.

THE list of entries for the trials of tyres to be held by the A.C.G.B.I. next month closes at noon to-day (Saturday).

WE are now able to give an illustration of the bicycle-motor which has lately been put on the market by M. Buchet, and which is being introduced into this country by Messrs. Brandes and Perkins, of Coventry. The motor develops $2\frac{1}{2}$ brake horse power, the diameter of the cylinder being 2.5-8 in. and the stroke $2\frac{1}{4}$ in. In designing it the aim has been to get the maximum power for the smallest size



and weight. The valves are located directly over the piston instead of being cast on the sides, allowing the gases to have a perfectly straight course in and out. The motor can be fitted in various positions on the frame, a strong 7 inch aluminium clamp being provided. An outside flywheel is fitted. The weight of the motor, including the 15 lbs. flywheel, comes out at 25 lbs., while its dimensions are $18\frac{1}{2}$ in. by $8\frac{1}{2}$ in.

MESSRS. G. T. RICHES AND Co. have just put in an accumulator charging plant at their depot at 4, Gray's Inn Road, W.C.

THE National Association of Automobile Manufacturers has protested against the ruling of the U.S. Interior Department excluding motor-cars from the Yellowstone Park.

MR. A. NIXON has been appointed manager of the motor-car insurance department of the General Accident Assurance Corporation, Ltd., 13, Pall Mall, London, W.

MR. A. R. SHATTUCK, the President of the Automobile Club of America, in conjunction with Mr. C. F. Bishop, has opened a regular summer school at Lennox, Mass., for the automobile training of horses.

MR. HOSPITALIER, the eminent French electrical engineer, is taking an interest in automobilism, and is, we hear, now engaged upon a new design of car which will be worked by petroleum and electricity without accumulators.

THE car with which Mr. Vanderbilt last week reduced the world's mile and kilometre records was fitted with Continental tyres. These tyres were also very successful in the Circuit des Ardennes race, they being fitted to the 70-h.p. Panhard driven by Mr. Jarrott.

THE bronze cup offered by the Automobile Club of Belgium for the best touring car in the Circuit des Ardennes was won by M. Gregorie on a Germain car, while the gold medal offered by *L'Automobile* to the first Belgian car in the general class was gained by M. Coppée, who also drove a Germain car

ON Thursday next, the 21st inst., the Lincolnshire Automobile Club will hold a run to Boston.

THE latest suggestion in connection with the Gordon Bennett contest of 1903 is that it should be run in the Isle of Man.

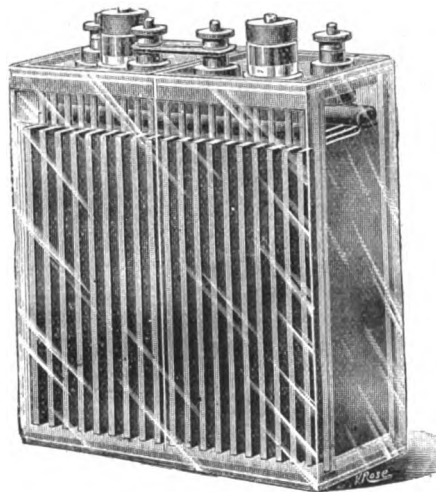
ONE of the new Merryweather motor steam fire engines was shipped a few days ago to Selangor, in the Straits Settlements. We learn that similar vehicles are also in hand for Capetown and Alexandria.

THERE are now more than 1,800 members of the A.C.G.B.I., the latest additions including Baron H. de Rothschild, Count R. H. Ward, Sir Charles Cust, Bart., M.V.O., and Sir C. E. Dawkins, K.C.B.

THE Kensington Motor Company, Limited, now have a "travelling motor workshop" ready to despatch at any time with experienced mechanics to the relief of motor-cars in difficulties.

CHEVALIER RENE DE KNYFF, the well-known motorist, has been given the Cross of the Legion of Honour for "services rendered to French industry." M. Darracq has also received the "decoration du Merite Agricole" on account of his efforts to promote the use of alcohol as a motor fuel.

MESSRS. ASHMORE, BENSON, PEASE AND COMPANY, LTD., of Stockton-on-Tees, have recently introduced a battery for ignition purposes on petrol motors, which, it is claimed, avoids many of the weaknesses commonly found in accumulators for this work. It is known as the A. B. P. storage battery, and is the invention of Mr. C. E. Lugard, the firm's electrical engineer. The positive plates are of the electrically-formed Planté type, prepared in a special manner, while the negative plates are of the pasted variety. The positive plates are cast with horizontal ribs of small section close together, supported by vertical strengthening bars of larger size. The horizontal ribs are carried right across the larger strengthening bars, thereby keying in the active material formed on the latter, and at the same time cutting up the plain surface of the vertical bars so that should any scale become detached it would be broken up and fall to the bottom of the cell.



making a short circuit impossible. The negative grids are cast with undercut ribs which effectually prevent the paste from falling out. Although the active material is continuous from end to end of the plate, transverse ribs of small section divide up the grid into small pockets or cells, communicating with one another, but in such a manner that should some of the paste be inclined to come away, it would not affect the material in any of the adjoining divisions. The accumulator is made up into 2, 4 and 6-volt sets with a capacity of 10 or 20 ampere-hours, according to size. The makers claim that the battery, weight for weight, gives a larger capacity than any other cell on the market, while the method of preparing the plates renders them extremely durable and homogeneous. The weight of a 4-volt ignition set having a capacity of 20 ampere-hours is only $6\frac{1}{2}$ lbs., including the acid, celluloid case, terminals and stoppers.

CORRESPONDENCE.

A NOISY QUAD.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to a letter from one of your correspondents who is troubled with a noisy quad, perhaps, as having similar experience, I can help him. First, he should be certain that the noise is in the differential gear, and not from the driving pinion on the motor shaft meshing too tightly with that on the axle, as he can easily take off this small pinion on the motor shaft; do so, and then by turning the wheels, the part the noise is in can easily be ascertained. If in the differential, the bearings want adjusting, as the large cog may be rubbing against the side of its case. If it is not in the differential, the cause will be that the motor pinion is bearing too hard in mesh with the large pinion. Take out the cross bolts that secure the motor to the frame, or loosening them may be only necessary; then by moving the motor slightly, so that the pinions do not bear so hard into each other, he will find the noise will cease. By filing the bolt holes in the stays the motor can be fixed in the necessary altered position.—Yours truly,

ROBERT GUFRIN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It seems to me that "Perplexed's" differential gear is either worn or run dry of lubrication. The best thing he can do is to disassemble the back axle and make a careful examination. It is quite probable that the small wheels have worn considerably.—Yours truly,

"FLASH."

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In your issue of August 2nd, one of your correspondents write for advice as to "A Noisy Quad." I also was troubled with noise, but have now got mine to run as quietly as a quad can be run. I will detail a few of the chief causes of noise according to my experience, and their cure. Firstly, let "Perplexed" ascertain that the noise is in the differential (this I doubt) by jacking up the after part, and holding one wheel and turning the other. If the noise is here, even when the case is full of soft grease, then he will either require the wheels dressing by a skilled mechanic, or else entirely replaced if much worn. I have found nine-tenths of the noise to come from the gear wheels. Firstly, they may be too deep in gear or too lightly in gear; try various adjustments until the least noise is obtained. Secondly, the wheels should be thoroughly covered with fairly thin grease, in fact a pound or two may with advantage be put in the gear case; this, besides lubricating the working parts, deadens the ring of the metal. Thirdly, the piston may be running stiffly, causing extra friction and jar. Put about one tablespoonful of paraffin into the cylinder every thirty miles, and well lubricate. Fourthly, drive with as little gas as possible, and advance the sparking to gain speed. Fifthly, and most important, see that the engine is securely bolted to the machine and all tight, especially the bolt through the bottom stay. I have found a very satisfactory grease made by Mr. Pidd, oil and grease merchant, at Stockton-on-Tees; it is a special grease and I get him to mix black-lead with it, and then I thin it down to the correct consistency with motor cylinder oil.—Yours truly,

A.M.I.N.A.

RE BENZ CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Mr. R. M. H. Walford very kindly offers to give more details to anyone in trouble with a Benz car than he did in last week's *Journal*. I will be very thankful if you will please inform Mr. Walford through your *Journal* that I should be glad to receive some further hints or instructions how to rectify my faulty engine so as to get more power in it. I can hardly change from second speed to top speed on a level road; but if there is a little descent in road, then the top speed will catch on all right and keep on unless there comes a little rise, then it begins to slow down, and I am obliged to change to second speed again or the engine will stop altogether very soon.—Yours truly,

J. W. WOOD.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Your correspondent, J. W. Wood, will probably find that the unsuspected cause of the loss of power in his 3½-h.p. engine lies in the mechanism for timing the exhaust valve. The roller connected with the cam on the half-time shaft occasionally, either from want of cleaning or lubrication, becomes worn on one side, and fails to revolve freely. The exhaust valve in this way is not opened at the proper time, and, consequently, much power is lost. The only remedy for this is, of course, a new roller. Should this not hit off the sick spot, J. W. W. might try grinding the valves. Failing this, he should explore for a leak in the packing—either in the water jacket, sparking plug, or exhaust valve, and finally the piston rings must be examined. These little cars require all the power that the engine can give at its best, so if one wants to get any satisfaction at all from them, every part must be kept in perfect condition.—Yours truly,

TURTLESE.

TYRES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having driven a 5-h.p. Wolseley *tonneau* car for the past twelve months, Mr. Todd's "end-to-end" drive is very interesting reading; but he says nothing concerning the behaviour of his tyres, by which I presume he experienced no troubles.

I have, and am still using, 750 by 65 of a certain make, and rarely pass a day without either punctures or bursts.

I shall be glad to know the class of tyre he has adopted, and if he is satisfied with it; also the number of the teeth on sprockets of his car.—Yours truly,

"TYRED OUT."

DE DION TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I possess a De Dion 4½-h.p. voiturette, and though the car travels all right when once coaxed to go, I have great trouble in starting the engine. The position occupied by myself and my mechanic, taking it in turns to twist a handle round for about twenty minutes or more, before a constantly increasing and satirical street crowd, is not an enviable one. Can any of your readers offer me any suggestions in the matter? I have tried squirting petrol into the cylinder, sometimes with success, but as often as not without.—Yours truly,

DOCTOR OF MEDICINE.

A TUBE IGNITION QUERY.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Perhaps one of your readers could inform me through the *Journal* whether it would not be possible to utilise the heat given out through the exhaust for bringing up to the required temperature the "tubes" (ignition) in place of the petrol blast used for this purpose.—Yours truly,

ECONOMY.

MR. ARTHUR GOODWIN, of the Ormonde Motor Company, writes us as follows:—"Our attention has been called to notices in the motor Press giving results of a match which took place recently in Brussels between four riders of motor-bicycles fitted with Kelecom motors, and four riders of bicycles with motors of another make, which state that, although the Kelecom engines used were of a much larger bore and stroke than their opponents', the latter won by eight points.

"As sole agents for the Kelecom motors for the United Kingdom we at once communicated with the makers that we might learn the true facts, which they state are as follows:—No Kelecom bicycle-motors have ever been made with a bore of 82 mm. and stroke of 86 mm., and they have never fixed engines anything like as large as these upon bicycle frames, so that the facts stated by the rival house bearing upon the main points are false and misleading; moreover, the Kelecom motor did much the quickest time in the chief event of the match, beating its nearest rival by nearly 600 yards, and it was wholly and solely tyre troubles that accounted for the Kelecoms' opponents being able to win on points. We should be pleased to give them an opportunity of repeating the performance in this country, using the identical engines employed upon the previous occasion, providing we are allowed to erect the said motors in our own workshops upon English frames and tyres, the match to be for 50 miles on the road or track, and the loser to pay to the Starley Memorial Fund the sum of £50."

BOARDING A MOTOR-CAR.

A REMARKABLE case came before the Epsom Justices when Henry John Hammond, guard on the Defiance coach, was summoned for assaulting John Watson, whilst the latter was driving a motor-car near Epsom, on the 26th July. Complainant, who is in the employ of Mr. Hearsey, of Epsom, said on the day in question he was returning from Ockley, and when near Epsom the "Defiance" coach passed him as he was restarting after a stoppage. He blew his horn in order that the coach should let him pass, but the driver pulled across the road on the wrong side. Witness slipped by on the left side, and suddenly defendant jumped on the car, caught him round his neck, leant forward and touched a lever, which sent the car forward at full speed. Defendant subsequently jumped off. F. H. Wiltshire said he saw defendant get off the coach and board the motor-car. Henry Cook said he saw the motor-car coming down the street going from one side to the other. Defendant and Watson were struggling together. After hearing the defendant the magistrates felt that he had taken the law into his own hands and he was fined £1.

MOTOR-CYCLE RACING.

OVER 8,000 people attended the motor-bicycle races at Plymouth on Saturday last. In the final five miles scratch race, open to all classes and powers of motors, Martin (Excelsior) was first away, Rigal catching him at the third lap. Wright, of Coventry (Excelsior) also caught and passed Martin, Rigal nearly lapping the latter at the conclusion. Time, 7 min. 58.2-5 secs. The one mile international scratch was a popular race open to all classes of motors, the first and fastest second in the two heats competing for the final. Martin, Yates (Humber), and Philipstal were first, second, and third in the first heat; and Rigal, Wright, and Heath were first, second, and third in the second. The final was won by Rigal by nearly a lap.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	FINES.
Newcastle - on-Tyne	C. H. Coning	20 m. p. h.	40s. and costs.
Liskeard	S. H. Pearce, London	Above legal limit.	Dismissed.
* Kendal	A. Wilkinson, Barrow	" "	£3.
"	J. Carlisle "	" "	Warrant issued.
Stirling	C. M. Farrow, Glasgow	" "	£5.
Northampton ...	J. Watts, Warwick	" "	Adjourned.
* York	R. K. Micklethwaite, Barnsley	" "	10s. and costs.
"	C. O'Connor, Bradford	20 m. p. h.	£3 3s. and costs.
"	J. C. Walker, York	27 m. p. h.	£2 2s. and costs.
"	T. Gillett, York	" "	£2 2s. and costs.
"	J. A. Souther, York	" "	£2 2s. and costs.
Camelford	J. T. Clifton, Lytham	Above legal limit.	£3 and costs.
Guildford ...	H. T. Tatham, Claygate	" "	£3.
* Malvern	W. H. Hastelow	" "	7s. 6d. and costs.
Brentwood	W. Astell, Twickenham	" "	£3 and 6s. costs.
Oxted	A. Ellis, Sydenham	24 m. p. h.	£2 10s. and costs.
Beaconsfield ...	J. W. Lancaster, Upper Norwood	Above legal limit.	Dismissed, wrong man.
"	G. Kirby, Watford	" "	£5.
"	G. Watson, Newport, Mon	" "	£5.
Market Rasen	G. Cobley	" "	Adjourned.
Epsom	J. T. Findall, Market Rasen	20 m. p. h.	14s. 6d.
Stratford - on - Avon	J. Watson, Epsom	Above legal limit.	Adjourned.
Penzance	E. J. de Normanville, Leamington	" "	Dismissed.
Spelthorne	F. Barton, Newlyn	" "	Dismissed.
Guildford	Lord Garvagh	25 m. p. h.	£10.
"	H. Morley, Albury	Above legal limit.	40s. and costs.
"	F. Lawson	" "	£3.
"	H. Thetham, Claygate	18 m. p. h.	£3.
"	A. Craig, Putney	30 m. p. h.	£3.
"	F. White	21 m. p. h.	£3.
"	E. Poucher	For exceeding 6 m. p. h.	Dismissed.
"	E. Poucher	Above legal limit.	£3 and costs.

* Motor-cycle cases.

JOHN WATTS, motor-car driver, 1, Mill Street, Warwick, was summoned at Northampton for furiously driving a motor-car on the public highway at Yardley Hastings on June 19th. The case had been adjourned from July 19th. A letter from defendant to the Clerk was now read apologising for being unable to attend, and stating that at the time of the accident to a calf in the village there were very few people about. He had made an offer of £3 to the owner of the calf, which he was willing to accept. He further stated that the damage to the car amounted to about £4. The Clerk was instructed by the Bench to reply that defendant must attend the next sitting of the Court, or a warrant would be issued.

In the case against Mr. S. H. Pearce, at Liskeard, the police described his pace as twenty-four miles per hour. Defendant denied driving at a higher rate than nine miles an hour, and said it was impossible to travel in Seaton Valley at the rate stated. The case was dismissed.

At York, Walker, Gillett, and Souther, employees of the British Power Traction and Light Company, of York, were summoned for driving rapidly on the Tadcaster Road. Although they were merely testing new cars, they were fined as heavily as if they had been racing to the common danger.

At Guildford, Mr. E. Poucher was charged with riding a motor-cycle with a trailer attached, in the parish of Send and Ripley, on the 13th of July, at a speed exceeding six miles an hour, that being the speed limit for that kind of vehicle. Police-sergeant Jarrett stated that he saw the defendant riding a motor-cycle, attached to which was a trailer containing two people. The cycle covered the 176 yards in 21 seconds. The speed was 17 miles an hour. The defendant said he had committed the offence through ignorance of the law. He thought his speed limit was 12 miles an hour, like an ordinary motor-car. He had a licence for a vehicle with four wheels, the number of wheels the cycle had with the trailer attached. Mr. Poucher was further charged with riding a motor-cycle at a speed exceeding 12 miles an hour at the same time and place. The defendant denied that he was going 17 miles an hour. It was impossible, because of the load he had attached. Mr. Edward Holmes, one of the occupants of the trailer, stated that they went at a uniform pace from Lavender Hill to Ripley, and he thought their speed was about 9 miles an hour. The first case against the defendant was dismissed. For riding above 12 miles an hour he was fined £3 and costs.

F. BARTON, against whom a charge of furious driving was preferred at Penzance, drives one of the public service vehicles running between Newlyn and Marazion. Mr. Smith, the manager of the company owning the cars, offered to place a car at the disposal of the magistrates to prove that it could not exceed the legal limit—an offer which was not accepted by the Bench, who declared that the charge was not proved.

In the case against Mr. E. J. de Normanville at Stratford-on-Avon, a blacksmith swore that the defendant was travelling at the rate of forty miles per hour. The foreman of the works where the car was built deposed that it was fitted with four different speed gears, ranging from four to twelve miles an hour. Fixed governors limited the speed, and it would be absolutely impossible to exceed twelve miles an hour on the level road. No wonder that the magistrates dismissed the case. Fortunately for Mr. Normanville, Stratford-on-Avon is not in the home counties.

MR. J. W. LANCASTER, of Upper Norwood, has been the victim of a curious mistake. He attended the Beaconsfield police court on Monday to answer a summons charging him with driving a motor-car at excessive speed. Mr. Lancaster explained that he did not possess a motor-car, nor had he ever driven one. To this the police replied by producing a visiting card bearing the defendant's name and address, which had been presented by the person stopped. The witnesses, however, were not able to identify Mr. Lancaster as the person in question, and the bench dismissed the case. Mr. Lancaster intimated that he would lay the matter before his solicitor.

At Market Rasen Petty Sessions, John T. Findall, a cycle agent, was fined 14s. 6d. for driving a motor-car at twenty miles an hour. The chairman of the Bench, Colonel Gordon, said when out driving he had nearly been thrown into ditches by "those motor-cars," and now he was so nervous that, for personal safety, he hoisted a red flag whenever he saw or heard a motor-car coming near him.

MOTOR-CAR v. WAGGON.

A CASE of great interest to motorists was tried in the Nottingham County Court last week, when Mr. H. W. Bartleet, a member of the Nottingham and District Automobile Club, sued a cab proprietor named Richards for £10 10s. damages caused to a motor-car by the negligent driving of defendant's servant, Marshall. It appeared that on the 28th June, Mr. Bartleet, along with Mr. A. R. Atkey, the hon. sec., and several other members of the Nottingham Club, was proceeding down Arkwright Street on the way to Trent Bridge, the occasion being a Club run. When nearing Kirkewhite Street (which crosses Arkwright Street at right angles) Mr. Bartleet drew in to his near side of the road, slowed his engine down till the car was running at only five miles an hour, and motioned to Mr. Atkey, who was behind him, to pass; Mr. Atkey went by and was leading when the cars came opposite Kirkewhite Street, looking down which thoroughfare Mr. Atkey noticed a wagonette approaching Arkwright Street, to the driver of which both he and his passenger signalled. No notice, however, was taken of his signal, and the wagonette came on into Arkwright Street on its wrong side of the road, and ran into Mr. Bartleet's car, doing considerable damage to same. His Honour, Judge Masterman, to assist him in his decision, sent for the car, which was brought up to the Court. After seeing the vehicle the Judge said he had come to the conclusion that the story told by the plaintiff was the correct one. He gave judgment for the plaintiff for the amount claimed, with costs, and dismissed the counter-claim.

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THE Motor-Car Journal.

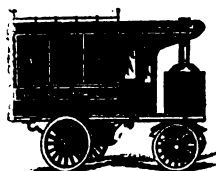
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COMMENTS.



THE forty-eighth annual report of the Postmaster-General on the business of the Department for the year which ended on March 31st, which has just been issued, contains a brief reference to the question of the use of motor-cars in connection with the postal service. The report states that "fresh experiments have been made in the employment of motor-cars for the conveyance of parcel mails, and a contract has been arranged for a service of this kind between Liverpool and Manchester. So far no motor-vehicle has been found which can be relied on to carry heavy loads of mails with the same regularity as vans drawn by horses." It must be remembered that the service between Manchester and Liverpool was not inaugurated within the period covered by the report just issued, so that the final sentence in the above extract may now need modification. Indeed, this would seem to be the case, otherwise the Post Office authorities would hardly have arranged for the further service in the Manchester district mentioned in our last issue. No reference is made in the report to the trials of electrical vehicles by the Post Office in London, but we learn that the small Oppermann van, described and illustrated in the *Journal* in connection with the Exhibition at the Agricultural Hall, has now run over 1,500 miles without the slightest trouble or breakdown of any description.

The Shah.

Aprèpos of the visit of the Shah of Persia to this country, we may mention that His Majesty is a devotee to automobilism, and has several Serpollet cars which he took back to Persia with him the last time he was in Europe. As everyone knows, he has been staying lately in Contrexeville for the benefit of his health, and whilst there he expressed a desire to see the wonderful "Easter Egg" in which the record kilometre was accomplished at Nice in the spring, when M. Serpollet covered the distance on the promenade in 29 4-5 seconds. From Paris to Contrexeville was only a short run for M. Leon Serpollet, who at once gratified the wishes of the Shah and presented himself at his hotel, where he had a cordial interview with the Persian monarch, who not only went down into the courtyard to see the famous car, but also allowed himself to be photographed standing in front of the car.

Reason at Last.

REVERTING again to the publication of cases of alleged furious driving by motorists, we feel convinced that, in this way, the absurdities that now pass muster as judicial rulings will eventually defeat their own ends. At the last meeting of the Hampshire County Council Mr. Trinder remarked that the Standing Joint Committee's report made no reference to the regulation of the speed of motor-cars, which he thought the Committee had considered. Lord Northbrook replied that it

was deemed advisable by the County Council that in places where there was a straight run of roadway, the police should not be too strict, and that the regulations as to a statutory pace should only be strictly enforced in towns and villages, where there would be danger to passengers if the pace were excessive. This is a very reasonable attitude—under the circumstances—to assume, and we hope that an equally just view of the matter will be taken in other counties where long straight stretches of roadway, with which motorists are familiar, ought not to be used as trapping grounds for unwary drivers.

Motor-Cars in South Africa.

WE learn that a company has just been formed in Cape Town with a capital of £30,000, to be known as the South African Motor Car Company. It is intended to act as general importers and dealers in all kinds of motor-cars, cycles, and every description of machinery and parts used in the construction of this class of vehicle, and to employ a competent staff of mechanics. In addition to running cars for pleasure trips, the directors also propose at an early date to establish a public service to the Docks in Cape Town. An early morning "workmen's" service will also be instituted at a low rate.

The Scottish Club.

A SUCCESSFUL run of the Scottish Automobile Club, Western Section, took place on Saturday last, to Garelochhead. Notwithstanding the fact that the great majority of the members of the Club are at present scattered for the vacation, there was a very good representation at the meet. The well-known Whistlefield Hill, which is adjacent to the place of rendezvous, informally made a test of the climbing capacities of some of the cars, which continued their run across the hill further into the Highlands.

A Nervous J.P.

THE confession of Colonel Gordon, that whenever he sees a motor-car whilst driving he becomes nervous, ought to be taken note of; for it represents the judicial mind that is brought to bear on motor-car cases. Seeing that he is so prejudiced, we should have thought the nervous Colonel hardly the kind of person to adjudicate in automobile matters; but under the present arrangements he is able to convict and fine any motorist who comes before him. Of course he would not do so against the weight of evidence, but, seeing that he acknowledges holding a red flag whenever he sees a motor-car, he can hardly be described as one who has no antipathies.

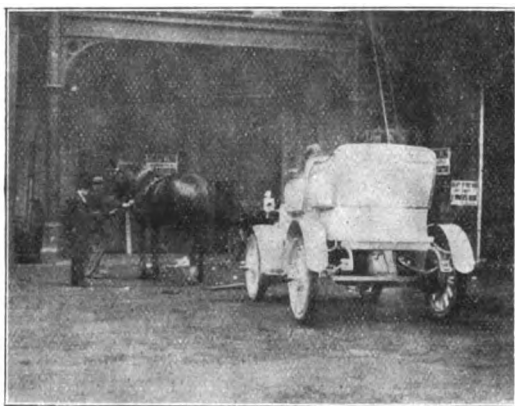
Proposed Automobile Club for Sheffield.

A WELL-ATTENDED meeting of local motorists was held in Sheffield on Thursday last week, to discuss the advisability of forming a Sheffield Automobile Club. Mr. J. R. Wade, who presided, said that for some time past it had been in the minds of a few motorists to have a club in Sheffield. He did not

think it was necessary to say why they should have one in a large centre like Sheffield, remembering that in Manchester and Nottingham there were clubs which were doing very well. They could not decide anything definitely that evening, but they might discuss in an informal way as to what form the club should take, and how it should be run. His own idea was to have it affiliated to the A.C.G.B.I., and that a further meeting should be held in the course of a week or so. A brief discussion followed the chairman's statement, and it was agreed to act on the lines suggested by him. Mr. Wade was appointed secretary *pro tem.*, and a small committee was elected to act with him.

Horses in Garages.

WITH reference to our notification in a recent issue of the presence of a horse at the garage established by Messrs. Jones and Co., at Lichfield, that firm write that they would have added the words, "educated to motor haulage," but such might have put the nerves of beginners to high tension. When there is an automobile breakdown in that district they turn out to the car



with their educated horse, who soon assists the disabled vehicle to a place in the garage where it can be thoroughly overhauled. Even the horse has its uses in connection with motor-cars, as the accompanying photograph shows.

Motor-Cars in Japan.

ACCORDING to a report from a correspondent at Yokohama, it is improbable that the motor-car will ever become the pleasure vehicle that it is in Europe and America. The country roads are described as too poor, and the city streets too narrow and too crowded for motoring to be indulged in freely and with pleasure. On the other hand, there is a fair prospect that automobiles may gradually come into use for purposes of business. It is reported that the postal authorities are now considering the advisability of purchasing motor-cars for the transportation of the Imperial mails at Tokyo. At present petroleum spirit is exceedingly expensive in Japan, but plans are in progress for its manufacture in this country.

On the Bath Road.

In a recent issue we mentioned that the automobile traffic on the great Bath Road between London and Maidenhead has attained such proportions, and is said to be causing such damage to the highway, that the Slough Council had resolved to ask the Local Government Board to receive a deputation on the subject. At the last meeting of the Council a letter was received from the Local Government Board intimating that they would prefer to receive the Council's objections to the speed of motor-cars in writing. As a result, we hear that the idea of sending a deputation to the Whitehall authority has been abandoned for the present.

A Motor-Bicycle Endurance Trial.

MR. E. H. ARNOTT, whose Land's End to John o' Groat's record on the Werner motor-bicycle has inspired him with an affection for distance records, set out for an endurance trial on the Crystal Palace track on Tuesday. After a little more than an hour had elapsed, during which Arnott covered 36 miles 342 yds., a heavy downpour compelled a retreat. In consideration of the heavy wind it was decidedly more prudent to postpone further record-breaking to a more propitious occasion.

Hill Climbing Trial in Yorkshire.

TO-DAY (Saturday) the Yorkshire Automobile Club will hold an informal meeting and hill-climbing competition at Harewood Bank. The trials will consist of a hill-climbing test, from a standing start at the Bar House, Cross Roads, Harewood, to a point at the commencement of Harewood Village, a total distance of 1,548 yards, with an average gradient of 1 in 22, the steepest portion being 1 in 11. On page 503 we give a profile of the course over which the competition will be held. These trials are primarily organised for the members of the Y.A.C., but non-members, manufacturers and agents are invited to compete, on the understanding that the entrance fee of 2s. 6d. per vehicle is paid to the hon. secretary before Friday, the 22nd inst. Competing cars are to carry not less than two persons, including driver. Any car or cycle having to stop, on the trial, for obstruction of road, may have the option of returning to the starting point for a fresh trial, but must wait until the previous entries are carried through. Each competitor on arrival at the starting place must draw up well to the left of road, near Bar House (towards Arthington); and at the conclusion of the trial each car is to be drawn up on the side of the road opposite the Harewood Arms. To avoid confusion it is desirable that competing cars shall not descend the hill until after the trials. A certificate will be presented to each competitor stating the net time in which the hill was mounted, distance, number of passengers carried, and equivalent speed in miles per hour. Speeds above twelve miles per hour will not be recognised.

After Goodwood.

THE number of cars in the Arundel district during the Goodwood race week seems to have alarmed the policemen, and at the local Petty Sessions a police-constable has been explaining that on July 31st, during Goodwood race week, in consequence of many complaints received respecting motor-cars travelling along the Chichester road at a rapid pace, he measured out a distance 587 yards (one-third of a mile). He placed his son at one end of the measured distance with instructions to drop a handkerchief as soon as a car passed the line. Witness stood at the other end. He timed a motorist with the second hand of an ordinary watch, and he covered the distance in fifty seconds, which he thought was at the rate of about twenty-four miles an hour. Sir H. Fletcher was evidently well pleased with the action of the police in the matter, and said that the furious driving of motor-cars must be put a stop to. "We who use the road," he said, "for driving and riding are subject to great inconvenience by these motor-cars. They are dangerous to every class of society." Later this judicial functionary declared that motor-cars were a nuisance—so that motorists need not look for much lenience from the Arundel bench.

Proposed Motor- Car Service near Birmingham.

RESIDENTS in Erdington will in all probability be shortly provided with a further means of communication with Birmingham in addition to the buses and train service. It is intended to run a motor-car which will meet the tramcars at the tram terminus at Gravelly Hill. Pending the obtaining of a licence from the District Council Committee, it is proposed to run a car as an experiment without charge, and to make four

Journeys in the hour. It is calculated that at a speed of twelve miles an hour the journey to and from the terminus will be accomplished in eight minutes. Should the experiment be supported by the public, it is intended to form a syndicate and provide a regular service, at a fare of twopence the journey. Should the project prove successful, a second motor-car will be constructed for the Erdington service.

A Comparison.

AN automobile correspondence has broken out in the columns of the *Pall Mall Gazette*, in the course of which many silly letters have appeared. The most reasonable contribution to the discussion was that of Mr. Stephen H. Terry, M.I.C.E., who from Kingston has written giving early reminiscences of the days when traction engines and steam rollers were uncommon objects on country roads. He was then employed on some large road locomotive works in Kent, and it was frequently his duty to go away with new engines and rollers. He noticed, in driving an engine or steam-roller past horses, that when the driver of the horse was not frightened, and when the horse was not tortured into frenzy by bearing-reins, and specially large and close-fitting blinkers, and when nothing fancy in the way of fenders or fire-irons called bits was in his mouth, a slight extra alertness, with perhaps an increase of pace, was usually the only recognition he gave when driven by a fearless driver. But in the hands of a timid, nervous, or bullying driver, the horse would frequently become a biped and search for a gap in the hedge, or, if the road were between high walls or in a rock cutting, would show a tendency well calculated to make him eligible for the Alpine Club. Ladies seemed to fare best, for they seldom hit their horses, and there seemed to be a sort of camaraderie between them and their animals, all too often wanting nowadays. Of course he always stopped the engines at sight of a nervous driver or horse, and he became convinced that in nine cases out of ten the former was the cause of the latter. To endeavour to baffle the growth of mechanical locomotion and traction on common roads because a few imperfectly trained horses (owned by timid persons who object to progress of every kind) shy at them would be as foolish as to endeavour to dam the waters of Niagara.

The Dust Problem.

MUCH comment having recently been made with regard to the Monte Carlo experiment with coal tar to lay the dust caused by motor-cars, some interest attaches to a letter which a Sussex farmer has addressed to the press. He says that in the early summer of 1900 a can of hot coal tar was upset on the high road of the village of Graftham. The tar thus spilled can still be seen within a mile of Selham Station, and although two years have passed since it was accidentally laid the surface is hard and resilient, and absolutely free from dust. We shall be glad to hear from any of our motoring friends who have driven over that road. Meanwhile we notice that not only at Slough, but in Cheshire and elsewhere, the dust raised by motorists is being made a subject of discussion by local authorities.

Dust on Roads.

In order to test the efficiency of the petroleum treatment of roads, with a view to reducing the dust raised by motor-vehicles, the *County Gentleman* will pay the expense entailed in treating one or two miles of main road. It is to be hoped that some of the road authorities of the country will accept the offer.

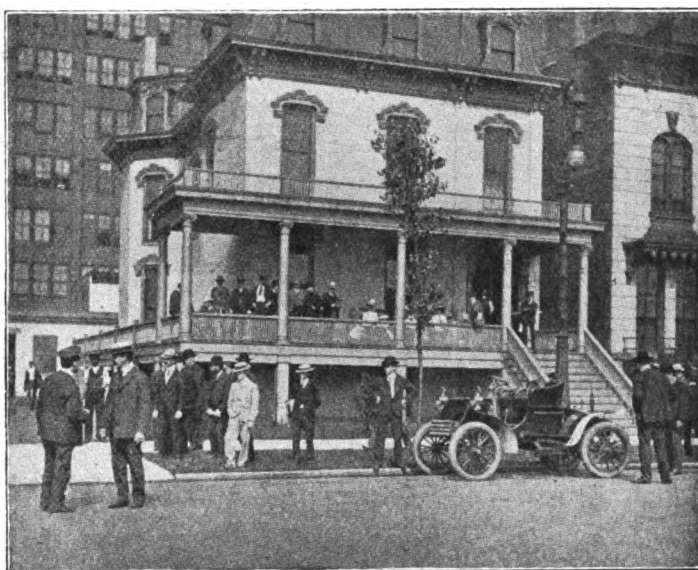
In Lakeland.

THERE is need of further automobile education in the Lake district, for at the last meeting of the Cockermouth Rural District Council letters were read from leading Keswick residents drawing attention to a recent coach accident caused by a motor-car, and suggesting that certain roads should be scheduled

as forbidden to motors. Several Councillors said they had no power to prohibit motors, but agreed that they were dangerous on the narrow winding Lakeland roads, with their sharp turns. Canon Pollock thought they should not be allowed to exceed five miles an hour, and ultimately the matter was referred to the Works Committee of the Council. Someone ought to take Canon Pollock for a motor-car ride. In Sussex there are magistrates who believe that the roads are only for horse-drawn vehicles, but not even Sir H. Fletcher has suggested the scheduling of certain roads as forbidden to motorists.

Another American Endurance Contest.

AN 100-mile endurance contest was held under the auspices of the Chicago Automobile Club on the 2nd inst. It was the first of the kind in the district. Of the thirty-nine entries (four steam cars and thirty-five petrol vehicles) twenty-nine started, and twenty-four completed the journey within the time limit of 12 hours 30 minutes, or an average of eight miles an hour. The Committee had established the strictest regulations to prevent excessive speed, not only for the entire journey but between controls. The rule was that the cars should not travel



THE CHICAGO AUTOMOBILE CLUB HOUSE. THE SCENE AT THE START.

at a speed greater than fifteen miles an hour nor less than eight. No penalty was imposed for tyre troubles, stoppages by the police, to avoid frightening horses, to render aid in case of accident, for impassable railroad crossings or blocked roads. The following table shows the nine competitors who were successful in making the run without any stops and without being penalised for any cause, thus receiving blue ribbons:—

				Time.
C. S. Mason	...	Knox	...	7 14 5
John Farson, Jr.	...	Winton	...	7 15 5
Fred. J. Pardee	...	Packard	...	7 15 47
Frank X. Mudd	...	Winton	...	7 16 35
Percy P. Pierce	...	Pierce	...	8 1 40
C. A. Benjamin	...	Locomobile	...	8 1 45
Roy D. Chapin	...	Olds	...	8 2 39
M. Wiggles	...	Olds	...	8 2 50
S. B. Arnold	...	Locomobile	...	8 30 20

More Persecution.

WE notice that many of the newspapers circulating in Surrey and Sussex have lately published leaderette notes in which, while professing to have every sympathy with motorists, they apparently seek to throw dust in the eyes of their readers. For whilst proclaiming that they have no hostility or

motor-vehicles, they apparently congratulate every police-constable who manages to secure a conviction against some motorist, even when it is on very doubtful evidence. In Surrey there has been another full haul of motorists, nine drivers being summoned on one day for furious driving. Several of the defendants asserted that their vehicles would not go the pace alleged, and one of them offered to take the justices for a ride on his car in order to prove that fact, but such offers have apparently no delight for magistrates, and it is very clear that, in these two home counties at least, automobilists need not expect any very great indulgence. We think it only right, in the interests of the sport as well as of the industry, to warn drivers going through those counties to be especially careful whenever they see a man in plain clothes hovering about, or when they are in close proximity to farm buildings or clumps of trees.

The War Office and British Industry.

IN the columns of the *Daily Mail* Mr. S. F. Edge complains that the English War Office has purchased a motor carriage not made in this country, and adds that it seems rather curious, with the number of really good motor manufacturers now in England, that our War Office should have to go abroad for their cars. He has addressed a letter to the War Office on the subject, so far, however, without result. We would add the hope that every opportunity will be given for the War Office to test the capabilities of English made cars. Already the military authorities have purchased motor-vehicles from four different English makers—a fact that shows they are not hostile to British traders. Still their ways must be watched, and the national industry should be adequately encouraged by the public service.



MR. W. J. CRAMPTON ON HIS 10-H.P. DECAUVILLE CAR.

The Accident in France.

THE sad accident to the American millionaire, Mr. Fair—reference to which is made by our own Continental correspondent—should prove a warning to those who delight in high speeds on ordinary roads. The partiality of the wealthy men in the United States for rushing along the American roads at such terrible rates has resulted in a great deal of prejudice being aroused to arrest the progress of Automobilmism. Threatenings from farmers and convictions from magistrates have been of no use in checking their unwarranted abuse of the public highway. While expressing every sympathy with the relatives of the unfortunate Mr. and Mrs. Fair, we would express the hope that their end will be a lesson to the rich motorists of the United States who have hitherto totally disregarded the feelings of their countrymen with regard to the speed of their motor vehicles.

Automobiles in India.

So much attention has lately been paid by the English War Office to automobiles, that a suggestion for their adoption in connection with the Indian Army transport service comes with added interest at the present time. Such a vehicle, it is thought, would have to be "a combination of car and trailer, seating twenty-five men. The machinery of the car will perform a multiplicity of duties. It will be adaptable as a source of motive power to other machinery, for sawing wood, drawing water, pulling the punka (by which the annual bill for this purpose will be greatly reduced), and for providing electric light, etc. The car itself will be capable of a great variety of work, carrying men, freight, guns, pontoons, and for service with field telegraphs, and balloons. It will be provided with the means for the attachment of shields for protection against rifle fire, and to form at a pinch a miniature armoured train. The cost of such a car with its trailer, to carry twenty-five men or two tons of freight, at an extreme speed of twenty-five miles an hour, will be from £500 to £600. This will be considerably reduced if a large number of machines are ordered. With four such cars, enough transport for a company, sufficient data may be obtained in India by which their value may be ascertained. If this is proved to be satisfactory, a great number for transport purposes may be tried at one of the military stations, to be extended to others if good results were still forthcoming."

Fruit Growers and Motor Cars.

MR. ARTHUR PAGE, who, if we mistake not, is a member of the well-known suburban firm that has had considerable experience of Covent Garden work, sends us some information as to the performance of a five-ton Thornycroft lorry on the road between Sittingbourne and London, which seems to confirm what we have already published as to the boon that the automobile is likely to prove to the fruit grower of Kent. Mr. Page left Chiswick at 9 a.m. on a recent Tuesday morning, ran down to Sittingbourne, where he collected a full load of fruit, which was put on Covent Garden market at 4 o'clock the next morning. This same run was accomplished on each of the three following days, the fruit arriving at Covent Garden on each occasion in splendid condition, and in ample time for the market. Thus a total mileage of 364 miles was made in less than four days; an excellent performance. Anyone acquainted with the road between London and the Kentish town will quite understand the severe test to which the vehicle was put. The first few miles of the road out of London is made up entirely of cobble sets, and after passing this there is not half a mile of flat road for the remainder of the journey, but in no single way did accident occur, and the reliability, as well as the economy of time, was satisfactorily proved. More than that, the fruit thus brought in by road realised higher prices, because it was marketed in better condition than that carried by rail. Hence Mr. Page's belief in the promising outlook for fruit growers that will be furnished by the adoption of motor traffic.

Motor-Car Mishaps.

ON Tuesday General Sir Evelyn Wood inspected the Monmouth Royal Engineers (Militia) under the command of Lord Raglan. Afterwards the General and Staff proceeded in a motor-car to Abergavenny, where a serious accident was narrowly averted. While the machine was being reversed towards the entrance of the Angel Hotel, a brake refused to act, and the car ran upon the pavement and into the wall of a shop, just missing a plate-glass window. Captain Wood, A.D.C., who had alighted, had a narrow escape from being caught between the car and the wall. On the same day Captain Burns Hartopp, Master of the Quorn Hunt, Mr. A. C. Burnaby, and the Rev. R. C. Dashwood were thrown from a car and injured while motoring near Rearsby, Leicester.

Old Moore.

WITH a precipitation rivalling that with which the evening papers follow those of the morning journals Old Moore's Almanac for 1903 comes out ere the autumn of 1902 has been reached. Each month of next year will, according to this ancient anticipator, have some outstanding feature, and "road locomotion will make vast strides in May," while in March "flying machines will be the surprise of the day." With such prognostications from such a popular favourite as Old Moore, motor-car makers can look to the future with confidence.

Motor-Cars v. Railways.

WITH characteristic persistency Mr. Norman Macdonald continues to urge the views he expressed with regard to railway policy, in a paper read before the British Association. He believes that the railway companies will have to revolutionise not only many of their methods of working, but also many of the designs of their rolling stock. More than that, he has just addressed a letter to the Scottish press, which has been widely quoted south of the Tweed, in which he says that "Sooner than most of us think, a new competitor will claim serious attention on the field in the shape of the public service motor-car, which, owing to its great mobility, convenience, and swiftness, will filch the traffic largely from the railways. The only advantages a railway can have are that it can move its vehicles more quickly, since it has a track of its own, and that generally pretty level and straight; and also for its own margin of profit can move its paying load in large bulk."

Aerial Navigation.

THE risks which are inseparably associated with aerial navigation tion necessarily cause its progress to be slow. Neither are its commercial advantages immediately perceptible, while for military purposes its value is dubious. Hence everything combines to render its pursuit a spasmodic one, without that continuous experiment based on prior experience which is perfecting our ordinary road locomotion. Nevertheless the history of the subject is particularly interesting, and, as told by Mr. Frederick Walker, C.E., in a book, "Aerial Navigation," just published by Messrs. Crosby Lockwood and Son, is likely to prove useful to serious students of the subject. Those who followed the recent series of articles on "Mechanical Flight Up-to-date" in the *Journal* will find much supplementary information with regard to the laws of flight and also as to the structure of airships and materials. A whole chapter is devoted to the various airships that have been designed since 1847, when Mr. J. M. Partridge invented his "Pneumadrome," and the hundred diagrams which are given are exceedingly helpful to an intelligent study of the matter.

WE are officially informed that the Belgian Government have decided not to carry motor-cars on the steamers running between Ostend and Dover. No reason is assigned for this departure.

THE annual motor-cycle competitions of the A.C.G.B.I. will be held at the Crystal Palace on Friday next, the 29th inst. Three events are scheduled, and as we go to press we learn that a good number of entries has been received.

AN Australian lady visiting Scotland was killed a few evenings ago through a motor-car running into a hedge near Howwood, in Renfrewshire. Mr. Robert Allen, who was driving the car, and a second lady had each a broken arm, and the Rev. Mr. Gilbert was also seriously injured. Mr. Allen had only recently purchased the automobile.

ON Saturday last the Burnley and District Automobile Club had its first run, among those participating in the event being the Mayors of Burnley, Nelson and Colne, and the Town Clerk and Chief Constable of Burnley. The route taken was *via* Barrowford and Gisburn to Bolton-by-Bolland, where tea was provided. Altogether more than fifty members and friends were present.

FORTHCOMING TRIALS.

UNFORTUNATELY the weather prevented adequate publicity being given by the general newspaper press to the trials on the Duke of Portland's Welbeck estate, which we reported in our last issue. But that the trials should have been carried out there under such miserable conditions is a strong testimony to the value of the motor-car, and manufacturers who were fortunate enough to obtain awards are naturally proud of the doings of their vehicles. Now everyone is looking forward to the next series of competitions.

These will take place in the south of England, and were to have begun with the trial of electrical vehicles. Owing to the absence of entries, however, this has had to be abandoned.

In the first week in September will commence the 650 miles Reliability Trials of petroleum spirit and steam passenger vehicles, and also the 3,000 miles trial of Tyres. In the first-named trials the vehicles will start from, and return daily to the Crystal Palace, and will be on exhibition there every evening. The daily routes will probably be as follows:—

Monday, September 1st.—Crystal Palace to Folkestone *via* Sidcup, and back *via* Riverhead. 136½ miles.
Tuesday, September 2nd.—Crystal Palace to Eastbourne *via* Sevenoaks, and back *via* Edenbridge. 114½ miles.
Wednesday, September 3rd.—Crystal Palace to Worthing *via* Epsom, and back *via* Arundel. 119½ miles.
Thursday, September 4th.—Crystal Palace to Brighton *via* Bolney and back *via* Cuckfield. 93 miles.
Saturday, September 6th.—Crystal Palace to Tunbridge Wells *via* Riverhead, and back *via* River Hill, Pole Hill, and Westerham Hill. 62 miles.
Friday, September 6th.—Crystal Palace to Bexhill *via* Sevenoaks, and back *via* East Grinstead. 123½ miles.

During the first week of September, and subsequent weeks, there is to be carried out the trial of Tyres, the results of which will be followed with the keenest interest by automobilists generally. The trial will comprise the following sections:—

- (1) Pneumatic tyres. The sectional diameter of the tyres shall be such as the maker may consider suitable for a car weighing with load, &c., not less than 30 cwt.
- (2) Pneumatic tyres. For tyres of not more than 90 mm. by about 870 mm., fitted to cars weighing with load, etc., not less than one ton.
- (3) Experimental tyres, *i.e.*, tyres not yet on the market. In this case it is unnecessary that there should be a stock of tyres from which the tyres for the trials may be selected.
- (4) Hollow tyres, *i.e.*, those not inflated.
- (5) Solid rubber tyres.

IT is possible that a motor-car service may be adopted as a feeder to the Liverpool Overhead Railway.

M. SANTOS DUMONT seems dissatisfied with his treatment in the United States, and is said to be contemplating settling in Switzerland.

THE Christchurch Town Council has drawn the attention of the local police to the speed of motor-cars passing through that Hampshire town.

A FIVE-MILE motor handicap was included in the programme of the sports at the Horticultural Show at Moor Hall Park, Cookham, on Thursday last.

IT is reported that a syndicate is being formed to put a number of light electric motor 'buses on the principal omnibus routes of London at a uniform fare of twopence, irrespective of distance travelled. One of the principal features will be windows made to let down.

OWING to their increasing business in motor repairs, etc., Messrs. Donald and Company, of 61, Goldhawk Road, W., have taken additional premises in Wells Road, Shepherd's Bush. A large stock of motor accessories, oils, greases, petrol, etc., is kept on hand, and a plant for charging accumulators has been installed.

AT the annual meeting of the London General Omnibus Company on Wednesday, the chairman (Alderman John Pound) said that motor-omnibuses were being built by various firms, and the board expected to have one delivered within the next few weeks. So far, however, they had not seen one that fully answered their requirements.

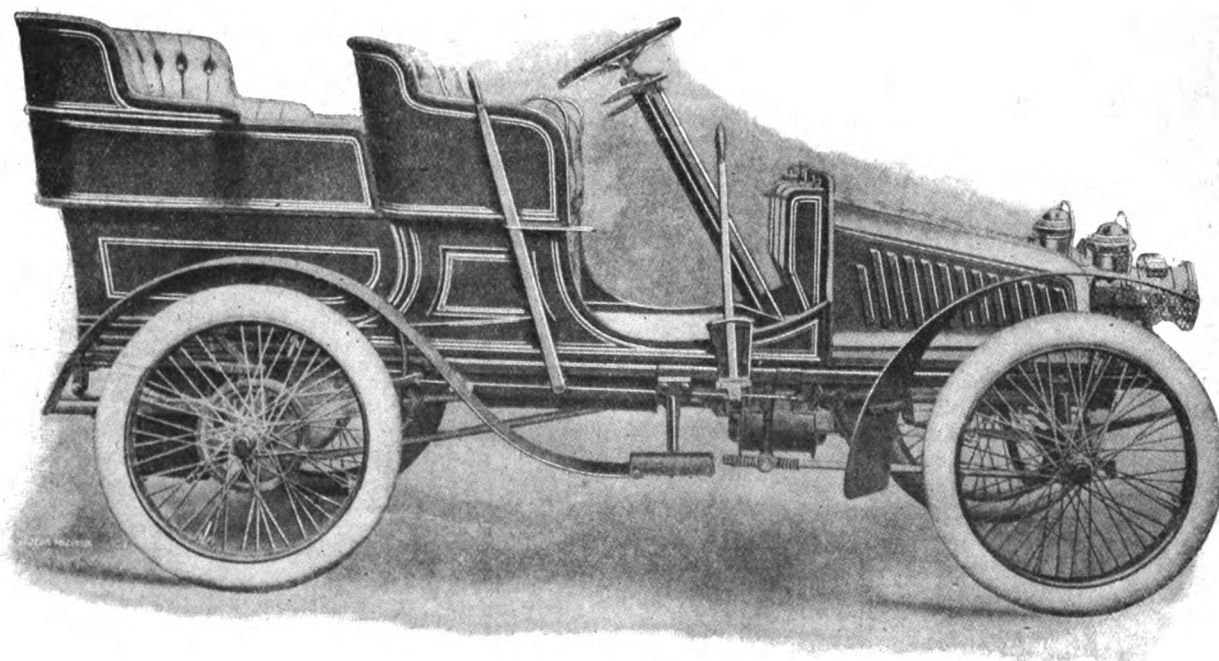
THE MATHIEU PETROL CAR.

STILL another car of Belgian design and construction is about to be put on the English market. It is made by an old-established firm at Louvain to the designs of M. E. Mathieu, who has had a long experience with motor-cars, and is being introduced into this country by Messrs. De Poorter and Co.

The car comprises a number of special features, which in the absence of detail drawings—that for the moment are not available—can only be briefly alluded to. Our illustration gives a general view of the car, and, as will be seen, it follows, in outward appearance at least, the now generally accepted design. The frame of the car is constructed of tubes well braced together. Under the bonnet, in the fore part, is set a single cylinder vertical motor, rated at 8-h.p., the cylinder being 110 mm. diameter by 130 mm. stroke, and the normal speed 1,000 revolutions per minute. The usual type of electrical ignition by means of trembler coil and accumulators is employed, these being located in a case under the bonnet, so that but short lengths of wire are needed. The explosive mixture is furnished by a float-

silent. Steering is controlled by an inclined hand-wheel, and to render it absolutely irreversible, a worm and threaded nut are provided at the upper as well as the lower end of the steering post, provision being also made whereby any wear can be readily taken up. A second pedal actuates a double-acting band brake on the longitudinal shaft just forward of the differential case; while a side lever controls band brakes—also double-acting—on drums connected with the hubs of the rear wheels. Great care has been taken to reduce losses by friction, it being claimed that from 85 to 90 per cent. of the power developed by the motor is given off the rims of the wheels. To this end the change gear shafts are mounted on ball-bearings, while the rear axle runs on ball bearings of a special form.

The car we inspected was fitted with a neat and comfortable body of the *tonneau* type, but any desired form of body can, of course, be fitted. We had a short trial run on the car of about a dozen miles on the Epsom road a few days ago, and found it exceedingly quiet and easy running, most of the hills being taken on the top speed. As soon as the drawings of the interesting change-speed gear are available we intend to refer to the vehicle again, but in the meantime may add that its weight com-



GENERAL VIEW OF THE MATHIEU CAR.

feed carburettor of the Bayard type. A special form of centrifugal governor is employed, this working in oil in an extension of the crank case; it is adapted to act on the supply of mixture to the explosion chamber by means of a butterfly valve in the admission pipe; a small handle on the steering column is provided to enable the motor to be instantly throttled down and consequently run slowly and quietly when passing through traffic or when leaving the car for a short time. The water circulation is maintained by a chain-driven pump, the water tank and radiator being located at the rear of the frame.

Coming now to the transmission, the motor transmits its power through a pedal-operated cone friction clutch of the progressive type to a gear box and thence by a universally-jointed shaft and bevel gearing to the rear live axle. Three speeds forward and a reverse motion are provided, all controlled by a single lever at the side. The change-speed gear is of the usual *train-balladeur* or shifting pinion type, but in the method of effecting the changes much ingenuity has been displayed. Without a drawing, however, it is impossible to clearly indicate the action of the gear, and it must suffice for the moment to state that the operation of changing speed can be effected by mere finger pressure on the side lever, and that the gear is remarkably

plete is about 13 cwt., and that it is capable of attaining a speed of thirty miles per hour on good roads.

THE Kildare Motor and Cycle Dépôt, 230, Westbourne Grove, W., are now in a position to undertake repairs to all kinds of motor-cars. A supply of petrol, grease, and accessories is kept on hand.

MR. A. LOCKYER, of High Street, Uckfield, whose premises are situated on the high road to Bexhill and Eastbourne, has, we learn, opened a motor-car *garage*, complete with inspection pit and charging plant for ignition cells and the batteries of electrical motor-cars.

AT the last meeting of the Rural District Council of Hollingbourne, Kent, a resolution was moved that "In the opinion of this Council the excessive speed at which motor-cars are driven in the district, especially on the main road from Ashford to Maidstone, is a serious and great danger to the public, and that it is desirable that the Chief Constable be asked to use every endeavour to bring to justice the drivers of motor-cars who are travelling beyond the pace allowed by law." No seconder could, however, be found, and the resolution had therefore to be dropped.

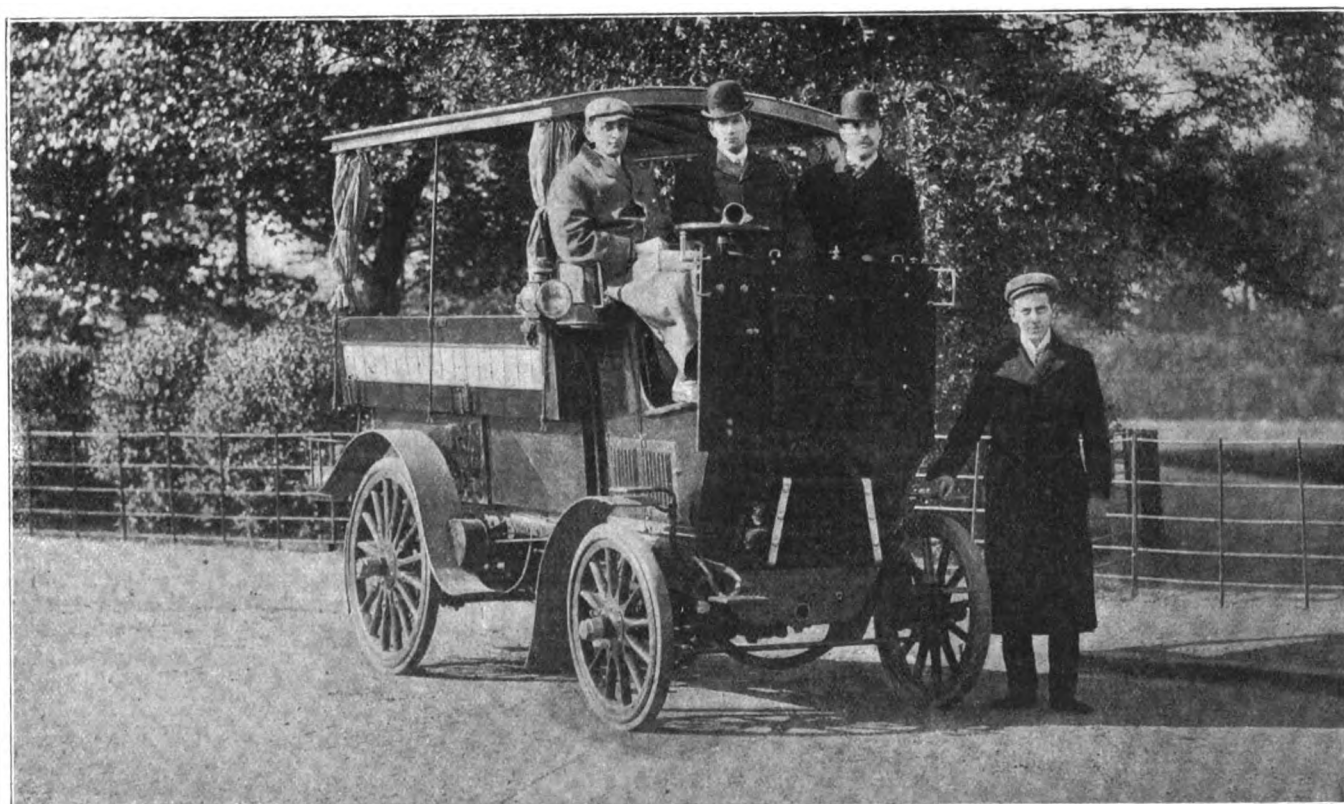
CONTINENTAL NOTES.

BY AUTOMAN.

THE sad accident by which Mr. and Mrs. Fair lost their lives on the road from Trouville to Paris last week has been the subject of so much newspaper comment that I need not enter into the details, but there have been so many fallacious accounts that it will be well to allude to it briefly, more especially as I happened to be driving a 40-h.p. Mercedes, similar to the one in which Mr. Fair met with his fate, on the same day and within a short distance of the scene of the disaster. It had been raining heavily on Wednesday night in and around Paris, and Thursday morning broke with a solid downpour at first and then a Scotch misty drizzle which lasted until eleven. At 11.30 I had promised to call for some friends at the Elysee Palace Hotel and take them for a run, and we set out towards Rouen intending to lunch at Nantes. The roads about Paris were exceedingly

Panhard car, but facing the driver in such a manner that when he sits back in his seat they form a kind of footboard to keep him in it. Thus, instead of pressing the toes down with an effort to stop suddenly, the driver has only to straighten his legs at the knee and he has the full purchase of the back of the seat to help him, whilst his right hand closes the throttle almost automatically. I venture to think that Mr. Fair, who had just recovered from a violent fit of coughing, was not actually in this position when the tyre burst, and was therefore taken unawares, and it ought to be an absolute rule with those who drive fast cars never to "let her go" unless they are in the actual position I described above. I had a conclusive experience on this point last Sunday at midnight, driving through the forest of Lyo, along a perfectly open, wide and straight road, where I suddenly came upon a poacher's cart, without a light and right across the road, and had to pull up dead short!

THERE is, however, another side to this question which I



THE EARL OF DERBY'S NEW 18-H.P. DAIMLER BRAKE. (See page 504).

skiddy and even further away there had been rain and they were not in a fit state for any long bursts of high speed, and on that account I contented myself with using the fourth speed very occasionally and only on upward grades and on good surfaces.

THE only reliable account of the accident to Mr. Fair is given by the *mecanicien*, and it seems clear that the left hand back tyre burst and that the driver had not the presence of mind to stop immediately, as the *mecanicien* says he jumped up and advised Mr. Fair twice to slow down. Now everyone who has driven a 40-h.p. Mercedes of this year's type knows that all the brakes take the clutch out and that the throttle lever has a most powerful effect in instantly slowing down. The steering of this car is such that one hand on the edge of the wheel even at 110 kilometres an hour is quite ample. The other hand should be on the throttle valve and lying also on a spoke of the steering wheel, whilst the left foot is against the clutch pedal and the right against one of the brake pedals, which are both placed, not under the toe as in the

feel it my duty to allude to, and that is the tyre question. There have been too many burst tyres lately, and it is a serious danger which no doubt is recognised by the tyre manufacturers, and will consequently be looked into. All the tyre makers now use for speed a narrow tread, and in French automobile circles an opinion is gaining ground that after a certain wear this tyre cuts through the canvas, and is inclined to burst. The question requires to be looked into very closely, for it seems to be the only danger against which the cautious automobilist cannot protect himself, and if the sad fatality at Pacy-sur-Eure teaches the tyre manufacturers a lesson for the future, Mr. and Mrs. Fair will not have died in vain.

THE entries for the Decauville kilometre races have closed, and at the time of going to press included over ninety competitors. The races will take place along the sea front promenade, over a course really two kilometres in length, out of which 600 metres will be allowed for getting up speed, and half that distance for pulling up. The competing machines must weigh in at M. Duval's coal warehouse on Monday next, and the races

take place on Tuesday. Out of the eight classes, the greatest interest will no doubt centre around the seventh, which is for heavy racing cars, and which includes seven Panhards, four Mors, two Serpollets, two Mercedes and two Charron, Girardot and Voigts. The fight between the different makes of motor-bicycles will also be interesting, as there are nearly twenty entries.

ON September 7th next there will be a hill-climbing contest in Austria up the Semmering. The climb is between six and seven miles in length, with a steady rise of from two to eight per cent. There are the usual five categories, namely, bicycles, tricycles, cars up to 400 kilos, cars up to 650 kilos, and cars up to 1,000 kilos weight. There will be three classes, namely: first, the speed section, open to all; second, the "course de primes," which will be a sort of handicap open to all manufacturers and agents living in Austria; the handicaps will be made according to the type, weight, carriage work (number of places) power of motor, and sale price, and those cars which climb the hill in the time allowed by the handicappers will receive a certificate. The third class will be "a selling race," and competitors will have to declare the selling price and undertake to sell the car at the price indicated after the race.

ON September 14th next there will be a race meeting for automobiles organised by the Automobile Club of Salon, and called the Meeting of Provence. It will take place on the road between Salon and Havre, which is one of the best roads in France for the purpose, on account of its width, surface and levelness. The soil is stony, so that rain does not make it greasy, and there is not much dust. This is the third anniversary of the meeting, which takes place in a country filled with historic interest. The following is the programme of the event: The Provincial cup will be competed for in the morning, and the Criterion of Provence in the afternoon, and on the following day there will be an excursion to Mont-Ventoux. The cars will be divided into the usual five categories, and there are prizes offered by the General Council of the Department, the town of Salon, and the Arts Club. The entrance fee is fixed at twenty francs for the first category, fifteen for the second, ten for the third and fourth, and five for the fifth, which is, of course, for motor-bicycles. The entries will be closed on September 11th at 7 o'clock, and should be addressed to M. Bertin, President of the Automobile Club at Salon. It will be remembered that M. Paul Chauchard was the winner of the cup in 1899, whilst Beconnais won the motor-cycle race. In 1900 Jenatzky was the winner, and he had Edmond as his mechanician.

THE President of the A.C.F. has been lunching with Leopold II., the King of the Belgians, at Ostend, and discussing the late road races, including the Circuit des Ardennes. The King also talked of the Paris Exhibition which is to be held in December this year, and promised to come and see it. The road from Paris to Ostend was also a subject of conversation, and is quite likely to be realised at some not distant date. As far as the French frontier it has already been decided on, and it remains, therefore, for the French Government to come up to the scratch and complete it to Paris, *via* Amiens and Lille.

ON the 18th of October a road competition, in which the consumption of fuel and the regularity of the running will be the objects, will be held under the auspices of the Agricultural Society of Hérault. Hérault is a district in the south-east corner of France, bordering on the Mediterranean, and the object of the Agricultural Society in organising the competition is to promote the use of alcohol instead of petrol. The time at which the competition will be held is regulated so as to coincide with the end of the grape harvest, when the population, who are almost entirely engaged in this cultivation, have completed their year's work and sold the product of it. The meeting will commence by an exhibition of alcohol for lighting, heating, and motor power, and it will be held at Montpellier. On October 18th, at 9 o'clock in the morning, the motor-cars which are competing will start from Montpellier and travel to Lodève, and from thence *via* Pezenas to Cette and Frontignan and

back to Montpellier, over a total distance of 160 kilometres. There will also be, perhaps, a short hill-climbing trial at the Chateau-d'Eau, where there is an incline of from 7 to 12 per cent. There will be also a kilometre speed competition.

A NEW feature in the race is that the total sum received by the exhibition over and above 3,000 francs will be divided between the organisers of the exhibition and the competitors in the race. No charge will be made for space in the exhibition and there will be prizes given.

LAST Sunday there should have been a hill-climbing trial near Geneva, at the Grand Saconnex, but, unfortunately, on account of the pouring rain, the meeting had to be put off.

THE insurance of automobiles in France is the most difficult, costly and unsatisfactory affair, as there are so many classes of risks to be taken into consideration, and an economical combined policy does not exist. In the case of fire alone, you have to insure your car against fire while it is standing in the garage, and again whilst it is on the road, then you have to insure your stable and any other stable where it may happen to be, and after that comes the risk of the building adjoining your stable, or the building adjoining where your car happens to be for the night, and so forth; but when it comes to insurance against accident, the risks to be guarded against are innumerable, for, under the new laws in France, it costs about a thousand pounds if your mechanician is injured, whereas if you injure a multi-millionaire, your risk increases in proportion to his wealth and station. The Association Générale Automobile is studying the question with the object of bringing out a mutual insurance scheme, which will be a great advantage to all its members.

A GREAT change is coming over the manufacture of motor-cars, and Peugeot is bringing out a new car with a bee-hive radiator. By the way, the well-known Mercedes radiator is called the "Nid d'Abeilles," from its resemblance to the cells of a bee-hive. The new car has also mechanically-worked induction valves. Rochet-Schneider has also a car on similar lines, Leon Bollée is doing the same, and I hear of many others who are thinking of turning in the same direction. On the other hand, extravagant figures with regard to horse power, reaching up into the hundred and twenties, are talked about, and surely the limit of power to the 1,000 kilo. weight will soon be attained.

IN connection with the Automobile Race Meeting which is to be held in Frankfurt am Main on the 31st inst., the German Automobile Club is organising a tour from Berlin to Frankfurt. The party will leave Berlin on the 28th inst., and the first day will journey as far as Halle, a distance of about 110 miles. On the 29th Eisenach will be reached, and on the 30th the run to Frankfurt completed.

AN automobile club has recently been formed at Moscow, Russia; it has already forty-two members.

A FRENCH company has opened a branch in Singapore for the sale of motor-cars. Works will also be started for the repair of automobiles.

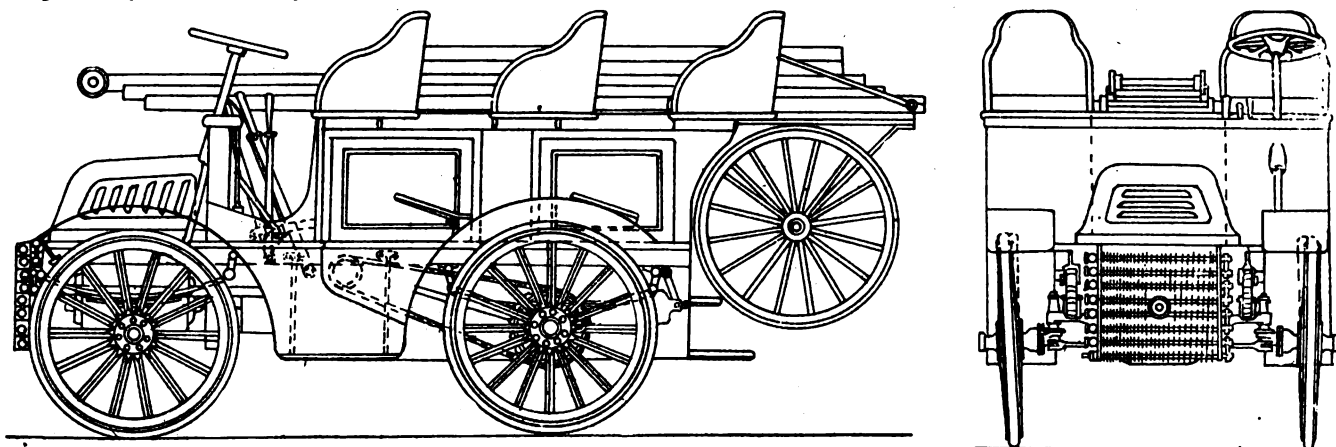
THE U.S. Consul at Port Antonio, Jamaica, reports that there is not a single motor-vehicle in his consular district, the same remark applying to the whole island. "However, there are several gentlemen who contemplate purchasing vehicles, but as none can be seen here, and from the fact that repairs may be somewhat difficult to obtain, they naturally hesitate."

THE North Shore Automobile Club of Boston has taken a drastic measure to detect and punish any of its members who may be guilty of furious driving on the roads. A new club regulation binds members to affix to their vehicles a club sign, with a large number, so that they may be distinguished from persons whose reckless running of cars is tending to make motoring unpopular.

MOTOR-CARS FOR FIRE BRIGADES.

ONE of the points of interest at the present time is the increasing attention which is being given to the question of motor-vehicles for fire brigade work. In a recent issue we illustrated the steam motor fire-engine which has recently been completed by Messrs. Merryweather, of Greenwich; in our

completed by a German firm—Messrs. Grether and Co., of Freiburg (Baden). It is driven by a Deutz two-cylinder horizontal petrol motor of 15 effective h.p. The engine has magneto ignition, and the water circulation is maintained by a small pump. The motor is fitted with a double-clutch arrangement, one connecting it with the transmission mechanism of the vehicle, and the other with a triple-acting pump mounted in the centre. Thus the one



FIGS. 1 AND 2.—SIDE AND FRONT ELEVATION OF THE CROWDEN MOTOR TENDER FOR THE LEAMINGTON FIRE BRIGADE.

last number we gave an illustration of the motor tractor designed by Captain Wells, of the Metropolitan Fire Brigade. This week we are able to publish two views of the motor tender which Mr. C. T. Crowden is building for the Leamington Fire Brigade. The motive power will be supplied by a four-cylinder petrol motor

motor supplies the power for propelling the fire-engine to the scene of the fire, where, once arrived, one clutch is disengaged and the other thrown in, and the pump instantly set in action. The vehicle is provided with two speeds, $7\frac{1}{2}$ and $11\frac{1}{2}$ miles per hour, the power being transmitted through the clutch to a gear box,

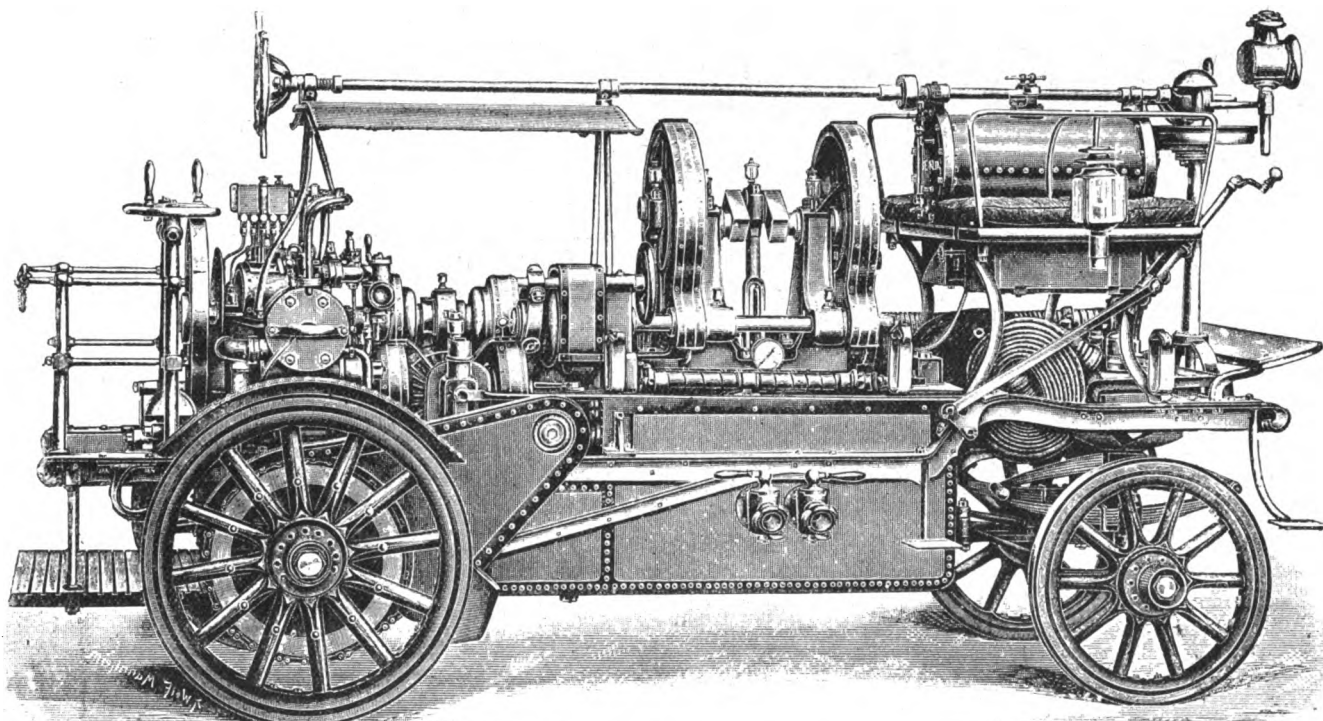


FIG. 3.—GENERAL VIEW OF THE GRETHER PETROL MOTOR FIRE ENGINE.

developing 20-h.p., and capable of propelling the vehicle at a speed of about twenty miles an hour. Four speeds and a reverse motion are included in the transmission gear, which is on the Panhard system. As will be seen from Figs. 1 and 2, seats are provided for six men, and provision is made for carrying a small fire-escape, scaling ladders, chemical engine, and three hundred yards of hose.

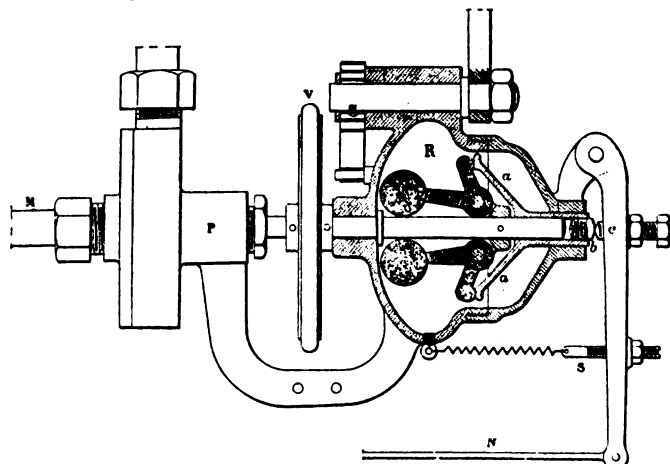
Fig. 3 illustrates a motor fire-engine which has lately been

in which either of two pinions on one shaft can be made to mesh with corresponding gear wheels on the differential shaft, which is connected to the rear road wheels in the usual way by two chains. The motor and gear are mounted on an iron frame, which is supported by springs on the axles. Seats are provided at the front for four firemen, while one man stands on the foot-board at the rear to control the motor, change gear, pump, etc.

The steering is so arranged that it may be controlled either from the left-hand front seat or from the rear; the brakes can also be applied from both positions. The fire-engine carries sufficient petrol for ten to twelve hours' running, 110 gallons of water, a large quantity of hose, and other fire accessories. The pump can discharge 165 gallons per minute, and throw a jet of water a distance of from 140 to 160 feet. It is claimed that, being propelled by a petrol motor, it can be got to work quicker than a steam fire-engine, and has the further advantage that when not in use no fire has to be kept up, as is the case with steam-driven engines.

A SELF-CONTAINED GOVERNOR FOR PETROL MOTORS.

THE illustration given herewith shows a section of a governor designed by two French engineers—Messrs. Lacoste and Battmann—and may be attached to any motor which is not provided with a governor. The device is arranged to be driven by friction from the flywheel of the motor in the same manner as the water circulating pumps are usually operated. In the drawing V is the friction pulley which drives at the same time a centrifugal pump P, shown at the left, and the two governor balls enclosed in a casing R. These balls, when receding from each other under the influence of the cen-



trifugal force, push back a funnel *a*, in the extreme end of which is screwed a stop *b*. This stop is always in contact with another one *c*, which is adjustable, and is mounted on a lever, to which is connected a rod *N*, which controls a throttle valve on the admission pipe. A spring *S* keeps the two stops in contact. When the governor balls recede from each other the throttle valve is closed and the speed of the motor diminishes.

THE Irish Automobile Club will hold a run from Dublin to Maynooth, to-day (Saturday).

TO-DAY (Saturday), the Manchester Automobile Club will hold a run to Tarporley at the invitation of Mr. J. Tomkinson, M.P.

THE minister who is required to hold services at different places on the same day need no longer disturb his conscience by driving a horse on the Sabbath. The Rev. Adam Baron, an Indiana minister, recently held services at one place and within an hour was ready at another point 17 miles distant. The motor-bicycle enabled him to accomplish this.

CLUBS and stones on one side, and revolvers on the other, are, according to highly coloured press dispatches from Lenox, Mass., being carried by the residents and the motorists respectively, of that fashionable resort. This state of affairs is said to be due to communications printed in the local papers, declaring motor-cars to be a menace to life, and calling upon persons in danger to protect themselves with clubs and stones.

LUBRICATION.

AN old saw in another tongue than the English is to the effect that a wagon well lubricated runs well. This simple truth applies even more to motor-cars than to horse-drawn vehicles, because whereas in the latter only the four axle bearings offer frictional resistance that can be reduced by lubrication, in the former frictional resistance must be overcome in all the numerous bearings of the propelling motor, its accessories and the transmission mechanism as well. The saying, however, does not tell the whole story of the importance of efficient lubrication, in so far as it only says that good lubrication results in easy running. While the saving in power effected by proper lubrication is not to be under-estimated, it should be remembered that defective lubrication results in undue wear of the parts and presents possibilities for breakdowns on the road of a kind that calls generally for a machine shop equipment to remedy.

The working out of the system of lubrication is one of the most difficult problems in the design of motor-cars. In place of the four bearings of an ordinary carriage we have in a motor-car quite a number of wearing surfaces that need lubrication continuously. To supply every one of these bearings with a separate oil cup is entirely impracticable, since the trouble of opening and closing all these oil cups after every short run and of keeping them filled would certainly be too much for the average owner. Splash lubrication in engines and the use of multiple lubricators for other parts have done much to simplify the system of lubrication and to minimize the annoying and uncleanly operations of opening and filling oil cups required of the driver. Also, the danger of forgetting to turn oil on some of the bearings, and thus subjecting the vehicle to the risks of an accident, is lessened. The use of multiple lubricators is, however, not yet general, probably because most of the devices that have so far been placed upon the markets have been rather expensive. Their application is gradually extending, however.

Next to the simplicity of the lubricating system its reliability is of importance. With ordinary gravity feed the passages, especially if long, as in the case of multiple lubricators, are liable to clog up and the bearing run dry. Mechanically-operated or force-feed lubricators are thus, remarks the "Horseless Age," to be preferred for the main wearing surfaces, such as engine cylinders. These lubricators present the further advantage that the feed of the lubricator varies with the speed of the operating part, and as the amount of lubricant required by that part is also in direct proportion to the speed, the best results are obtained with the least consumption of lubricant.

The kind of lubricant best adapted for various purposes is a question that forces itself upon almost every motor-car user. Vaseline is used in roller bearings and in gear cases with good results, although it is frequently claimed that for gear cases a heavy oil is better. For petrol engines with splash lubrication a high fire test cylinder oil must, of course, be used in the crank case, especially if this is the only means of lubricating the cylinder. Graphite is very efficient on all wearing surfaces to which it can conveniently be fed.

A NEW depot for the sale of motor-cars is about to be opened in Brighton by the National Garage and Automobile Company.

DURING his visit to England, Prince Henry of Prussia has indulged in many drives in the King's new Daimler carriage, one of his favourite runs being to Richmond.

AT the half-yearly meeting of the London and North-Western Railway Company, last week, the chairman (Lord Stalbridge), stated that the carting business was now being done by the company itself, instead of Pickford's. They were doing the work cheaper than Pickford's, but they would be only too ready to take any motor-car suitable for their service that could be worked in an economical manner.

RECENT TECHNICAL LITERATURE.*

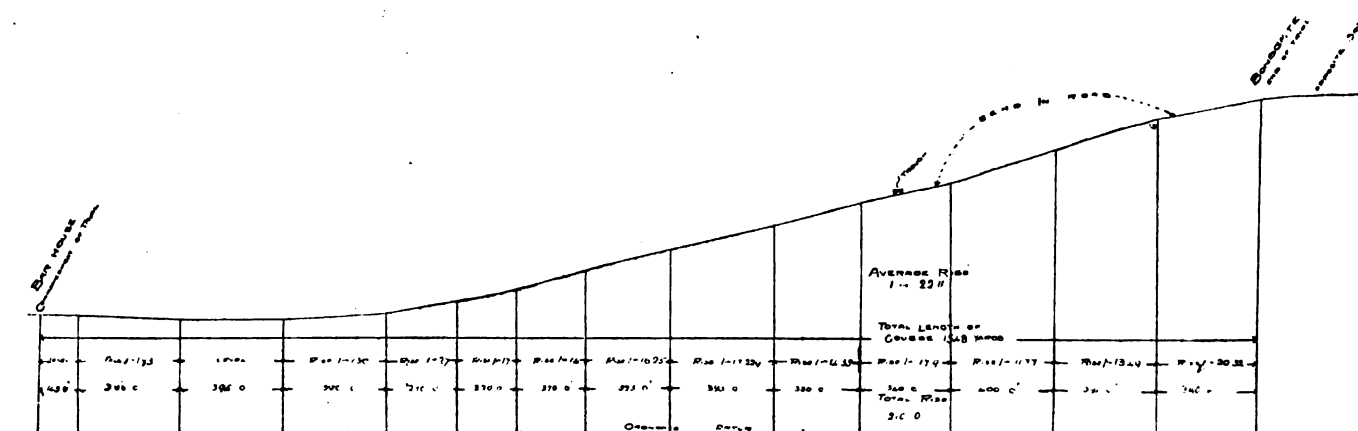
MOTOR cars of all powers are coming increasingly into the notice of the public generally, as permanent features of present day life. Although the industry is still young, and in many respects in a tentative condition, the best-informed authorities agree that the principal features of construction are already established. This fact renders a treatise on the subject both possible and desirable, without fear of giving an undue prominence to any construction that shall presently be superseded. Such a treatise has recently been issued by Messrs. Audel and Co., of New York, and is bound to prove a valuable addition to automobile literature. The author's aim throughout has been to present the various theories and problems of construction and operation clearly. This enables the general reader to grasp the involved situations, and understand the "why" and the "wherefore" of many of the devices, foreign alike to horse-drawn carriages and railway locomotives.

After brief chapters on the proper designations of motor-driven carriages, and on the history of construction from the days of Cugnot (1769), through the early decades of the nineteenth century to the present revival of the movement, the several peculiar features of motor-cars are treated in turn. Under the heading "How a Motor-Carriage Turns," a full discussion of the use and function of compensating gears is given, explaining how it is

alone should make the book valuable, alike to the general reader and the practical engineer.

The chapters describing the typical and important makes of petrol cars are preceded by an historical view of the work of Gottlieb Daimler, Panhard-Levassor, Peugeot, De Dion and Bouton, and other leading firms of constructors, who have contributed so extensively to the practical issues already attained. In the case of steam carriages, the American practice and products are dealt with at length, the contributions of English, German, and French engineers being also fully recognised. Under the head of electrical vehicles, a perspicuous description of the theory of the electrical generator and motor is given, together with a full explanation of the methods of varying the speed and power output by changing the circuits, including batteries and motors, and the construction and management of storage batteries. Following the chapters on electrical vehicles, are discussions of brakes, ball and roller bearings, and lubricants, and the book is brought to a close with chapters on the management of steam and petrol vehicles. The exhaustive character of the work may be judged from the fact that its forty-five chapters occupy 640 octavo pages, embellished with nearly 500 illustrations and diagrams. Several useful tables are included in an appendix, and the book is closed with a very full and carefully-prepared index.

As it is not yet five years since Mr. F. Grover penned the preface to the first edition of his handbook on "Modern Gas and Oil Engines,"* the fact that a third has been called for indicates

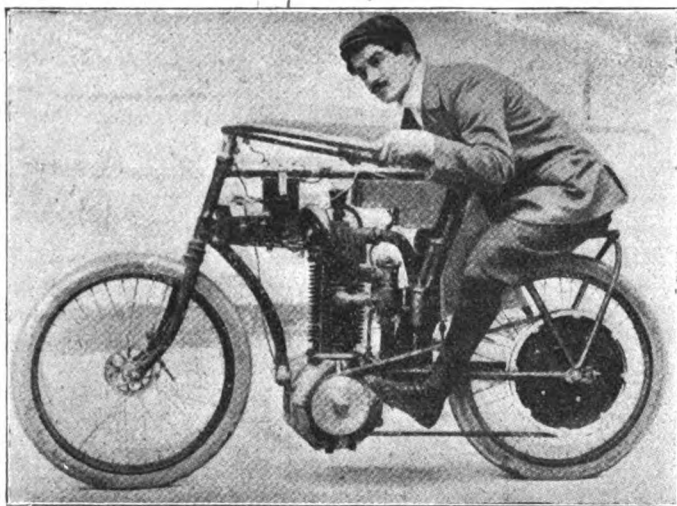


HERE AND THERE.

It is stated that a public service motor-car will shortly run from Eltham to Woolwich.

MR. E. R. PICKMERE, the Town Clerk of Liverpool, is touring in North Wales on a motor-car.

MESSRS. T. B. BURNHAM, J. H. Barber, and W. C. Bersey are the directors of the Farman Automobile Company, Limited, which has been registered with a capital of £60,000.



M. VICTOR RIGAL ON HIS RACING MOTOR-BICYCLE.

At the last meeting of the Lincoln City Council Mr. White drew attention to the dangerous custom of tradesmen's carts being left unattended whilst goods were delivered at houses.

MESSRS. COOKE AND WADE, of Church Street, Sheffield, drove a party to the Welbeck trials, *via* Worksop, where Mr. J. W. Lovegrove had some samples of motor clothing on exhibition at 106, Market Place.

THE Newton Pearce Motor Car Company, Limited, has been formed in Manchester, with a capital of £10,000, to adopt various agreements for the acquisition of certain patents relating to variable throttles, cut off or expansion cam gear, and to carry on business as builders of motors and motor-cars.

THE New York accident and insurance companies have again increased the rates of motor-car insurance. All of them report that they have lost money in the business, and are not specially eager for it even at the new rate, which is £20 per vehicle as compared with £5 a year and a half ago.

MR. RITCHIE has informed Sir Howard Vincent that there were ninety-four accidents in hansom cabs brought to the notice of the Metropolitan Police last year. Of this number thirty-nine were caused by collisions, forty-three from the horse falling, and twelve from various causes, such as the breaking of harness, wheel breakage, etc.

AN 18-h.p. Daimler brake has been sold to the Earl of Derby by the Road Carrying Company, Limited, of Liverpool, whose secretary (Mr. E. Shrapnell Smith) and engineer (Mr. E. A. Rosenheim) are shown seated on the vehicle on page 499. Mr. L. Williamson, the well-known motorist of Southport, is at the helm. His Lordship intends to use the car in the shooting season for his beaters.

DR. MICHAEL TAYLOR has held an inquest at Richmond concerning the death of Arthur Bauert, a cycle engineer, lately carrying on business at 3, The Parade, Hanwell, who met with a fatal accident while riding a motor-cycle on the night of the 4th inst. F. Landells stated that on the night in question he was passing Busch Corner, Isleworth, with a wagon-load of vegetables for the London market, when he heard a heavy thud which shook his van. On looking over the side he saw the deceased lying in the road underneath his motor-cycle, which had collided

with the witness's tailboard. Other witnesses described how the deceased was following the wagon, and in attempting to pass it they said he struck the tailboard and was overturned. His speed was from twelve to fifteen miles an hour. The jury returned a verdict of "Accidental death," and sympathised with the young man's father.

STABLING for motor-cars adjoins the Sussex Hotel at St. Leonards-on-Sea, where petrol is kept for the convenience of motorists.

INCLUDED in the recent sports of the Manchester Athletic Club was a two miles motor-bicycle race, which was won by Mr. R. R. Elgin, in 4 mins. 5 secs.

MOTOR-CARS are in future to be used by the Society for the Prevention of Cruelty to Animals of New York in taking stray dogs and cats to the pound.

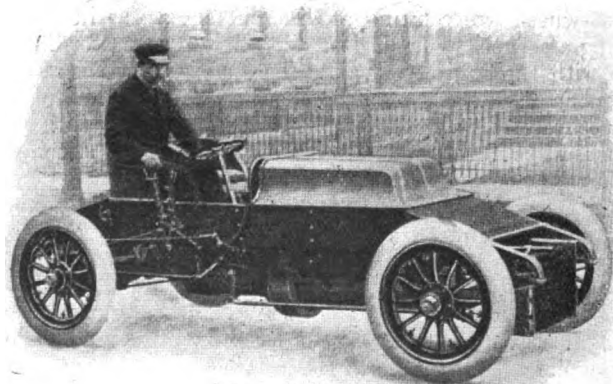
"MANY good things for Automobiling" is the title given to the catalogue of motors and motor-car accessories just to hand from Mr. Chas. D. Shain, of 11, Broadway, New York.

At the Scarborough Police-Court, Thomas Parker, 35, described as a labourer of Leeds, was charged with having stolen various tools and motor-car appliances, value 16s., the property of the Scarborough and District Motor Vehicle Syndicate, and, with other thefts. Prisoner pleaded guilty to the two first charges, and was sentenced to six months' hard labour.

IN a recent census report on "Agricultural Implements," issued by the United States Government, the remark is made that "It seems safe to predict, in view of the development of the automobile, that within the next decade this feature of modern invention will have found an additional application as a motive force in connection with agricultural implements of tillage, planting and harvesting."

THE Automobile Club of America is organising a "Reliability Test," to be held from October 9th to 15th next. The cars will run from New York to Boston and back, three days being allotted for the outward journey and the same for the return trip. An observer will accompany each car, and rules regarding the maximum and minimum speed, especially the former, will be rigidly enforced.

HEREWITH we illustrate the special racing car recently turned out from the works of the Winton Motor Carriage Company, at Cleveland, Ohio. The car, fully equipped, weighs about 2,000 pounds. No one but Mr. Winton knows the horsepower of the four-cylinder motor with which it is fitted, and when questioned as to its possible register upon brake test he shows not the slightest inclination to be communicative.



MR WINTON ON THE BULLET RACER, ON WHICH HE IS REPORTED TO HAVE COVERED A MILE IN 51 1-5 SEC.

He said: "It is not a question of how much horse-power an automobile can develop. People who are more abreast of the game are more interested in weight, strength and possible speed. This machine represents strength to the last degree; its weight is such as to insure against undue hardship upon the pneumatics, and its speed—well, it will go fast enough to fracture almost any municipal automobile speed ordinance."

A CORRESPONDENT asks for information as to the toll-gates at Honiton.

MR. S. F. EDGE has driven his last 11,000 miles with only three tyre punctures.

THE Chesterfield and Derby road is under repair, or, at least, that portion between Horns Bridge and Birdholme, near the former town.

AMONG the many specialities for steam cars of the Locke Regulator Company introduced into this country by Messrs. F. Wilkinson and Company, of Manchester, is the hand pump here-with illustrated. This pump is adapted to be attached to the



carriage beneath the foot-board, the driver working it from the seat. The handle is sufficiently long to allow good leverage, and is so connected that, when not in use, it is laid down out of the way.

IN connection with the sports of the Uxbridge Cycling Club a three-miles motor-bicycle race will be run off at Uxbridge on Wednesday next.

Two companies of Army Service Corps for mechanical transport will probably be established, with headquarters at Woolwich and Aldershot respectively. They will have an establishment of 162 officers and men each.

JOHN MOPPETT, a farm labourer, was watching two dogs fighting on the Rottingdean Road, near Brighton, when a motor-car came along, struck the dogs, and fell on Moppett, who subsequently died. A verdict of "Accidental death" was returned at the inquest on Tuesday.

THE Town Council of Arundel have issued a notice drawing attention to the danger of driving motor-cars through the borough beyond the regulation speed, owing to the narrowness and steep gradients of some of the streets. The local magistrates, when convicting a recent offender, expressed their intention to always inflict the full penalty in cases of future convictions in the borough.

KING LEWANIKA, of Barotseland, South Africa, who has enjoyed his first motor-car ride in this country, was present the other evening at a dinner at the Grand Hotel, Birmingham. The ices were served to his majesty on a miniature motor-car designed in sugar by M. A. Lavelly, the chef, and the African potentate appeared as interested in the novelty as he was in the real motor-car on which he visited Balmoral.

DR. SYDNEY BARWISE, the medical officer of health for the county of Derbyshire, who has a $1\frac{1}{2}$ -h.p. Excelsior motor-bicycle which since May last he has ridden about 2,000 miles, writes to the *Lancet* strongly recommending these machines to medical officers of health for rural districts and other practitioners who have long distances to cover. As a stimulant and a remedy for insomnia he thoroughly recommends motor-cycling for any except the most weakly.

AMONG the new cars of British manufacture which are gradually coming into prominence is that built by the Maudslay Motor Co., of Coventry, which made its debut at the Exhibition at the Agricultural Hall in May last. The first appearance of their productions in motor-car competitions took place at Welbeck last week, a 25-h.p. three-cylinder vehicle being entered in Class D (touring cars weighing over 17 cwt.). The car, which has been designed by Mr. A. Craig, was driven from Coventry to Welbeck, and although it was practically its first appearance on the road, it succeeded in securing the bronze medal in its class, the time for the kilometre being 60 2-5 secs., or only 1 3-5 sec. slower than the 22-h.p. Daimler, to which the silver medal has been awarded.

AN automobile sugar-cane cutter has lately been tried at Bundaberg, Queensland.

AMONG the latest entries for the Reliability Trials, to be held next month, are Clement cars of 8 and 16-h.p., and Georges Richards of 10 and 20-h.p.

THE Ohio Automobile Company, of Warren, U.S.A., have sent us a copy of a small handbook they have issued for the use of owners of Packard petrol cars.

MR. E. W. HART, whose automobile fete at Luton on behalf of the local hospital was spoiled by the wretched weather of the week before last, has sent a donation of £100 to the hospital—this being the amount he had hoped to raise by the event.

WE learn from Mr. T. N. Ritson, engineer to the Corporation of Kendal, that the electricity station at that town is now available for recharging ignition accumulators of petrol cars and the batteries of electrical motor-cars. Current can be supplied at either 220 or 440 volts.

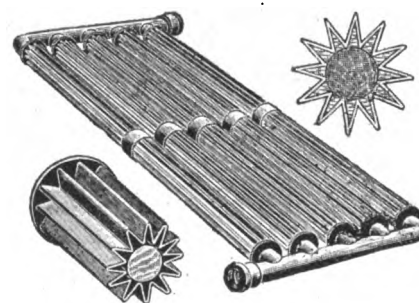
MEMBERS of the Automobile Club of America continue to evince much interest in the schooling of horses. Inquiries for the circular of instruction concerning motor-cars and horses which was issued by the A.C.A. recently are being received from all parts of the United States.

THE Canadian Pacific Railway has provided a motor-car service for tourists visiting the Canadian Rockies. Cars running on the ordinary rails are being stationed at several of the favourite resorts in the mountains. Each car will carry fourteen persons, with their fishing or shooting outfits and provisions.

THE Board of Agriculture have made arrangements with the Postmaster-General whereby pocket editions of small scale Ordnance Survey maps for certain districts will be kept for sale to the public over the counter at head post-offices in some towns in those districts in which there are no agents for the sale of such maps.

THE Automobile Club of America have decided to establish a bureau of mechanics. It will be practically a drivers' employment bureau for the convenience of the members. Applicants to be placed on the list of approved mechanics will be obliged to state their experience and give references, which will be investigated.

VARIOUS are the forms of radiating coils that are now available to the motor-car manufacturer. The accompanying illustration shows a new pattern that has lately been introduced by the Aultman Company of Canton, Ohio. It will be seen that the radiator consists of a series of star-shaped copper tubes,



fitted with a wooden core. It is stated that an increased cooling effect is obtained by reason of the fact that the water is in thin sheets in the points of the star, none being in the centre of the tubes. The makers claim that five tubes each 24 in. long are sufficient for a 4-h.p. motor.

IN our issue of the 9th inst. we mentioned that we had seen Lord Willoughby d'Eresby's Wolseley car in a disabled condition on the roadside near Barnet. We learn that the accident was the result of a bad sideslip. The car has since been despatched to the Wolseley Co.'s works in Birmingham, where, on examination, only a new wheel has been found necessary, the axle not being injured in any way.

PETROL MOTOR TROUBLES AND THEIR LOCATION.

NO matter how carefully a petrol motor may be made, it cannot operate successfully unless properly cared for, any more than a horse could work without food and other attentions. The petrol motor is a stickler for the proprieties. It demands that it be attended to at regular intervals.

attention should be given to the car by a well-posted practical automobile repairer, unless one is mechanic enough yourself to locate and remedy the trouble. Before attempting to start, see that the tank is full of good petrol. Don't think you know it, but know it by testing. See that the gas reaches the engine. Notice if the valves work freely. Push them in with the finger; if sluggish, or gummed up, clean with paraffin or petrol. Test the plug; do not do this by detaching the secondary wire from the plug and endeavouring to get a spark between it and the



A "LOCOMOBILE" ON MOUNT LOOKOUT, TENNESSEE.

If, having been properly lubricated, a motor fails to work, the cause may probably be found in one of the following reasons: The petrol pipe or carburettor may be partly filled with dirt; the petrol of low quality; the batteries weak; the battery wires broken or short-circuited; carbon may have formed on the platinum points of the plug; the insulation may be short-circuited; the inlet or exhaust valves leaky; or the piston rings weak or worn out.

In a general way the following rules may be followed with success. If the precautions advised fail to make the motor operate successfully, there must be something unusual the matter, and

engine. If you do, there is liability of short-circuiting the secondary winding of the induction coil, should the break be too long for the current to jump from the wire to the engine, and in that event the snap or jump will take place inside the coil. While a few such occurrences might not injure the coil, a continuance of this method of testing will, without fail, form a carbonised path between or through the insulation in the coil, and thereby produce a lead for the current having less resistance than the space between the two points, and thereby allow the current to follow that lead instead of jumping between the points. This is what is termed a short circuit in the coil, and is a common occurrence in the

best of them where such carelessness in handling is indulged in. Another reason for not using this method of testing is the example it sets to others, for while the well-informed motorist might successfully make the test, one less familiar with the results likely to follow might completely ruin a good and costly coil, and then blame the coil for giving out. An ounce of prevention is worth pounds of cure.

A far safer and more satisfactory manner of making such a test is to take the plug out, lay it on the engine, and then, by breaking the primary circuit in the regular manner, see whether there is a spark. If no spark takes place, the cause may be that the switch is off, the batteries exhausted, wire broken loose from the terminal, carbon formed on the plug, or dirt or oil has prevented the primary circuit from being formed through the circuit breaker. If the switch is off, throw it on; if the batteries are exhausted (always carry an instrument for testing purposes), replace them; go over the wires and see that no connections are loose. After these precautions have been taken, make another test, and a spark will be obtained at the break, unless the wires have been incorrectly connected. If this has occurred, remedy the mistake and test again until you are sure the ignition apparatus is right. Then replace plugs and connect the secondary or plug wires securely.

Now proceed to try the motor again, and if it then fails to run, the cause may be lack of or too much petrol, and the carburettor should be given attention and careful regulation until a combustible charge is produced. The atmospheric changes must be taken into consideration in order to derive the best results. In cold weather petrol does not vaporise as readily as in warmer weather; therefore it is a good plan to draw the air from about the cylinder or run it through a coil around the exhaust, in order to heat it. This will ensure a combustible mixture. Too heavy a charge of petrol will make the force of the explosion light by reason of the combustion taking place slowly, while too light a mixture will make the force of the explosion light because the charge contains insufficient heat units. As there is no exact method of ascertaining just what proportions of vapour and air are being used, the motorist is left to learn at what point the motor will give the best results, and regulate it accordingly, taking note each time of atmospheric conditions for future reference.

If the motor is water-jacketed, see that the water is always free to circulate before starting; also that the tank is full, otherwise a hot cylinder is likely to result and stop the engine by reason of the cylinder oil burning, thereby causing the piston to seize. Remedy this by allowing the motor to cool, then allow water to run in slowly until the water jacket is full. Then lubricate well and turn the fly-wheel around a few times to be sure the lubrication is thoroughly accomplished. This cause of stoppage is liable to clog the inlet and exhaust valve passages or seats with burned oil so that they will not seat regularly, and to cover the end of the sparking plug to such an extent as to prevent the spark from taking proper effect, causing it to jump at other points where it will not generate sufficient heat to start combustion.

Back firing is caused in most cases by the spark being timed too early, or having become out of adjustment, or by the cylinder becoming hot, which would cause the mixture to explode when the compression reached a certain point on the compression stroke. Remedy this by regulating the timing device, by re-adjusting it, or by allowing the cylinder to cool.

If the engine pounds when running, there is a loose bearing. Make the adjustment as soon as possible, to avoid unnecessary wear and possible damage by reason of the parts coming apart. If it pounds when starting, it is most likely because the spark is timed to take place when the compression is too high. Remedy this by altering the time of the spark so that it takes place when the compression is lessening. This will reduce the force of the combustion and thereby enable the vehicle to get under headway at more even speed, and without unnecessary vibration. This applies particularly to motor-cycles. If the explosions lack power and the remedies suggested above do not prove effective, the piston rings may need replacing, more lubricating oil may be needed,

or the valves may need cleaning or replacing. If smoke is emitted from the exhaust, it may be because too much cylinder oil is being used or because the mixture is too heavy. See to both these features and regulate until smoke fails to show. It will be almost impossible to produce a perfectly clear exhaust, however, hence a slightly bluish vapour need not cause worry. Finally, the following suggestions may usefully be learnt by heart by those who have lately joined the ranks of the ever-increasing army of motorists:—

Don't use cheap cylinder oil or steam-engine oil in your motor.

Don't fail to oil your engine every time you run it.

Don't fail to see that the water is flowing properly when the engine is running.

Don't allow water to remain in the water jacket around the cylinder while the engine is idle on a cold day.

Don't allow your carburettor to get filled with dirt.

Don't let your batteries or induction coil get damp.

Don't fail to examine the engine occasionally.

Don't make any changes on the engine or allow a so-called expert to tamper with it.

Don't blame the engine at once if it does not run; look for the trouble—it may be your fault.

Don't look for petrol leaks with a lighted lamp or match.

Remember that every manufacturer tests by indicator or brake every engine before despatch, and each moving part is carefully adjusted and set. Leave the engine alone; never attempt to take the engine apart until you have run it awhile and have become familiar with it, unless absolutely necessary. Never take it apart from curiosity. When taking an engine apart be careful and note the marks; if there are none, make them, so that the pieces may be returned to their former positions. It should be the pride of every motorist to keep his engine clean. All valves on the engine should be reground with flour of emery if they show the slightest wear. Carefully wipe them off before replacing. Examine all springs; see if they are free from rust and gummed oil; occasionally look after the batteries. See that the exhaust and inlet passages are kept clean. Remember that petrol fires are easily extinguished with sand or earth. If in an enclosed space it is more easily extinguished by ammonia, which should be hung up in several bottles by cords that will burn, and where the bottle may be broken by the fall.

THERE is a gentleman in Scotland anxious to exchange a hunter, "the highest jumper living," for a motor-car.

A MOTOR-CAR has played a useful part at Brighton in enabling the police to arrest a drunken carter who was also charged with cruelty to a house.

MR. H. W. FORSTER, who sought re-election in the Seven-oaks division of Kent on his appointment as a junior Government Whip, is an enthusiastic motorist. Motor-cars played a prominent part in the endeavours of both sides at the bye-election on Thursday.

THE *Ariel Abbot Low* has arrived at Falmouth, in charge of Captain Newman, who, with his sixteen-year-old son, has successfully navigated her from America to England. The launch is 38ft. long, 9ft. wide, and draws 3½ft. She took thirty-seven days for the voyage. The engines were worked by means of kerosene oil, and, except that the tanks leaked on one occasion, gave no trouble.

AT the flower show and sports at Lamberhurst (Kent), last week, a number of interesting motor-car competitions were included in the programme. The first race was over a distance of two miles on a rough and heavy grass track, the result being:—(1) Dr. Fazan, Wadhurst (6-h.p. Serpollet); (2) Mr. P. A. Simpson (6-h.p. Panhard); (3) Mr. Simpson's 10-h.p. M.M.C. waggonette, driven by Mr. Bean. A motor-car Victoria Cross Race was won by Mr. B. Playfoot (driven by Mr. Simpson), and a driving test resulted in Mr. Simpson winning a silver badge.

CORRESPONDENCE.

DE DION TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I think "Doctor of Medicine" will find nearly all his trouble rests with his spark, especially if the trembler and contact screw are not adjusted to a nicety. He should try adjusting the screw till he gets a buzz spark instead of a single smack, and the engine will then, I think, start first turn. It should also be remembered that a good deal of trouble in starting, even with a good spark, is often due to the carburettor not having first been flooded.—Yours truly,

GEO. H. WARD.

STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to "Doctor of Medicine," if he lives in or near London I shall be pleased to call upon him and to put him out of his misery. His trouble is probably due to one of the following causes (in the order of likelihood: 1. Trembler—bad adjustment. Let the end of the trembler fall into the notch in the cam, and then adjust the contact screw so that the trembler, when lightly sprung by the finger, buzzes with a high pitched note. 2. Dirt or oil on the platinum tips of the contact screw or trembler. 3. Water or dirt in the float chamber of the carburettor. 4. Improper compression, due to a badly fitting valve or sparking plug.—Yours truly,

BACHELOR IN MEDICINE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Your correspondent, J. Shearman, evidently thinks a steam car is a source of eternal worry. Might I point out that after driving a steam car for a short time one very soon knows how far to have the pump closed in order to keep the boiler from a half to two-thirds full, at which height I consider one's car runs best. With regard to the steam gauge, as long as there is enough water in the boiler, the steam will keep up. After you have learnt to drive there is absolutely no worry.—Yours truly,

H. C. V.

STEAM V. PETROL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Could some of your readers give me information as to the relative running cost of steam and petrol cars? I prefer a steam car to a petrol one, but have heard that steam costs a good deal more than petrol in running, but have had no figures given.—Yours truly,

STEAM.

TYRES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice a letter in your last issue, signed "Tyred Out," in answer to which I can only say that during my "end to end" tour my tyres on 5-h.p. Wolseley car gave me no trouble whatever; they were 2½ in. Falconnet solids. The number of teeth on sprockets of my car was eight. As long as the present anti-automobile feeling exists, and also the 12 m.p.h. legal limit, I think I will remain satisfied with Falconnet tyres. I would suggest that "Tyred Out" either comes back to solids, or goes in for larger and heavier pneumatics.—Yours truly,

J. TODD.

RE BENZ CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—If Mr. Wood will write direct to me, giving full particulars of his Benz car, I will do what I can to help him with my experience in a friendly manner.—Yours truly,

R. M. K. WALFORD.

Alfreton.

CAR NUMBERING AND LEGISLATION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The circular letter by the Executive Committee of the A.C.G.B.I. is so far satisfactory in that they propose to have a general discussion. If, however, their circular letter to the Press is an outline of their reasons for having motor-cars numbered, then their position will be very weak.

If some prominent members of the Legislative Committee will speak their full and free minds, it will be seen that while they desire an Act on common-sense lines, they are equally against the display of numbers on private cars, and have only swallowed that part of the proposals because they had an idea that most owners had made up their minds to swallow that bitter pill. They would like to feel the opposite, I think. It may be true that no Bill would pass now which does not include the numbering, but that only shows the undue haste of the whole idea; given a couple of years, Parliament itself will be a compact body of reformers, needing no stimulus from the A.C.G.B.I.

The only concrete reason given for swallowing the vulgarity and indignity of large (for they must be on advertisers' scale) numbers is the extraordinary one that without them the police cannot identify public nuisances and dangers; and that since this is so, and the ordinary powers

and methods of very expensive police and judicial systems, backed by public opinion, are not enough to cope with even a few cases, that the crop of weeds will get beyond all control, and we shall then be all treated as if we were even naughtier children than we are now. I think that the assumption that the criminal cad will increase, and that public opinion and the arm of the law cannot catch him and squash him without numbers, are both wild ideas.

If the proposed Bill be passed, a ready method of appeal to the High Court of Justice would prevent the unjust punishment of unoffending motorists." I assume this means that the Bill has some clause to this effect. Now I am not familiar with the law of England, but let us take care that we don't get the Bill passed with the numbers and without the appeal part. I know enough about Acts of Parliament to know that the greatest and most proper care will be taken to see that no one class of persons will be allowed to have a new and specially direct road of their own to any Court of Appeal. Even if the road were to open, will some English lawyer kindly tell us whether in a criminal case the higher court can or will consider any questions except those of law? In Scotland all questions of fact and the decision of "proven" or "not proven" rests most properly with the court which has heard the evidence and seen the witnesses. Surely it cannot be that in England the whole case (facts and all) and the credibility of the witnesses could be gone over again in a higher court?

Unless this be so I cannot see how an appeal to the High Court can prevent the machinations of amateur and prejudiced magistrates, aided by promotion-swayed and master-pleasing country constables, from giving unjust punishment to unoffending motorists. The conviction would be either because the accused was the cause (direct or indirect) of an accident, or was driving so recklessly as to be a public danger and nuisance. All these points are matters of fact or opinion—things to be weighed in the scales by the evidence and by common-sense; the Appeal Court will teach inferior courts how to hold the scales, but it cannot take upon itself to re-weigh the whole affair itself. Only the advance of knowledge and sense will help a hot-headed or stupid magistrate to weigh facts and not fancies.

In this city of Edinburgh the magistrates and police came down hard on many of us who were merely crawling, just because they were ignorant. Now that motor-cars pass along in a regular string, and most of them have been in them, no one dreams of interfering with speeds which are really high for a city. Even the public, like all of us, can live and learn.—Yours truly,

NORMAN D. MACDONALD.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—We may now look for an outcry against motorists in general owing to the accidents that have occurred lately, and we may expect propositions to make ourselves and cars a bill-posting station for numbers, etc. Some months ago I gave it as my opinion that directly the racing fraternity got hold of the motor-car it would ruin the new industry, the same as it did the bicycle trade. I some time ago pointed out that one of the best ways to overcome the trouble would be to limit the actual speed of the cars say to twenty-five miles per hour. This would be far less hardship than having to apply for license, etc., and the outcry against this limit would be confined to a few speed men who do not represent the views of the majority of motor-cars users. Much of the bitterness against motors has been brought about by the rapid strides towards perfection. The public have not been educated with the same speed, for, as it were only a few months ago, only steady-going cars of the Benz type were to be seen, now the cars are like locomotives. We must not forget the old saying, "Slow and steady wins the race," and my fear is that a few headstrong, reckless drivers will be the means of imposing restrictions as bad, if not worse, than the old red flag.—Yours truly,

W. T. WARNE.

P.S.—Since writing above I see that there is an agitation for a speed limit in France.—W. T. W.

MOTOR-CAR SPEEDS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Each week the *Motor-Car Journal* gives particulars of motorists being fined for excessive speeds, and I notice the speed is usually denied. Do the police commit perjury, or do the motorists prevaricate? If the former, why do not the defendants appeal if improperly convicted?

It certainly raises a smile of incredulity when one reads that a car of 20-h.p. was only running twelve miles an hour, and I fear such statements do much harm by throwing doubt on all disclaimers of high speed. Personally I think high speed cars would be better confined to the race track, but that is only an opinion.—Yours truly,

MODERATION.

THE Remington Automobile and Motor Agency write:—"In your issue of the 16th inst. we notice an account of the Welbeck Speed Trials for motor-cycles. In this notice you state that 'a 2½-h.p. Orient bicycle secured a better time than a 3-h.p. of same make,' but you do not, however, give any reasons for this difference. Will you kindly permit us to say that the two machines ridden by Messrs. Green and Westlake respectively did absolutely nothing in regard to speed, for the following reasons, namely, that the machines not being provided with mud shields on the front wheel, when anything like a speed was obtained, the mud thrown up was so bad that the man riding the

2½ h.p. Orient had to shut off his power two or three times in the distance on account of being blinded by mud? The reason why the 2½-h.p. beat the 3-h.p. was that the sparking plug of the latter machine was broken at the start, thus short-circuiting the current."

A "NEW" ENGINE.

At the Coventry County Court, Laurence Seager, of Sittingbourne, sued Alfred Bassnett, trading as the Edwardson Motor Manufacturing Co., for the repayment of £7 10s., the price paid for "a new Leon Bollee engine." Plaintiff said that the motor, advertised as "new," which he purchased from defendant was not by any means new, and he returned it. Defendant, on the other hand, contended that the engine had never been on a car. The judge found for the plaintiff for the amount claimed.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Knarborough	H. Sidney, Copenhall	20 m. p. h.	£10 and costs.
Margate	Rowland Browne	18 m. p. h.	£2 and costs.
Northampton ...	J. Watts, Warwick	25 m. p. h.	£5 and £3 10s. costs.
Folkestone	A. Holloway	to the common danger	10s. and 14s. costs.
Worthing	J. H. Martin	Above legal limit.	£5 and 14s. costs.
Lowestoft	E. W. Jenson, Kessingland	" "	Adjourned.
*Mistley	W. Nottage	" "	Dismissed.
Winchester.....	J. C. Jarvis, Portsmouth	" "	£2 and 15s. costs.
Spelthorne	R. Cookley, Wandsworth	22½ m. p. h.	£10.
"	A. E. Perman, Norbiton	Excessive speed.	£7 including costs.
"	H. Bernardet, Piccadilly, W.	" "	£10.
"	Miss A. Cannon, S. Kensington	" "	£10 and costs.
"	W. Hobbs, Hanover Square, W.	" "	£10.
Epsom	J. Watson, Epsom	" "	40s. including costs.
Keswick	E. P. Caporn, Harrogate	" "	Dismissed.
Yarmouth	E. C. Laskenby, Yarmouth	" "	20s. and costs.
*Berkamstead	B. Kingham, Tring	25 m. p. h.	£1
Steyning	S. Batsone, Norwood	25 m. p. h.	£5 and costs.
Arundel	A. Fletcher, Slindon	Excessive speed.	£10 and 20s. costs.
*Hove	F. G. Price, Brighton	14 m. p. h.	5s. and costs.

* Motor-cycle cases.

At Mistley, last week, William Nottage was summoned for driving a motor-cycle at an excessive speed. Police-sergeant Hailstone said he marked out a quarter of a mile on the road, which defendant covered on a motor-quad in thirty-four seconds, or at the rate of twenty-six miles an hour. As the police had no stop-watches, the sergeant preferred to give defendant the benefit of the doubt, and to put the pace at about eighteen miles an hour. The Bench dismissed the case with a caution, instructing the clerk to petition the Standing Joint Committee with a view to providing stop-watches for use in such cases, as it was impossible to convict on the evidence now given.

J. WATTS, who was fined £5 and costs at Northampton last week for furious driving, was at the time the offence was committed in the employ of the Earl of Warwick, but has since lost his situation.

In the case at Worthing against J. H. Martin, Police-sergeant Wakeford stated that the defendant covered a measured quarter of a mile in thirty-one seconds, or at the rate of twenty-nine miles an hour.

A CHARGE of driving a motor-car at a greater speed than twelve miles an hour, at Dale Bottom, near Keswick, was preferred at Keswick on Saturday, against Mr. E. P. Caporn, engineer, Harrogate. The alleged offence took place on the 29th July, whilst defendant was proceeding from Keswick to Bowness. The mud-guard of the car struck and killed a valuable sheep-dog, the property of Mr. Fleming, farmer, who complained to the police, and also sent a claim for £10 to Mr.

Caporn. After taking several measurements, the police decided to proceed against the defendant for driving at an excessive speed, and they relied upon certain deductions to establish their case. Mr. Fleming, who was with his horse and cart at a certain point when he first saw the car coming towards him, travelled 103 yards to the place where the dog was killed. From that place to the point where he saw the car in the distance was 725 yards. Reckoning his horse to walk three miles an hour, the speed of the motor-car would be over twenty miles an hour. The defendant and Mr. Arthur Macarthy swore that when they were passing Mr. Fleming the car was not going at more than six miles an hour. In dismissing the charge the chairman (the Right Hon. J. W. Lowther, M.P.) said the magistrates looked with a good deal of suspicion on these cases, because drivers often exceeded the limits of the Act. Whatever individual opinion might be, he thought the law should be observed until it was repealed.

NO LIGHT.

At the Reigate County Bench, Fernend Barthelmy, of Hove, was summoned for driving a motor-car without a light at Horley. Mr. Trangmar said the defendant started from Long Acre, London, but after he passed through Croydon his lamps went out. He then bought an ordinary lantern for 5s., but that burnt out just before he reached the constable. The chairman said the magistrates did not consider the offence a serious one, and defendant would therefore be fined 5s. and costs.

REFUSING TO STOP.

At the Cardiff Police-Court the case in which George Hicks was summoned by John Jeffs, and charged "that he, on 25th of July, at the borough of Cardiff aforesaid, being a driver of a certain light locomotive on the highway there situate, unlawfully did not, when signalled by the said John Alfred Jeffs, a person in charge of a restive horse, by putting up his hand for that purpose, cause the light locomotive to stop and remain stationary so long as was reasonably necessary, contrary to the provisions of the Light Locomotives (Highway) Act, 1896, Article 4, Regulation 8," has been heard. At the first hearing Jeffs, in reply to the stipendiary, could not swear that the light locomotive weighed less than three tons. His worship thought there was a provision in the Act that light locomotives should be marked with the weight. The case was adjourned for the purpose of finding out what the weight of the engine was, and at the second hearing, upon being shown that it was 2 tons 17 cwt., his Worship imposed a penalty of £5.

DISPUTE CONCERNING MOTOR FITTINGS.

At Lambeth Police Court, A. E. Wilson, a cycle dealer, of High Street, Peckham, was summoned, before Mr. Hopkins, for illegally detaining a motor set belonging to the Ormonde Motor Company, of Wells Street, W. Mr. Temple Martin for the plaintiff explained that the motor fittings were entrusted by the complainants to a man who formerly travelled for them on commission, and he had no authority to part with them. As a matter of fact, however, he did sell them to the defendant. Subsequently the traveller was prosecuted at the Greenwich Police Court and convicted of another offence, and the matter of the motor fittings was mentioned to the magistrate, who, however, did not think it worth while to multiply the cases against the man, who was then a first offender. The complainants had since applied to the defendant to deliver up the fittings, but he declined to do so. Mr. Hopkins asked why the defendant should not be paid the amount which he paid for the fittings? Mr. Temple Martin pointed out that the goods were not bought in market overt, but from a man who had no title to sell them. As a matter of fact, the complainants had proposed to share the loss. Mr. Hopkins remarked that this appeared to be a *bona fide* sale to a *bona fide* purchaser. The only question was who should bear the loss. Mr. Emmanuel submitted, as a point of law, that the defendant was absolutely entitled to the goods. The Sale of Goods Act reserved all the rights under the Factor's Act and also the common law in relation to principal and agent. They had it in evidence that the goods were entrusted to an agent, and there was ample authority for saying that if an agent entrusted with goods sold them the principal was bound by the action of the agent, although he might be acting against the orders of the principal. Mr. Hopkins ordered the defendant to deliver up the goods claimed upon the complainants paying him £10, the price at which he had purchased them from their traveller.

MOTOR-CYCLE v. CAB.

At the Crewe County Court, last week, Judge Reginald Brown, K.C., was engaged for several hours in hearing an action brought by James Gibson, cycle agent, against Thomas William Bebbington, cab proprietor, to recover £35 13s. 9d. for personal injuries, damages to a motor-cycle, etc. The plaintiff, on Whit-Monday, shortly before eleven o'clock, was returning along the Nantwich road from Tarporley on his motor-cycle, when, in crossing Mill Street, the defendant, who was approaching with his cab from the opposite direction, turned sharply round the corner of the street and charged into the plaintiff. The plaintiff stated that he was proceeding at the time at six to eight miles an hour. The result of the accident was that the horse fell upon the plaintiff and his motor. The plaintiff was rendered

IMPORTS OF MOTOR-CARS, MOTOR-CYCLES, AND PARTS THEREOF.

AUSTRIA.

CANADA.

BELGIUM.

FRANCE.

GERMANY.

SWEDEN.

UNITED STATES.

" " " " "

TO CORRESPONDENTS.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

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COMMENTS.

THE Automobile Club notify us that the starts in next week's Big Trial take place from the Crystal Palace at 7 a.m. instead of 8 a.m., except on Friday, the date of the hill-climbing tests, when the start will be made at 9 o'clock, as it will be necessary before starting in the morning to measure fuel and weigh the cars. The hill-climbs will take place at Riverhill and Westerham Hill, not Polhill. Motorists are taking great interest in the event, and we shall be glad to have snapshots of any scenes on the line of route during the course of the trials. Such will be welcome, as, although

we have arranged for photographs to be taken for the *Journal*, the most interesting pictures are often those casually obtained by amateurs and professionals who take men and cars unawares.

Trials.

A SUGGESTION for a tour for motor-cycle riders, to be organised by the A.C.G.B.I., has been before the Club Committee, who cannot see their way to undertake further organisation at the present time, in view of the preparations now being made for the Big Trial of next week. These Trials must not be overdone, or their frequency will militate against their success. To enter into a Trial is not an inexpensive matter, and, whilst amateurs regard them with pleasure, manufacturers will be disinclined to participate if they become too common. But for the abandonment of the electrical trials—which we announced last week—the officials of the Club would have been hardly pressed during the past few days, and with the Big Trial so imminent it must have been a relief when no entries were made for the Trial of Electrical Vehicles. It might be well in future to organise these events with a longer interval between each.

At Boston.

THE ancient town of Boston was visited on Thursday of last week by the members of the Lincolnshire Automobile Club, and a very successful meeting was carried through, on the invitation of the Mayor, Alderman W. T. Simonds. The cars began to arrive at four o'clock, and tea was served at the Peacock and Royal Hotel, the vehicles being drawn up in the market-place—a typical old English market-place under the shadow of "the Stump," one of the grandest of our parish churches. Unfortunately the death of his sister—news of which he received during the day—prevented the Mayor indulging in the pleasures of the meet, those participating including Mr. F. Dennis, Kirton, on a 3½-h.p. Progress; Mr. G. W. Pennell, Lincoln, 8-h.p. Durkopp; Mr. S. G. Lovell, Stickney, 5½-h.p. Stonebow; Dr. Cragg, Lincoln, 3½-h.p. Benz; Dr. Miller, Wrangle, 4½-h.p. De Dion; Mr. W. B. Jevons, Market Rasen, De Dion; Mr. A. A. Padley, Market Rasen, De Dion; Dr. Nicholl, Billinghay, 5-h.p. Wolseley; Mr. W. R. Pennell, Lincoln, De Dion quad; Mr. H. T. Pilley, Boston, 4½-h.p. De Dion; Mr. F. Richardson, Sibsey, 5-h.p. Baby Peugeot; Mr. C. Holland, Boston, 5-h.p. Baby Peugeot; Mr. M. H. Brookes, Peterborough, 3½-h.p. Benz; Mr. R. A.

Cole, Sleaford, 7-h.p. Daimler; Dr. Husband, Crowland, 7-h.p. New Orleans; Mr. J. G. Wilkinson, Lincoln, Progress tricycle; Mr. F. H. White, Lincoln, 12-h.p. Boyer; Mr. T. W. Swaby, Grimsby, 6-h.p. York Boyer; Mr. C. F. Brookes, Eye, Peterborough, 1½-h.p. Werner bicycle; Mr. G. Godson, Aswarby, 6-h.p. Motor Manufacturing Company; and Mr. C. H. Hole, Lincoln, 12-h.p. Panhard. The next run of the Club, which now numbers eighty members, will be to Bawtry, and the Yorkshire Automobile Club will be invited to join the party.

Automobiles and the Press.

THE scene of an important inquest, held at Baddesley Ensor, between Atherstone and Tamworth, was somewhat remote from the railway, and trains were too infrequent for the demands of a special newspaper edition. In order to produce a paper giving a full report of a trial within a few minutes of its conclusion it was necessary that reporters' copy should be delivered at the office of the paper at the earliest moment. To accomplish this the *Midland Counties Tribune*, of Nuneaton, secured the services of Mr. W. J. Yoxall and Mr. J. N. Birch, who were mounted on a 2-h.p. Humber motor-bicycle and a 2-h.p. Birch motor-bicycle respectively. These two gentlemen flashed to and fro along the Watling Street conveying to the office batches of "copy" fresh from the reporters' pencils. The speed at which they were able to travel very substantially reduced the distance between the coroner's court and the office. The performance goes to show the practical uses to which motor-cycling can be put, and very soon an automobile of some kind will become a necessity in every up-to-date newspaper office.

Motorists Beware.

THE Chairman of the Cromer bench, before the rising of the Court the other day, addressing Superintendent Lovick, said the Bench hoped the police would do all they possibly could to stop the furious driving of motor-cars, etc. Only the previous evening he saw a party of motorists who should have been summoned, and, not only so, but heavily fined. But they were so disguised by masks and dust that he defied anyone to find out who they were, unless tracked to their destination. There was no violent means of checking them, but a refusal to stop when hailed by the police could, in the event of any subsequent proceedings, be brought up against them. Superintendent Lovick assured the Bench that the police would do their best, and it was just possible that there might be a case before them at the next sitting. What will happen should the superintendent fail to catch his motorist we do not know, but he evidently thinks it will be as well to catch somebody.

Roads.

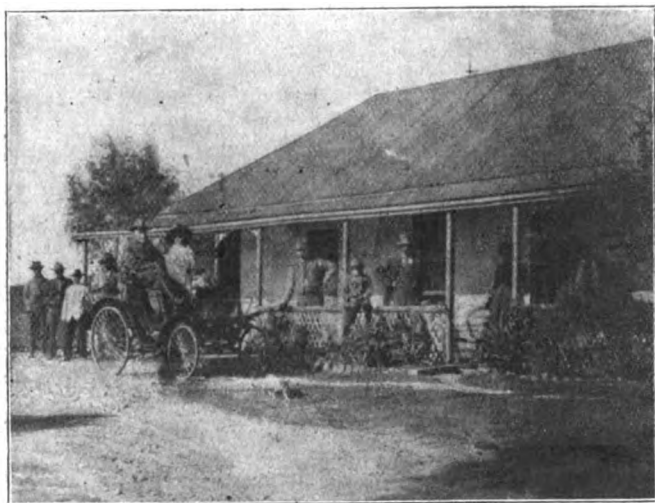
THE construction of roads must long continue to have a special interest for automobilists, and it is satisfactory to find that the learned associations are deeply concerned with regard to the highways of the country. Last year the British Association appointed a Committee to investigate the resistance of road vehicles on the highways. Sir Alexander Binnie was appointed chairman, with Professor Hele-Shaw secre-

tary, and after several meetings the members have come to the conclusion that at least one thousand pounds will be required to carry out the necessary experiments. This may seem a large amount, but that it will be usefully expended we have no doubt, and should these experts come to any authoritative decision on the subject, the monetary value to local authorities will be immense. Sir David Salomons has placed a motor-car at the disposal of the Committee, the A.C.G.B.I. has voted five guineas, and the hon. treasurer, Mr. T. C. Aveling, 62, Meriden Street, Birmingham, will doubtless be pleased to hear from other motorists who feel inclined to take a share in the work.

Motor-Cars in South Africa.

IN a recent issue we reproduced a photo of Mr. W. Alcock's 4½-h.p. Benz car travelling through Van Stadens Pass, near Port Elizabeth. The pass has a gradient of one in ten, and the road is loose and covered with rough stones.

Although it was considered out of the question that any motor-car could go successfully through the pass, it was driven up and down without the slightest difficulty. Mr. Alcock's car is the



only one in that part of South Africa; he purchased it in England a year or two ago, and has been well satisfied with its running. In fact, he reports that although the car is used over the rough veldt and bullock tracks, it has stood splendidly. The photograph reproduced herewith depicts Mr. Alcock on his car at an up-country hotel, after passing through the Pass referred to above.

Pastime.

COLONEL J. R. MAGRATH, the enthusiastic motorist who has done so much for automobilism in Ireland, writes to suggest that the word "pastime" should not be used in connection with the sport. People taking afternoon drives or visiting friends in their carriages do not call such outings "pastime." Why, then, asks the gallant colonel, should the word come into vogue as soon as they step into a motor-car? He believes that the constant reiteration of the word pastime in connection with motoring is misleading to an ignorant and prejudiced public. The subject is worthy of discussion, and Colonel Magrath's views are certainly of interest.

Another Contest Spoiled.

THE first hill-climbing competition of the Yorkshire Automobile Club was announced for Saturday last at Harewood Bank. About thirty cars entered, but the full number did not take part in the trial on account of the state of the roads, which were wet and greasy and much against fast running.

It was intended that the course should be from the Bar House, Cross Roads, Harewood (the junction of the Leeds, Otley, and Harrogate roads), to a point at the commencement of Harewood Village, which would have given a distance of 1,548 yards with an average gradient of one in twenty-two, the steepest portion being one in eleven. However, the presence of a small army of policemen in plain clothes—"fourteen that we know of," said one of the competitors, "to say nothing of a magistrate"—who were evidently bent on noting any excess of the legal speed, and had, it was said, measured out a portion of the level road for that purpose, led to the abandonment of the starting-point originally chosen for one some distance further up the road. This shortened the course by about three hundred yards, and deprived the competitors of the advantage that would have been gained by getting up speed on level ground.

The Times up the Hill.

UNDER the circumstances, anything like rapid travelling was out of the question. Roughly, the distance traversed was about two-thirds of a mile, but the reduced course will have to be measured and the speed per hour for each car be worked out afterwards. The list below, however, is no guide to what the cars can do. Some could have gone up the hill at a greatly accelerated speed, and the test is only of practical use inasmuch as it proves the cars are equal to anything required of them in Yorkshire. Mr. Whittaker's motor-cycle made the fastest time of the day, and of the cars Mr. Wilson's Locomobile would have come first on the list had not the driver mistaken the finishing point and pulled up too short. He consequently lost time in starting again. Mr. A. W. Dougill, the hon. secretary of the Club, a keen motorist and an excellent organiser, was responsible for the arrangements. The times were as follows:—

		CARS.		Time.	
Owner.		H.P.	M.	S.	
Mr. P. Ward, Bradford	Pieper	12	2	22½	
Mr. Wilson, Huddersfield	Locomobile	5	2	22½	
Mr. Kirk, Leeds	Panhard	16	2	26½	
Mr. R. Winn, Leeds	Gladiator	12	2	36½	
Mr. Whittaker, Bradford	Lanchester	10	2	49½	
Mr. E. Broadbent, Bradford	Clement	9½	2	50½	
Mr. J. H. Clark	De Dietrich	12	2	56½	
Mr. H. House, Bradford	Clement	7	3	40½	
Mr. A. W. Roslington	De Dion	9	3	48½	
Mr. P. Newstead, Bradford	Pieper	4	4	2	
Mr. F. J. Borland, Leeds	De Dion	4½	4	29½	
Mr. A. W. Dougill, Leeds	Loidis	8	5	2½	
Dr. Veale, Bridlington	Pieper	4½	5	3½	
Mr. Wharam, Leeds	Renault	4½	5	5½	
Mr. E. M. Milne	Renault	4	5	5½	
Mr. H. A. Jones, Bradford	Pieper	4½	5	8½	
MOTOR-CYCLES.					
Mr. H. Whittaker, Newlay	Humber	2	2	5½	
Sir Coleridge Kennard, London	—	—	2	30	
Mr. E. Dougill, Leeds	—	2½	2	48½	

Motor-car Mishaps.

Two serious mishaps occurred near Oxford on Saturday—one due to skidding in turning off the tramway metals, and the other owing to a collision with a trap. In the latter case, the Duke of Marlborough, accompanied by Lady Churchill and a gentleman, was travelling in a motor-car on the Botley Road, and just before reaching a narrow bridge he noticed a trap, the driver of which was standing at his horse's head, whilst in the vehicle were a Miss Crosby and a little girl about seven years of age. The professional driver of the motor-car slackened speed, but as the car came to close quarters the farmer's horse became uncontrollable, and backed the trap into the roadway. The motor-car struck the off-side wheel of the vehicle, throwing Miss Crosby and the little girl into the road. They were lifted into the motor-car, and the Duke and Lady Churchill accompanied them to the Radcliffe Infirmary. His Grace was afterwards interviewed, and stated that the motor-car was travelling at the rate of about fourteen miles an hour before the driver was noticed standing at

the horse's head. As soon as it was observed that the animal was restive the motor-car was pulled up to a speed of about six miles an hour, but as it was just over the brow of a steep incline and the road was very greasy, if the brakes had been put on suddenly the car would no doubt have swerved and smashed into the cart.

A Novelty In Fireworks.

It was appropriate that one of the items in the display of fireworks devised for the amusement of the Shah, and the gratification of the thousands who went to the Crystal Palace on Saturday, should consist of a pyrotechnic motor-car race. There were two competitors, and they ran, figures of fire, along the dark background. One motor-car stopped; the other gaily sped along, and its *chauffeur* turned round mockingly. The driver whose machine would not go out, ran round it all alight, turned screws of light with his fingers of light, sprayed oil on beams of light, hammered with a hammer of light, got into his seat again as brilliant as ever—and then blew up magnificently. This clever example of living fireworks was carried out by asbestos-clad men.

Exhibitions in 1903.

NEXT year, in addition to the eighth annual automobile show at the Agricultural Hall, London, there will be an exhibition at the Crystal Palace, where some firms have already decided to exhibit. Since we last referred to the exhibition question, the prospects of the display at the Agricultural Hall have continued to improve, and a hundred and fifty firms have now definitely booked space at the familiar *locale*, so that the trade and public can be assured that, despite the efforts which have been made to divide the industry into various camps, the Agricultural Hall Exhibition will maintain its prestige and contain a collection of leading motor-vehicles that will do credit to the important industry which it represents. Already exhibits of most of the latest types of vehicles have been assured, and specimens of nearly all the new machines for the 1903 season will also be on view.

Beware of Portsmouth.

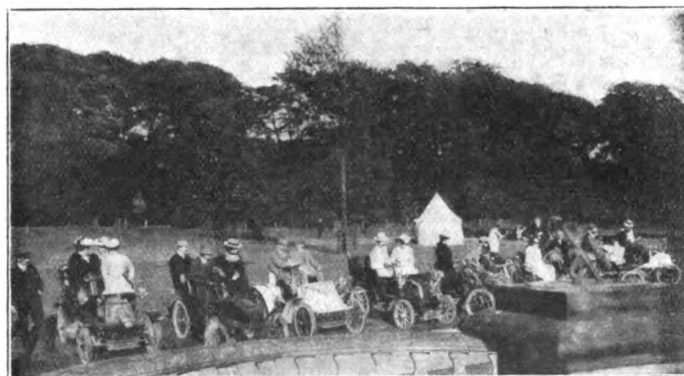
LIKE many others we journeyed to Portsmouth to obtain a sight of the ships lying off Spithead, intending to see the illuminations from Southsea Common. The 1897 Review we were fortunate enough to witness from the deck of the *Turbinia*, but, as we did not leave London till the afternoon, we intended, this time, feasting our eyes on the ships from land. We had a splendid run on our 12-h.p. M.M.C. till past the village of Waterloo, when, without any warning, we dropped into a channel in the middle of the road, about eighteen inches deep. Both near-side wheels went in, and for a moment it seemed as if nothing could save the car from turning over. Fortunately this was averted; but how disgraceful that at eight o'clock on a dull, grey evening, no lights or warning signs were displayed to warn travellers a light railway was being built? The cutting, six feet wide at least, was right in the middle of the road, and for some miles the state of the road is such that it should be closed to traffic.

In the Malay States.

A MOTOR-CAR passenger service is about to be established in the Malay Peninsula by Mr. Loke Tew, a very progressive Chinese resident. Native drivers will be employed. Three Albion cars of the wagonette type are now being built in Glasgow for the service. They will be fitted with Buffer solid rubber tyres and irreversible wheel steering. A number of Albion cars are already in use in tropical countries, and apparently there is no difficulty in getting intelligent natives to take full charge of the vehicles.

At Tarporley.

TARPORLEY, a little market town on the high road between London and Chester, and about ten miles south-east from the latter city, must offer some special attraction to the members of the Manchester Automobile Club, as on Saturday last, for the second time this season, the place was selected as the rendezvous of the Club run. It was a remarkable coincidence that on both occasions exactly similar atmospheric conditions prevailed, the heavy rain at the outset causing much discomfort and delay. Through the kindness of Lieut.-Colonel James Tomkinson, M.P., J.P., D.L., the Club were invited to visit Willington Hall, and this was the first objective. At about 3.30 the cars began to arrive, Mr. Fred Hammond on his 9½-h.p. Clement being the first to appear, having run over a duck and compensated the owner on the way; he was followed by others at intervals until, at about 4.30 p.m., a dozen cars had come in, the inclemency of the weather accounting for another score, who, although having notified their intention to attend, did not do so. The members and their friends were most kindly received by Colonel and Mrs. Tomkinson, with whom they had tea. Afterwards the cars were arranged in the grounds, and numerous photographs were taken, Colonel Tomkinson being seated in Mr. J. Higginson's car, Mrs. Tomkinson



THE MANCHESTER AUTOMOBILE CLUB AT WILLINGTON HALL, TARPORLEY.

in Mr. A. E. Jones' car, and Miss Tomkinson in that belonging to Mr. W. E. Rowcliffe. The Hall is a handsome mansion of red brick, which stands in a park of considerable extent, and those present were greatly pleased and interested in inspecting both the house and grounds under the direction of Miss Tomkinson. This done, a vote of thanks was proposed by Mr. Rowcliffe, Chairman of the Club, to the host and hostess for their kindness, and Colonel Tomkinson, in reply, intimated that it was a great pleasure to Mrs. Tomkinson and himself to receive the Club, whose acquaintance he had not had the opportunity of making before and he was glad to invite them to visit the park. He thought gentlemen who had parks and privileges should let others have some benefit from them as he had done.

Home to Manchester.

AFTER tea a start was made from Willington for Tarporley, a distance of about two miles, where the cars caused considerable excitement among the population, and made the police feel their importance. The whole party proceeded to the Swan Inn, where an excellent repast was laid by the hostess, after partaking of which the cars dispersed. It had been hoped that Mr. Roger Bate, J.P., local member of the County Council, would have been present at dinner, but it was with much regret he found it impossible owing to a previous engagement. The police were active throughout the run, particularly at Sandyways, where both Mr. Hammond and Mr. Rowcliffe were stopped and gave their names though without reason for alleged infringement

of the speed limit. The Club may congratulate itself on having obtained as a Vice-President Mr. Cuthbert Leicester-Warren, J.P., of the Manor Hall, Tabley. This gentleman, who is an enthusiast, was present at Willington Hall, and then and there agreed to associate himself with the Club in the manner indicated.

Manchester Motorists.

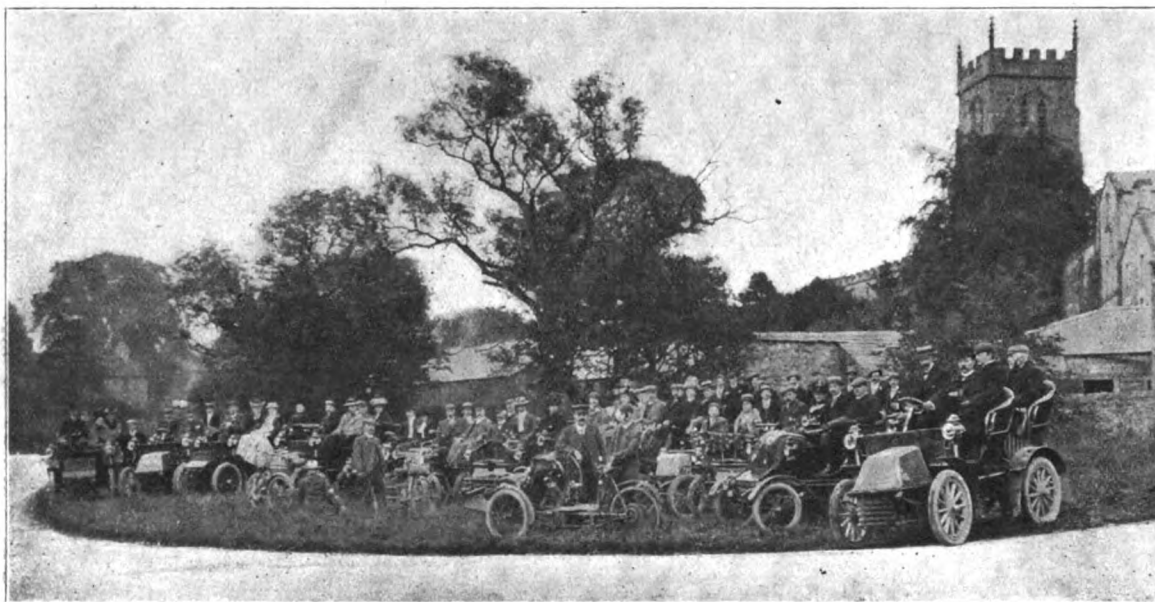
THE following is a list of the members and their friends who attended the meet:—Mr. Victor O'Neill, 10-h.p. CoterEAU; Mr. R. C. C. Yates, 2½-h.p. Swift tricycle; Mr. W. E. Rowcliffe, 5-h.p. Century voiturette; Mr. J. B. Bindloss, Jun., 4½-h.p. Eagle tandem; Mrs. Ralph Jackson, 4½-h.p. Eagle tandem; Mr. Ralph Jackson, 8-h.p. Eagle; Mr. Frank Gresham, 4½-h.p. De Dion voiturette; Mr. J. Higginson, 4½-h.p. Empress; Mr. J. E. Hammond, 9½-h.p. Clement; Mr. F. A. Baume, 4½-h.p. Century; Mr. A. E. Jones, 8-h.p. Progress; Mr. Charles Frost, 4½-h.p. De Dion. On the 6th inst. the Club will spend a week end at Chester.

Sir Thomas Lipton.

THE accident to Sir Thomas Lipton has been made the most of by the daily press, but, as is usual, the results have been much magnified. The sporting knight, as a rule, does not drive himself, and when we met him in the courtyard last week at a Farnham inn, he was then being driven and was seated in the back of the tonneau of a 12-h.p. Daimler. He seemed supremely happy, and from his remarks had most thoroughly enjoyed the run up from his yacht the *Erin*, which was lying off Southampton.

Numbering Cars.

IF our correspondence columns are any index to the feelings of motorists, there should be a lively discussion at the Automobile Club when the proposal to remove the speed limit and substitute a system of numbering cars is discussed. So far the opposition comes from Scotland, but south of the Tweed feeling is running high, and hence the pleasure with which we open our columns to preliminary discussion. Every motorist who cannot attend the Automobile Club at the November meeting should send his views on the subject to our columns, so



THE BURNLEY AUTOMOBILE CLUB'S INAUGURAL RUN TO BOLTON-BY-BOWLAND.

79 Miles an Hour.

MR. CHARLES JARROTT will soon have to take to a flying machine if he continues to break records as he has done lately. He was the first to establish a high-speed record on a motor-tricycle; while in the Ardennes contest he established a reputation for stamina. At the recent Welbeck trial he rushed over the kilometre course in thirty-five seconds—but with remembrance of the fact that Mr. W. K. Vanderbilt had occupied only 29 2-5th secs., he was not likely to be satisfied. And so on Friday, the 22nd inst., he made a series of trials over the Welbeck course with his Dunlop-tyred 70-h.p. Panhard. Mr. Jarrott, at his first attempt, took 29 4-5th secs., and his second run was two-fifths of a second slower; but on the third trial his time was 29 secs. "dead." A further spin showed 29 1-5th secs., and a final effort 28 1-5th secs., which up to that time was world's record for the distance. As will be seen, however, from another column, this record was broken on Tuesday at Deauville, M. Gabriel, on a Mors, doing the kilometre in the marvellous time of 26 2-5 sec., or at the rate of about 85 miles per hour.

that something like an adequate expression of opinion may be obtained. Undoubtedly, the proposal to number cars will be the crux of the matter, and, so far, the idea of reducing privately owned motor-cars to the level of hansom cabs is not popular. This week Mr. James Burns, who is Town Clerk of Motherwell as well as an ardent motorist, has an interesting letter on the subject supporting the contentions of Mr. Norman Macdonald, the Chairman of the Scottish Club. The subject might be well be discussed by that organisation as well as every English provincial club.

Accounts.

THE organisation of exhibitions is a matter that requires careful handling, and those who arrange the details must accept the responsibility. We understand that in connection with the Crystal Palace Exhibition some accounts sent in to the organisation that gave out the original advertisements have been referred to the Society that is now developing the scheme, and the committee of the newer body has "unanimously decided" they have no liability in connection with the matter.

AUTOMOBILES AND THE ARMY.

AUTOMOBILES are looming large in the equipment of the Army, and military authorities have been convinced of their value. Despite the little mishap that occurred to his car last week, General Sir Evelyn Wood has become quite enthusiastic, and on another page we have pleasure in reproducing a photograph of the distinguished general on the motor-car with which he attended the manœuvres at Salisbury.

On Wednesday Lord Roberts and his staff made a tour of inspection to Shorncliffe, Hythe, and Lydd, in company with the Volunteer Automobile Corps organised by Mr. Mark Mayhew, L.C.C., who has taken a very active interest in the matter. The co-operation of private owners was obtained by Mr. Mayhew at very short notice, and among those who attended with their cars were, in addition to the organiser of the corps, the Hon. C. S. Rolls, Messrs. A. Bird, Charles Cordingley, W. J. Crampton, A. Du Cros, G. Du Cros, W. M. Letts, and E. Owers.

AN INAUGURAL RUN.

THE inaugural run of the Burnley and District Automobile Club has taken place—as briefly notified in last week's *Journal*—and has demonstrated that the organisation has a capable secretary in Mr. P. H. Altham, and an enthusiastic body of members. From Burnley several cars went in procession to Nelson, the passengers including the Mayor and Mayoress, the Town Clerk, and the Chief Constable. *Via* Barrowford and up the stiff gradient of Blacko Hill the party went to Gisburn, where a departure was made from the usual route to Bolton-by-Bowland.

As the cars arrived, they were directed to the green in preparation for the photograph shown on page 514. The ancient village church appears in the background of the picture. Among those whose cars took part in the run were Mr. Jesse L. Altham, Mr. P. H. Altham, Mr. Clements, Dr. Mackenzie, Messrs. Parkinson, Mr. H.



MR. AND MRS. MARK MAYHEW ON THEIR LIGHT MORS CAR.

The history of the movement is interesting. It is two years since a 3½-h.p. quadricycle was employed by General Sir Frederick Maurice in connection with the Volunteer cyclist manœuvres, carried out under his direction as an experiment in coast defence. After two or three other tentative experiments a really practical trial was made at the August military operations last year, Mr. Mark Mayhew obtaining the support of many motoring friends in assisting the War Office to have a fair chance of estimating the value of the new machines. The results so impressed those officers who were specially charged with the duty of watching their performances and testing their capabilities that a very favourable report was drawn up, its preparation being entrusted to Major-General Douglas. Now the War Office has placed cars at the disposal of the officers commanding the Army Corps of the Home District, and the position of the automobile in the British Army is assured. As a result of this week's experiments further developments are expected.

Clegg, Mr. J. Watts, Messrs. Bellingham, and Mr. T. W. Hargreaves, Burnley; Mr. Harold Smith, Colne; Mr. Atkinson, Barrowford; Mr. Horsfall, Brierfield; Mr. Smallpage, Colne; and Mr. J. Landless, Clowbridge. Two other motorists were present (Messrs. J. Butterworth and H. P. Cooper), but not their cars, which were under repair. Messrs. Clements and Clegg acted as marshals. Unfortunately, the president of the Club, Sir John Thursby, Bart., was unable to be present owing to absence in Scotland.

After tea, speech-making was indulged in. The Mayor of Burnley proposed a toast—appropriate enough at tea—"Success to the Club," Dr. Jackson also joining in the good wishes. With the exception of a short ride he had once with Mr. Harold Smith that was the first time he had ridden in a motor-car, and he had come to the conclusion that motoring was not only an exhilarating exercise, but it called forth faculties of ingenuity as well. Response was made by Mr. John Watts, who said the Club were only too pleased to have had their guests with them.

THE KILOMETRE TRIALS AT DEAUVILLE.

BY "AUTOMAN."

MONDAY.

THE race for the flying kilometre at Deauville, which has become a classic event, has this year been represented by a total of 121 entries. Deauville, it will be remembered, is a seaside holiday resort on the estuary of the Seine, and forms a suburb of the fashionable resort, Trouville. The course was along the promenade. As I intended going down by motor-car, I chose Sunday, meaning to start at 9 o'clock on a new 20-h.p. Georges Richard. The car, however, was not ready until noon, when the rain came down in torrents. At 2.30 I thought the weather looked like clearing up, and so I set off to brave the weather. My hopes, however, were disappointed, for all the way to St. Germain it pelted with rain; faster and faster it fell, until, covered with mud and literally wet to the skin, we came in sight of Mantes, where our courage deserted us, and, wet and draggled, we went to bed whilst our clothes were dried, making arrangements for an early start in the morning.

Fortune favoured us in the morning, which broke dry and fine, and Trouville was safely reached at 9.30 a.m. on Monday. Trouville and Deauville were in the hands of the automobilists: cars of every shape and kind were rushing to and fro. The *pesage* took place at a coal merchant's close to the station, and there an interested crowd surrounded the weighing-machine all day long. In the afternoon trials were permitted over the course. Altogether eighty-five cars weighed in by six o'clock.

There was great disappointment expressed that Jarrott did not turn up, especially in view of his record at Welbeck, and the opinion was freely expressed that a new regulation should be introduced in the racing rules confining the official records to public competitions, so as to give everyone an equal chance.

On Monday evening the hotels of Deauville and Trouville were simply teeming with *chauffeurs*, and as I took a turn round the Casino I was amused to recognise the familiar faces round the *petit chevaux* tables watching for the winner just as eagerly as if it had been a Fournier or a Marcel Renault.

TUESDAY.

Tuesday morning opened with a thick mist covering the land and sea, but towards 9.30 a.m. it began to clear up. As I look out of my bedroom window whilst I am finishing these lines to send off by the early post there are three Serpollets, including "the whale," in the yard below having the finishing touches put on them, and Rutishauser is just trying the light car and leaving volumes of steam behind him, for the condenser has been taken off for the speed trial.

BY TELEGRAPH.

The following are the results of the kilometre trials:—(1) Motor-cycles (30 kilos and under): 1. M. Barre (Bruneau); time, 49½ sec. (2) Motor-cycles (between 30 and 50 kilos): 1. M. Barre (Bruneau); time, 43½ sec. (3) Motor-cycles (50 to 250 kilos): 1. M. Rigal (Buchet); time, 28½ sec. (4) Voiturettes (two seats, maximum weight 400 kilos): M. Rigal (Buchet); time, 41 sec. (5) Voiturettes (four seats, maximum weight 650 kilos): 1. M. Hemery (Darracq); time, 42 sec. (6) Light cars (two seats): M. Thery (Decauville); time, 30½ sec. (7) Cars (from 650 to 1,000 kilog.): Gabriel (Mors); time, 26½ sec. The hero of the day is M. Gabriel, whose speed works out at 85 miles per hour, beating Jarrott's record of 28½ sec. by nearly 2 sec.

(To be continued.)

At the sports meeting on the Clarence Park track, St. Albans, on Saturday last, J. Van Hooydonk, on his Phoenix motor-bicycle created a new grass record by covering five miles in 7min. 44 3-5sec. A ten-mile motor handicap resulted as follows:—J. Van Hooydonk (time 17min. 45sec.), first; A. Norton, second; P. C. Paget, third.

EARL ROBERTS OFFICIALLY RECOGNISES THE MOTOR-CAR.

IN response to an urgent request, we gladly responded that we should be pleased to place at least one of our cars at the service of the War Office, coupled with a notification that a second one was also at the disposal of the authorities if necessary. The 12-h.p. M.M.C. was considered good enough, and an intimation to that effect was received. The writer duly arrived at Folkestone and placed himself at the service of the Commandant, Mr. Mark Mayhew. We learnt that the order of procedure was as follows:—That car No. 1, driven by Mr. Mayhew, should pilot Earl Roberts, and, of the other cars, Mr. Alfred Bird should drive Sir T. Kelly-Kenny; Capt. G. Du Cros, Sir Leslie Rundle and Mr. Bennet Golden; the Hon. C. S. Rolls, Col. Collins; Captain A. Ducros, Major Sherston and Captain Lloyd; Mr. C. Cordingley, Major Webber; Mr. Owers, Col. Stevens; Mr. Crampton, Col. Hyslop; and Mr. Letts, Col. Smith Roux.

Motorists are usually early folks, and all were ready at the appointed time on Wednesday morning. Our destination was Folkestone Central Station, to pick up General Rundle and staff. The South-Eastern, with its usual methods, made us late, and we had to hurry to Shorncliffe to meet Earl Roberts, who was received with military honours. From the station to the camp was only a short step but the occasion for a long halt. It was the first time he had visited Shorncliffe. The halt was a pleasant one, the day glorious and the view delightful. From the camp to Hythe was down a hill that would have tried the brakes of any but a good car. Instructions were to descend and start on the clutch; this was successfully done and the run through Hythe was made without incident. At the School of Musketry a long halt was made, which was much enjoyed, various exercises being indulged in by those in training. Somewhat late a start was made for Lydd, which was reached after a storm of dust, followed, on the Romney Marshes, by a ten minutes' deluge. Fortunately at the village, which was beautifully decorated and looked, to quote the opinion of a guest, like a scene from a play, they knew not of rain, but only of the coming of Roberts, and he came like a proper automobilist, suitably garbed, goggled and all. A beautiful address was presented by the Mayor, and the surroundings were such that made all wish for a longer stay. Programmes had to be followed, however, and official duties attended to, one of which was lunch at the Royal Artillery mess at the experimental dépôt. This was a function to which a healthy appetite induced us all to look forward with interest. The results were pleasant and the well-known hospitality of the corps was well maintained. Earl Roberts presided at the luncheon, and afterwards some interesting experiments with new heavy firing guns were watched with interest. The start for the return to Hythe was made about four o'clock, and to the School of Musketry a speed fully up to the legal limit was made, all the officers being most delighted with the capabilities of the motor-cars. Earl Roberts openly expressed his opinion of the great value of the automobile, and seemed to consider that in their development lies the solution of many military difficulties. All the motorists were individually introduced to Earl Roberts, who asked after those, including Colonel Crompton, who had gone out to South Africa. The motorists' arrangements were in the hands of Mr. Mark Mayhew, to whom all credit is due, everything passing off in perfection. The cars could not have behaved better; they were of the best; they kept well together, and not a single puncture seemed to disturb the serenity of the automobilists, all of whom will look back with pleasure to what was undoubtedly a red-letter day in automobilism.

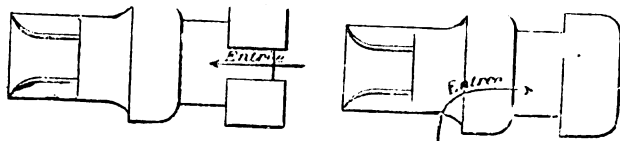
In connection with the reliability Trials, the Continental Caoutchouc Co. are offering prizes to users of their tyres.

MR. ALBERT HOUSE, of the Bradford Motor-Car Company, will hold a sale by auction of motor-cars and cycles at the Drill Hall, Belle Vue, Manningham Lane, Bradford, on Monday next.

CARRIAGE BODIES FOR TOURING CARS.*

BY LEON AUSCHER.

IN the first place it is necessary to define the term tourist precisely, especially in connection with the subject with which we are here occupied. For, if we do not, we shall be led to include all automobilists under this definition. This generalisation would be an error which would make impossible the study which follows. He is not necessarily a tourist who, with some kind of motor-propelled vehicle, leaves the town to run on country roads. And it will be permitted me to eliminate at the start all record-breakers, "milestone counters," and "road



FIGS. 1 AND 2.

scrapers," and, in general, all those who, having eyes to see and brains to think, use their optical nerve and brain matter solely for the pursuit of the satisfaction which speed can give, to the exclusion of all the artistic and intellectual inspiration offered by a correct conception of touring.

I therefore define "tourists" as those happy mortals who, being the owners of automobiles, employ them partly to admire the natural and artistic beauties of the regions which they pass through. They are not the slaves of a time-table nor of railway maps. And the absolute independence which their vehicle insures them doubles their pleasures. Fortunately, these tourists are legion; but among them there is still a certain number which I feel bound to eliminate from my very special standpoints. These are the solitary tourists. When one travels alone, or even when only two travel together, the facility for taking advantage of even the least special forms of carriage body is too evident to be insisted upon. Almost all large cars have seats for four people; and when only the front seat is occupied, all the rest of the body can be used for carrying baggage and tools without any special arrangements.

More frequently, however, it is preferred to tour in parties of more than two. And, taking account of the *mecanicien*, whose presence is almost always indispensable, the touring party varies from three to five persons, according to whether the party comprises one or two families, as is almost always the case. I shall therefore consider the touring vehicle with seats for three

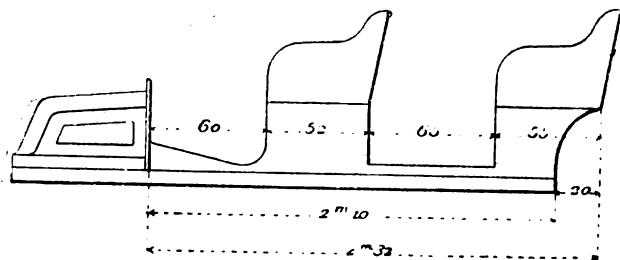


FIG. 3.

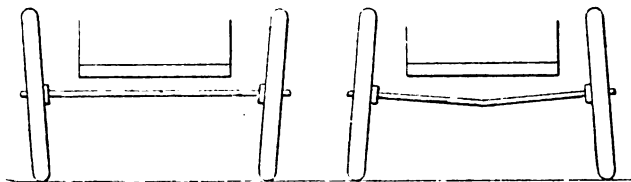
to five persons, as it corresponds to the great majority of actual cases. And, just as I have left out the single tourists, I shall leave out vehicles to accommodate more than five persons and large special vehicles, which are the exception, and are of no interest except to altogether "large purses."

For a vehicle to carry five persons we may estimate that the following load has to be carried by the frame:—165 lbs. per passenger, 825 lbs.; 44 lbs. baggage per passenger, 220 lbs.; petrol and water, 176 lbs.; body, approximately, 352 lbs.; tools, spare tyres, etc., 110 lbs.; total, 1,683 lbs.

This dead load of 1,683 lbs., or, in round figures, 1,700 lbs., is to be supported by a frame which must be sufficiently strong

to withstand this weight and its reactions against road obstacles. Supposing that the frame, with its substantial wheels fitted with large pneumatic tyres, good axles, strong springs, and besides, with its motor equipment, weighs 2,200 lbs., which is not at all exaggerated, we then arrive at a total weight of 3,900 lbs. This vehicle, complete with its supplies and load of passengers, must not only run on level roads at a good speed, but must also climb any hill which a touring vehicle may encounter. Even in districts where unusually steep hills are rare, grades are frequently encountered which are insurmountable owing to a lack of motor-power, especially if the grade is very long and the motor has a tendency to heat. I remember that, in the early days, we were frequently stalled on stiff grades with good 6-h.p., and even with 8-h.p. motors. Aside from the annoyance of being thus stalled, there is above all to be considered the danger of running backwards down hill. This, with a 6-h.p. machine, has been the source of many serious accidents. With 2-h.p. more the obstacle could be overcome, but 8-h.p. is still too little.

Practice has thus shown that a minimum of 10-h.p. was necessary to extricate oneself out of all embarrassing situations. It requires, moreover, 10 good horse-power—actual horse-power, and not momentary horse-power obtained for ten seconds on a testing-stand. Besides, there is no necessity to mount a hill at a snail's pace. It is even better for the motor if it climbs a hill in ten minutes than in a quarter of an hour. There is nothing exaggerated in the demand that a vehicle shall mount a 4 per cent. to 6 per cent. grade at the rate of 18 miles an hour. To do that with the weight we obtained above requires more than 10-h.p.



FIGS. 4 AND 5.

My conclusion, therefore, is to adopt for the touring vehicle in question a motor of 12 to 16-h.p., in order to be able to cope with the geographical difficulties of any route that may be selected. We shall then acquire such a *chassis*, and we must, first of all, once its power is determined, occupy ourselves with its dimensions.

Let us suppose that this *chassis* has, as is usual, its motor in front. What should be the length of the space reserved for the body? Every motor-car body, whatever be its form, belongs to one or the other of two great families—the *tonneau* and the double phaeton. The *tonneau* (Fig. 1) comprises two seats facing forward, and having an entrance at the rear. The double phaeton (Fig. 2) has two seats similarly disposed, but with entrance in front. Whatever be, then, the location of the entrance, the dimensions of the various parts are the same. The lines I shall indicate may, therefore, be followed in both cases. And let it be understood that these are the lines of comfort and durability, and not the lines of scanty dimensions which only too much effort is made to impose upon the public. A person who travels for long hours should not be jammed in by his neighbour, but must be in a position to stretch out his legs, have some play for his elbows, and, in one word, must be at his ease. If touring involves any physical discomfort it loses half its charms.

Practice has shown carriage-builders that the width of the seat (i.e., of the cushion) should be 20 in. With a width of 22 in. one is still well seated, but 24 in. is uncomfortable. We shall, therefore, adopt a width of 21 in., which suits almost everybody, and make our front seat of this width.

Between this seat and the dashboard there is a free space spanned by the footboard, the forward end of which is inclined, and acts as a support for the feet. This space, which serves as entrance, varies but little in the vehicles of the different manufacturers, but it is determined by the latter, as it extends from the dashboard to the stop of the operating levers. The length

* Abstract of Paper read before the Automobile Congress at Dijon.

of this space is on an average 2 feet, sufficient to accommodate the legs of the driver, who has, however, as a rule, not space enough to stretch his legs. However that may be, there are so many reasons for retaining this length (position of the steering post, pedals, and levers, which necessitate that the driver be always on the alert rather than too much at his ease) that it is better not to require a greater length.

In the case of the rear seats, on the other hand, there are no reasons for making any sacrifices of this sort. And as we generally reserve them for the guests or for ladies, we will first give

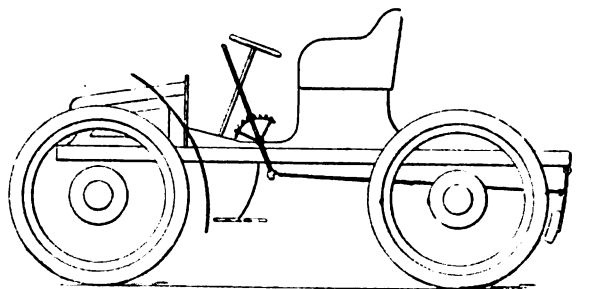


FIG. 6.

it the 22 in. width necessary to make a good seat, and then the 26 in. of interior length which we do not have for the front seat. This gives for the total of these various dimensions:—

$$24 + 21 + 26 + 22 = 93 \text{ in.}$$

We shall temporarily adopt this length as that required at the level of the seats (see Fig. 3). This length could be reduced to 92 in. We would state here that this does not imply an equal length for the frame. In fact, there is a certain advantage in having a frame not too long, both from the standpoint of keeping down weight and from that of facility of operation. On the other hand, a slight overhang of the body does not affect the stability of the whole. It is, therefore, practically possible to mount such a body on a frame 84 in. long with 8 in. overhang in the rear, or on a frame 88 in. long with only 4 in. overhang. By making this overhang in two steps—the first by rounding the rear panel and the second by dropping the rear seat a few inches—a double gradation is obtained, which does not offend the eye, and meets all the requirements of strength.

So much regarding the length. In the matter of the width we are less at liberty to satisfy our wishes. In fact, in order not to make the *chassis* too heavy and of more than standard track, manufacturers must restrict themselves to certain dimensions. *Chassis* of 36 in. width are rare. This width is necessary, nevertheless, to insure comfortable seats, particularly in closed vehicles; it is also required to accommodate three persons facing the direction of running. Whenever, therefore, the manufacturer sees no objections to it this width of frame should be required. In practice we must for the present content ourselves with a width of 34 in., which is that employed by nearly every manufacturer, and remedy this relative narrowness by the arts of carriage-building.

We have now fixed the dimensions of the frame. It is 84 in. or 88 in. by 34 in. or 36 in. Meanwhile, before going into the body work proper, let us examine the details of construction and assembling which make the *chassis* suitable for touring. These details, which are all of great importance, are nearly all of such evident necessity that I confine myself to recounting them summarily.

The rear axle must be of greater strength than those used in similarly-powered vehicles for ordinary purposes. Nearly all *chassis* are provided with axles designed for a light body with seats for four at most. Unless they are specified to be of greater strength the rear axle will soon be sprung. Figs. 4 and 5 show, exaggerated, the position the wheels should occupy, and that which they too often do not occupy. If this flexure of the axle does not end with the breaking thereof it always results in rapid wear of the tyres.

Springs—especially the rear ones, should be as much reinforced as possible. Three-fourths of all motor-cars have too weak springs. It is important that the fenders do not come down on the wheels, and that the frame does not strike the rear axle. A good length of the rear springs also avoids much of the disagreeable jolting, and greatly protects the machinery and the body.

The wheels must be of wood and very carefully made. The spokes must be of such strength that no shock, even the most severe, will cause the wheel to collapse. Here we also have to deal with the pneumatic tyres. Long road experience has led me to recommend to use for a touring car four wheels of equal diameter with pneumatic tyres of equal size. With all the wheels alike the advantage is gained that only a single size of spare tyre needs to be carried; and, besides, if the pneumatics are large in diameter, say 5 in., punctures and tyre bursts are much more rare. It may be that a little is lost in absolute speed; but in average speed there is a gain, owing to the reduction in the number of repairs. Finally, when the rear wheels are of the same diameter as the front ones, that is to say, smaller than usual, a more liberally dimensioned rear seat is obtained; consequently a more comfortable one.

The *chassis* must be fitted with a reliable device to check backward motion downhill. Running backward downhill is often the cause of serious accidents in mountainous countries. Generally a sprag is insufficient to hold a heavy vehicle; it buckles or the vehicle passes over it; the ratchet, another device used for this purpose, may break; the hub or wheel brakes may be in bad repair and refuse to hold. In that case an emergency device is required in order to stop or to considerably reduce the speed of the vehicle with absolute certainty. The shoe brake is the simplest device of this kind. It is generally not very rapid in action, as it is operated by means of a hand-wheel. Hence this brake should be operated by means of a hand-lever working on a notched sector (Fig. 6). Another device is the "shoe sprag" (Fig. 7). The latter is hooked up or raised from the ground like the ordinary sprag, and when released it falls to the ground, and carries along a strong steel shaft carrying two shoes which lock the vehicle instantly.

I have discussed braking a vehicle running backward before considering braking of a vehicle running forward, because the former is so frequently neglected. Nearly all motor-cars are fitted with good brakes to stop them in their forward motion, but it is nevertheless important in a touring car to verify the power

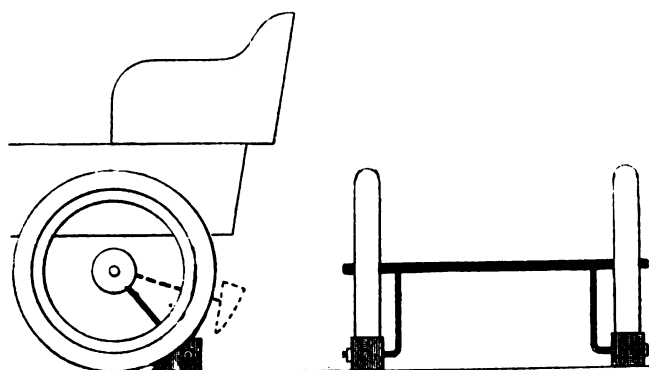


FIG. 7.

and permanence of these brakes—that is to say, to make sure that these devices are absolutely reliable, not only for stopping the vehicle, but also in keeping down the speed when descending long hills.

(To be continued.)

AT 75, Church Road, Norwood, S.E., Mr. Robin Wood stocks petrol, oils and accessories—a matter of convenience to those attending at the Crystal Palace next week.

CONTINENTAL NOTES.

BY AUTOMAN.

UNDER the presidency of the Marquis de Sainte-Marie d'Agneaux, an automobile club has lately been formed in Dieppe, and has already about forty members. I understand that any member of the many English clubs visiting Dieppe will be well received on presenting his card. Adjoining the clubhouse a well-equipped garage and repair shop has been established by M. Giraudel. A qualified mechanic is kept to execute any repairs that automobilists have need of, and at a moderate charge. A stock of accessories is kept on hand, while facilities are also avail-



THE DIEPPE AUTOMOBILE CLUB-HOUSE AND GARAGE.

able for the recharging of accumulators. Dieppe has had an evil reputation for extortionate charges, and as this garage has been established with the view of offering automobilists storage and repair facilities at reasonable rates, motorists visiting this popular French resort would do well to make a note of the address—24, Rue de Sygogne—which they will find at the *plage* end of the Route de Rouen.

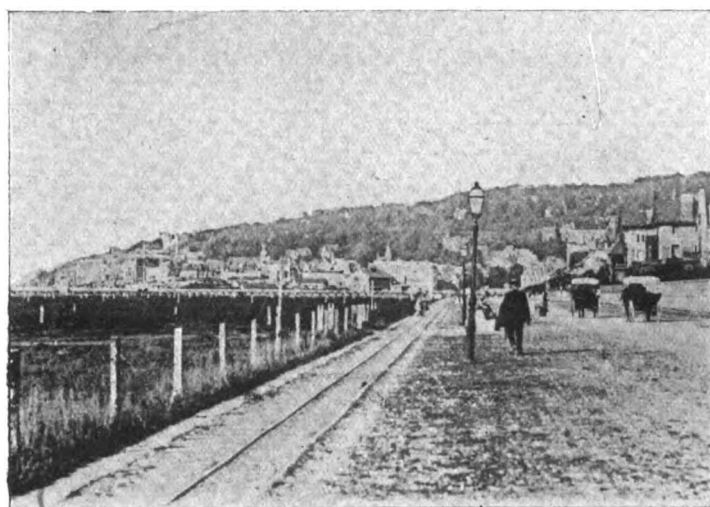
A FEW days ago I was the witness of an exciting incident on the Champs Elysee, in Paris, which brings before the public a new field of utility for the automobile. Two spirited horses, harnessed to a stylish landau containing several ladies, were running away at full gallop. The coachman with frenzied movements was trying in vain to stop their mad course; the ladies were screaming, and pedestrians made futile dashes for the horses' heads. Everything seemed to point in the direction of a very serious accident. At this juncture a motor-car came on the scene; it had been passed by the runaways, and the *chauffeur* evidently had a bright idea. He put in his "fourth" and whipped cleverly past, and got in front of the landau, just keeping up enough speed to clear the pole. His comrade in the car by waving his hands at the horses gradually frightened them into slowing down, until the terrified Jehu got them once more under control. It was so neatly and quickly done that the whole operation took place in less time than it takes to describe it. It was indeed a striking instance of the tractability of the new form of locomotion in comparison with the old one.

THE interest in the road race meeting of Provence has been considerably increased by the organisation by the *Auto-Velo* of a hill-climbing competition, which is to take place on September

16th, at Mont Ventaux. At the foot of Mont Ventaux lies the road from Paris, and it is at Bedoin, thirty-seven miles from Salon, and twenty-three miles from Avignon, that the competition begins. The road up Mont Ventaux only leads to the observatory and to an inn, so that the hill will be free from traffic. The road is good, though the climb is very stiff, and there are several sharp though not dangerous turns. The hill is nearly fourteen miles in length, and has an average gradient of about eight per cent. Mont Ventaux is one of those peculiar hills, shaped like a sugar loaf, and dumped down in the middle of a plain quite alone, and the ascension is made by a zigzag road to the summit, where on a clear day the view of the valley of the Rhone and the Alps in the distance presents a panorama of remarkable beauty, and well repays the stiff climb.

THE meeting at Deauville, which took place last Tuesday, has this year excited a great amount of attention, as the 121 entries testify, and the continual battle between steam and petrol, and also between the different apostles of petrol, is getting keener and keener as time goes on. I was invited by M. Leon Serpollet one evening last week to go for a short run with him on the new racer he was preparing for Deauville. The engine is capable of developing nearly 180-h.p., and aided by the peculiar wind shield now become classic with the Serpollet racers, it certainly gets over the ground at a tremendous speed, and still at the same time is quite easily controlled after a sudden burst of speed. Every day for the last week the new Serpollet racer has been seen going out through the Bois de Vincennes in search of a quiet kilometre to test its speed, and returning with its driver more jubilant each time. Some wag has christened the new car "La Baleine," that is to say the whale, for the wind shield has something of the shape of this monster of the deep. The head and shoulders of the driver project out of a manhole in the whale's back.

TALKING about the battle between the motors leads me to look back a twelvemonth to the time when the A.C.F. brought in the wise regulation limiting the weight of racing motor-cars to 1,000 kilos. Some day there should be a statue erected to the individual, whoever he was, who conceived the idea of that wise regulation, which has in an incredibly short space of time transformed the motor industry, and turned the brains of the clever people in the trade into a channel where science and skill alone,

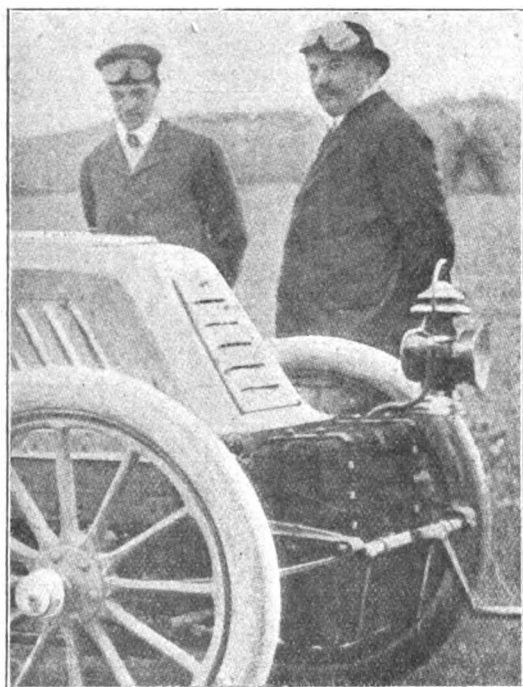


GENERAL VIEW OF DEAUVILLE.

and not brute force, can bring about results. It is not more than a year ago, and already we have automobiles with more than 50 per cent. more power than last year, and a reduction of 25 per cent. in weight at the same time. I well remember how those who were in opposition to this wise decision predicted that cars would be made just sufficiently strong to get to the end of a race.

and then fall to pieces, a supposition which was absurd on the face of it. Who shall say now that the racing cars are not solid and even stronger than they were last year. If there should be anyone of that opinion let them examine the Mercedes on which poor Mr. and Mrs. Fair came to grief by running into a tree at over sixty miles an hour, and they will have an object lesson worthy of the name. Apart from the carriage work and some details the car is uninjured, and a very small sum will put it on the road again. But this reflection brings me to another—the so-called racing car.

I WELL remember that on the never-to-be-forgotten 1,000-Miles Trial, the 12-h.p. Panhard which the Hon. C. S. Rolls had just brought over from Paris, and which was the wonder and marvel of the competition, and at each control there were stories of the prodigious speed at which he had arrived. I remember, too, how the wise-acres shook their heads and said that these racing cars were no good for anything else and would never be used by sensible people. The 12-h.p. Panhard became, of course,



MR. W. K. VANDERBILT AND THE LATE MR. C. FAIR.

the ideal touring car a few months later, and is now relegated to the category of under-powered cars. Practically year after year the same thing has happened, that is to say, the racing car of one year has become the touring car of the next, apart from a few exceptional cases, and I firmly believe that the same rule will hold good, for the principle underlying it is sound and logical. Every pound of useless weight done away with, provided it does not impair the strength, means less petrol for a given distance, less wear and tear of tyres, etc., and thus an economy all round; whilst increase of power means the possibility of keeping up a regular and reasonable speed all day long on the level and up hill, for although a high-powered car *can* scorch there is no necessity for it to do so. A well bred horse *can* get over the ground quickly, but one is not in the habit of seeing the owners of such creatures madly galloping down a main road.

I WAS invited last week to go for a run with M. Ernest Cuenod, vice-president of the Swiss Automobile Club, on a new 16-h.p. Rochet-Schneider four-cylinder car, on which he had just completed a journey from Lyons to Geneva and from Geneva to Paris. The car is on the same lines as the Mercedes, and certainly runs very smoothly and satisfactorily. We went out along the road to Meulan, past the spot where M. Henri Deutsch's accident happened, and returned to Paris *via* St. Germain.

JUST before arriving at the latter town we ran on to a stretch of road which has been treated with petroleum in order to lay the dust. The effect is very startling, and there can be no two opinions about it. We are in for petroleum roads and no dust. The day was hot and very dusty, and we were leaving clouds of white thick dust behind us, to the great discomfort of the passers by. On running on to the part of the road which had been treated with petroleum we left on the very edge of it our clouds of dust, which appeared to us to be transfixed there, and the air from one end of the treated length to the other was as clear and bright as possible. There is no mistaking the surface, which looks dark and damp, and even greasy; but it is not at all "skiddy," for we tried to skid by jamming on the brakes. Petroleum-treated roads are the paradise of the automobilists, and we may hope at some not distant time to be able to dispense with the hideous garments which the fair sex especially are obliged to don, and to travel about in fine weather, and keep clean at the same time, which to-day is impossible. With all these improvements in sight it is not surely over-sanguine to look forward to the time when there will be good automobile roads all over Europe, and dare I say in Asia also? Before that time comes there are many battles to be fought against prejudice and ignorance, but common sense will prevail in the long run.

ONE of the battles yet to be fought out is around the numbering of motor-cars—"To be, or not to be." In France, the question is now whether it is safer to carry no number at all, or to risk what is called the *contravention au vol*. A friend of mine is just fighting out a case of what may be called in English "a flying summons," that is to say, a summons which results from his number being taken by the police as he was passing and without his knowledge. The policeman is master of the situation, for my friend has as yet no idea of the exact spot or the time of day, and it is not until the case comes into court that he will be able to get hold of the facts and make a defence.

LAST week a peculiar printer's error made me set out from Paris at 11.30 one morning towards Rouen with the intention of lunching at Nantes, which is just 265 miles from Paris; even supposing I had intended to lunch late—say at 1.30—I should have been obliged to average over 130 miles per hour to do this, which would be a tall order. It was, of course, Mantes where I lunched.

No less than seventy entries have been received for the races which are to take place at Frankfort-am-Main, Germany, on Sunday next, under the auspices of the Frankfort Automobile Club. No English motorists have entered, but among the competitors I notice the name of Mr. C. G. Dinsmore, of New York, who will drive a 40-h.p. Mercedes.

THE accompanying illustration is reproduced from the last photograph taken of Mr. C. Fair, who lost his life in the recent motor-car accident in France. The photo was taken by the representative of *La Vie au Grand Air* on the occasion of the record runs of Mr. W. K. Vanderbilt, jun., on his Mors car, and shows Mr. Vanderbilt and Mr. Fair, his brother-in-law, standing near the former's speedy vehicle.

MESSRS. MUNCEY AND SON, of the Cannon Cycle Works, 159, South Lambeth Road, S.W., are extending their premises, and are now able to undertake repairs to motor-cars of all types.

CALVERT'S MOTOR COMPANY, LIMITED, has been registered, with a capital of £5,000, to acquire the business of an electrical and motor engineer carried on by G. Calvert, at 8 and 9, Kingsland Passage, and at 487, Kingsland Road, and to carry on the business of electrical engineers, manufacturers of motors, motor-cars, launches, and cycles. The registered office is at 487, Kingsland Road, N.

HERE AND THERE.

MESSRS. CHIPPENDALE AND CO., of Mount Parade, Harrogate, are undertaking repairs to motor-cars.

THE Hollingbourne (Kent) District Council has passed a resolution in favour of the numbering of motor-cars.

MR. ANDREW PEARSON, Inspector of Mines at Rutherglen, has joined the Scottish Automobile Club (Western Section).

DR. G. M. LOWE is among the latest medical gentlemen in Lincolnshire to become a motorist, he having recently acquired a Locomobile.

THE Hydroleum Motor Company, Limited, has been registered with a capital of £20,000, to carry on business as motor-car builders, etc., and to adopt various agreements, including one with E. M. Bowden's Patent Syndicate, Limited.

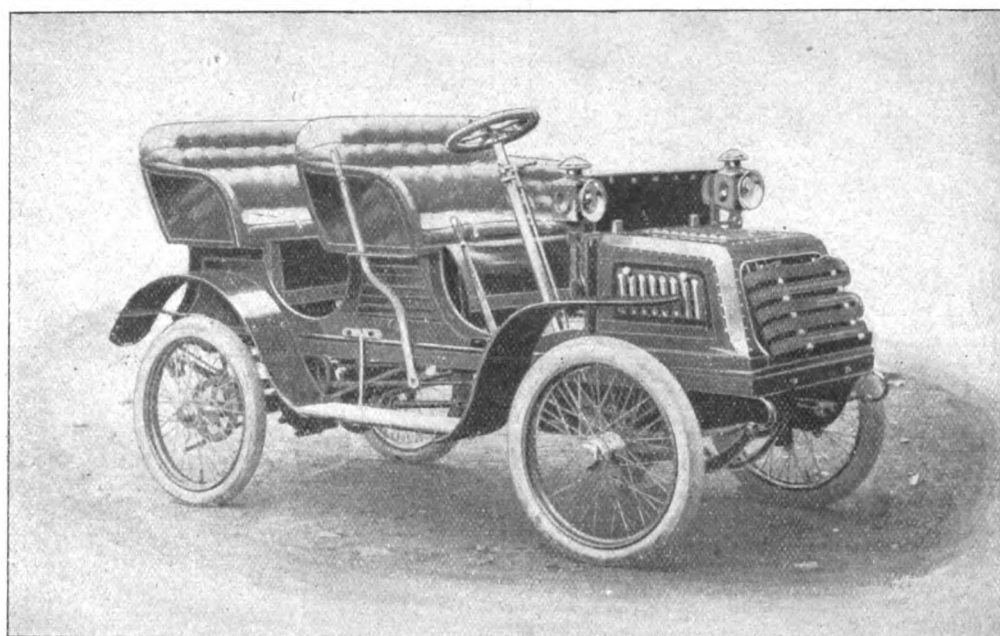
A MEMBER of the Motor Union who had been summoned for alleged furious driving, and who asked the Committee of the A.C.G.B.I. whether he should appear before the magistrates,

leather coats, etc., at the Crystal Palace. Representatives will be in attendance at the Palace to supply the wants of competitors every morning from 6 a.m., and every evening from 6 p.m.

It is reported that a powerful syndicate has been formed in Warsaw to introduce heavy motor-vehicles for the transport of goods into Poland, and that an order for no less than 100 cars has been placed with French builders.

MR. B. ATKINSON informs us that he has taken over the business of the North of England Motor Car Company, Aire Street, Leeds. He intends to keep a large stock of spare parts, accessories, etc. The premises comprise a well-equipped repair workshop, in which all classes of repairs can be undertaken.

THE BRITISH AUTOMOBILE COMMERCIAL SYNDICATE, LIMITED, report having just had a record week, the orders received in the six days including twenty-two for Clement cars, three for 15-h.p. Panhard vehicles, two for 16-h.p. Panhards, and one for a 40-h.p. light racing Panhard, a total value of £16,000. The Syndicate has 106 Panhard cars under order for next year.



THE "CLARENDON FAVOURITE" CAR.

has been advised to attend. In some cases absence has caused an adjournment and further inconvenience.

MR. D. M. WEIGEL has been touring in France on a four-cylindered 12-h.p. Clement car, similar to that which won in the Welbeck Competition, and which will be placed upon the market next year. He had a straight run of 250 miles from the Belgian frontier to Paris without a stop, the tanks on the car being filled whilst he was travelling.

OUR Midland representative had a short run the other day on a "Clarendon Favourite" car, manufactured by the Clarendon Motor Company, Earlsdon, Coventry. The vehicle runs very silently, and attains a speed on the level of thirty miles an hour. The motive power is supplied by an 8-h.p. double-cylinder motor (90 mm. by 90 mm.), water-cooled by means of a pump. The car is fitted with three speeds and a reverse, the change gear being of an improved Panhard type. Six of these cars are, we learn, at present in course of construction.

FOR the convenience of those taking part in the Reliability Trials next week, the United Motor Industries have arranged to have a complete stock of spare parts, including fully charged accumulators, sparking plugs, electrical coils, mackintoshes,

THE Collier Tyre Company, Limited, will drive a 9-h.p. Napier car in the tyre trials next week.

THE sports meeting of the Reigate and Redhill Cycling Club on Saturday last included a Five Miles Motor-cycle Handicap. The result was: H. A. East, scratch, first; J. J. Leonard, scratch, second; A. E. Steele, 1 min. start, third. Won by a lap and a half. Time, 9 min. 53 sec.

JUST before reaching Ashford, on the way to Folkestone, on Monday next the cars in the Reliability Trials will pass through the village of Charing, where the Canterbury Motor-Car Company, of which Mr. H. Pavillet is proprietor, will have a car with an engineer capable of effecting repairs, and a stock of grease, oils, petrol, etc.

At a meeting of motor-cyclists, held in Liverpool on Thursday last week, a club, to be known as "The Liverpool Motor Cycle Club," was formed. Mr. F. H. Wheeler was elected as captain, and Mr. W. J. Kirkland, 11, Lord Street, Liverpool, secretary and treasurer. In the riding season weekly runs and week-end tours will be held, and in the winter months meetings will be held, at which members will read papers on the management of motor-cycles.

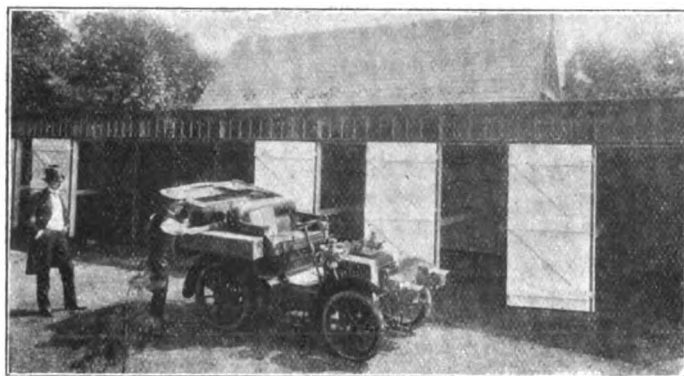
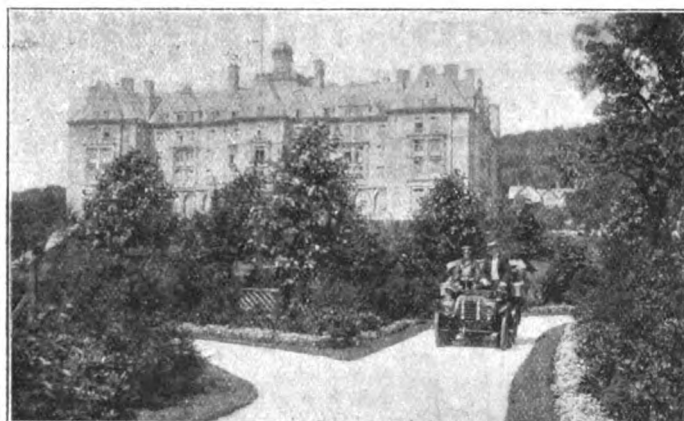
SEVERAL East London brewers have lately adopted motor-vehicles for their ordinary delivery work.

THE Labour correspondent of the Board of Trade in the Birmingham district reports employment in the motor-car industry in Coventry as "fair."

MAJOR-GENERAL SIR CHARLES KNOX, who has just returned to England, after being in South Africa for over three years, has placed an order for a 9-h.p. Dennis motor-car.

MR. C. J. PAFFARD has a motor-workshop and garage at 12b, Southey Street, S.E., and offices at 112, Oakfield Road, Anerley, S.E. The Penge address is only a few minutes' walk from the Palace, and Mr. Paffard makes a speciality of repair work.

FOLLOWING the example set by many of the leading hotels throughout the country, the proprietor of the Empire Hotel, Buxton, has just established a motor-car garage for the benefit of motoring visitors. The garage, which is shown in the lower of



the accompanying illustrations, is fitted up with all the necessary appliances for washing down, etc., of cars, contains an inspection pit and is in charge of an experienced engineer. Arrangements have also been made for the supply of petrol. We reproduce a photo of the Empire Hotel showing the approach through the beautiful gardens to the newly-erected garage. The car shown in the photograph belongs to Mr. H. R. Beeton, of London, and secured Mr. C. Cordingley's prize for appearance at the recent Welbeck meeting.

AN automobile ordinance has been drafted at Newark, N.J., which seems likely to become law. It prohibits anyone from running an automobile at a greater rate of speed than eight miles an hour on straight roads, and four miles an hour around corners, under a penalty of \$10 fine for the first offence, and \$25 fine for the second offence. It also calls for a light on each machine at night, which can be seen ahead for a distance of 100 yards. Automobilists are also commanded to blow a horn or whistle or ring a bell when approaching any pedestrian or vehicle, which shall be heard 100 feet away, under a penalty of a fine. They must also keep to the left when passing any other vehicle,

and take all precautions to avoid accidents. Another fine is imposed on automobilists if they loiter in the streets and in any way interfere with traffic.

THE MOTOR MANUFACTURING COMPANY, LIMITED, who were awarded three guineas as the first prize for the best decorated car in the Cycle and Motor Trade Section of the Godiva Procession, which took place on the 9th inst. at Coventry, have handed the amount over to the Coventry and Warwickshire Hospital.

MESSRS. F. WILKINSON AND CO., Cornbrook Road, Manchester, inform us that they have a petrol generator for steam vehicles which gives the operator absolute control of his fire, and enables him to leave his carriage standing for hours, if necessary, without having the steam run up. The device can be attached to the prevailing styles of regulators and torch devices without detaching the same from the carriage.

HALF-PAST three o'clock the other morning Mr. Charles Sangster, of the Ariel Motor Company, Birmingham, started on a 16-h.p. car to make the run from Edinburgh to London. As he was leaving the city the car ran against a tramway manhole which had been left open, and the machine was so much damaged that the journey could not be continued. Mr. Sangster escaped with a sprained arm.

THE summer meeting of the Thames Ironworks Cycling Club was held at Canning Town on Saturday last. Two motor-cycle events were included in the programme, the results being as follows:—Five Miles Motor-Cycle Handicap: S. Wright (2½-h.p.), 35 secs. start, 1; W. Parry (2-h.p.), 1 min. 25 sec., 2; H. Martin (2½-h.p.), scratch, 3. Five Miles Motor Scratch Race: F. W. Chase, 1; E. Arnott, 2; W. Parry, 3. Time 6 min. 35 2-5 sec. In the first race a protest was made against the winner, the result of which is not known at the time of going to press.

In addition to Mr. Mark Mayhew, Count Zborowski and Mr. J. R. Hargreaves have given orders for Napier racing cars, eight of which are now being built for next season. Orders for 16-h.p. Napier cars have recently been placed by the Premier and by Mr. R. W. Wallace, K.C., and for 10-h.p. cars by Earl Russell, Mr. Leveson-Gower, Mr. Kenneth Balfour, Mr. J. B. Purchase, and Mr. E. K. Purchase. With such orders in hand, the Lambeth Works will have to be extended; while new works are being built.

As motorists are aware, the difficulty met with in connection with ignition batteries is that when the battery is tested on what is called open circuit, that is to say, before there has been any current taken out of it after a period of rest, the voltage indicated on the ordinary pattern voltmeters is not to be relied upon, being, in the case of an accumulator which is nearly run down, nearly 25 per cent. higher than that available for working purposes. The reason for this is that there is no current taken out of the accumulator when measuring with the ordinary pattern voltmeter. Messrs. Geipel and Lange, of Parliament Mansions, Westminster, have just introduced a new voltmeter designed to measure the pressure, and at the same time to cause the accumulator to discharge the normal amount of current which is taken from it under ordinary working conditions, no fictitious voltage being, therefore, measured, but only that actually available for continued duty. Another advantage of the apparatus is that the needle has absolutely no swinging motion, and cannot, therefore, become damaged, no matter how it is handled. The principle adopted is that of the "hot wire," in which a wire, which, traversed by a current, is heated by its passage and expands, moving the needle over a definite angle corresponding with the current passing. The voltmeter is very compact and strongly made, and is constructed to indicate up to 2.2 and 4.4 volts, which is the limit of pressure of the ordinary batteries now in use. At the back there are two small prongs, which serve to make connection to the terminals of the battery, the voltage of which is to be ascertained. Messrs. Geipel and Lange are also making ammeters of identically the same construction.

CORRESPONDENCE.

THE SUPPLY OF YOUNG MECHANICIANS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Whenever, as a motorist myself, I have tried to make converts of my friends and induce them to buy a car, their almost invariable reply has been, "Is it not awfully difficult to get a boy?" That consideration seems to prevent many people from entering the ranks of automobilism. It may therefore interest some of your readers to hear of a recent experience of my own. Having occasion to find a lad, with a good mechanical knowledge, able to take care of two cars and willing to make himself generally useful, I advertised in your valuable paper. To my surprise, I received sixty-eight applications. A large proportion of the applicants had not sufficient experience, it is true, and were willing to come at any wage I liked to name, if only to get a start; but many others appeared capable of fulfilling the necessary conditions. In their eagerness to obtain a comfortable and permanent home some of them even sent photographs for my inspection, and enclosed stamped envelopes to ensure a reply. The difficulty was to make a selection. One fact stood out prominently in my mind. Automobilmism has evidently taken a firm hold on the community at large, and sharp lads in every town, who have been accustomed to cycle work or to machinery, now aspire to become *chauffeurs*. Already there

runs up and outside the carburettor and makes a fearful muddy mess. This, of course, is sucked into the engine through the ignition chamber. Oil creeps through the bearings the same as it does in the Minerva, but not quite so badly, and gets on to the trembler and causes trouble.

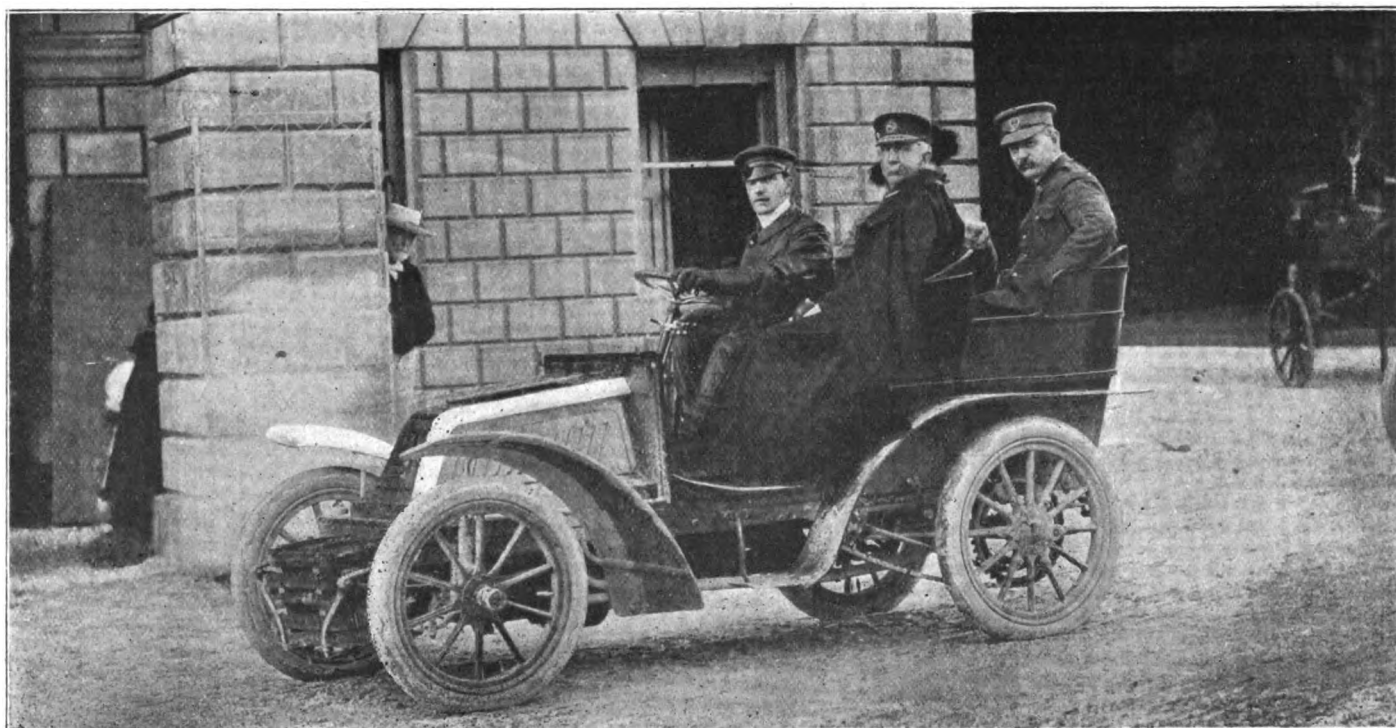
I found great trouble in getting the mixture, but have now fitted a lever handle so that I can alter it as I run the machine. Can any of your readers tell me how to cure these faults? What oil is best to use for the crank chamber? Two brakes were on the moto-cyclette, but neither of them would act properly, and I fail to make the hand-brake on the hind wheel work. Neither of the hand levers seem to have been made to fit the handle-bar. I should be glad to hear the experience of other motorcyclists.—Yours truly,

MOTOR-BIKE.

DE DION TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to your correspondent "Doctor of Medicine," I should say that it is entirely his electrical arrangements that are at fault. On the surface it looks as if the trembler screw requires half a turn back. With most De Dion motors the best position for running is not necessarily the easiest position for starting, as when the platinum screw is so set that there shall be no miss at high speeds, it requires to be nearer to the trembler



GENERAL SIR EVELYN WOOD ON HIS MOTOR-CAR AT THE VOLUNTEER MANŒUVRES AT SALISBURY.

Photo by]

[Argent Archer.

are numbers of embryo mechanics in existence, and, two or three years hence, I venture to prophesy that the supply will equal the demand. I give my experience for what it is worth, but it is clear to me that nobody need be deterred from purchasing a car for fear of not being able to obtain a suitable lad. What country gentlemen want is a good, willing youth, capable of managing and repairing a car of from 6 to 12-h.p., and open to make himself useful in a variety of capacities when desired. In return, they offer a comfortable home and permanent, if not extravagant, wages.—Yours faithfully,

(MRS.) M. E. KENNARD.

MOTOR-BICYCLE TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Being told that the 1902 Werner Motocyclette was the best on the market, I bought one, and the machine is no doubt a very good one, but the carburettor gives great trouble. The air inlet faces to the front of the motocyclette, and of course catches all the dust of the road; also when it rains it receives more than its share. The consequence is that the fine gauze covering gets coated with dirt, or, in wet weather, with a sort of snow slush, which I suppose stops the inlet of air and causes a bad mixture, which in turn by bad combustion fouls the ignition plug and makes the engine run badly and finally stop. The roads in my district are very rough, and the jar causes the carburettor to flood; the petrol

than is agreeable for starting, owing to the inability to get up a high enough speed at the first revolution. This, I have found in scores of these motors that I have had through my hands for repairs, seems to get worse as the parts get older.

If "Doctor of Medicine" will use a 6-volt accumulator he will get over all this trouble, as the necessity for so fine adjustment of the parts is overcome by the extra energy given out, which will overcome any little irregularity of adjustment. If your correspondent is using a 4-volt accumulator, it is probable this is the reason. The De Dion coils are made to work at 5 volts pressure, and three-fourths of them will not do efficient work at less, although some of them will, and if he is using such an accumulator I would strongly recommend that he either gets others or extra cells to couple to the existing ones to make up 6 volts. If, on the other hand, he is using the usual 5-volt dry battery, he will probably find that it has run down somewhat.

Before making any changes he might try starting with the aluminium cover left off and run it without it. There are many De Dions running to-day without this cover that positively cannot be started with one on, although they will run with it on after they have got started. The reason for this would take up too much of your valuable space to explain, so I will simply state it as a fact. If your correspondent likes to write to me, I shall be very pleased to give him all the advice that I can.—Yours faithfully,

C. H. GUEST, M.I.M.E.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR.—With reference to "Doctor of Medicine's" troubles, may I say I have experienced the same trouble with a 4½-h.p. De Dion? He may easily get out of the annoying position described by putting the car out of gear, with the sparking lever in the middle. Then ask a couple of men to push the car forward, and when the car is moved at a slow running pace, quickly turn on the *high* speed, and the engine will start within a few seconds. I have never known this fail, and although my method may seem *infra dig.*, it is better than pumping at the handle for twenty minutes without result.—Yours truly,

C. H. R.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR.—If all is in order as suggested by Mr. Wood's and "Bachelor of Medicine's" letters in your issue of the 23rd inst., the next thing to do is to press down the inlet valve, pump in air for a few turns, and set the engine going immediately after. I used to have serious trouble in starting, but now have none whatever. I shall be glad to hear from "Doctor of Medicine" after he has tried the method suggested above.—Yours faithfully,

T. L.

SIDE-SLIP.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR.—I have noticed a considerable amount of correspondence relating to side-slip, and suggestions and illustrations dealing with the matter. It appears to me that side-slip is the outcome of insufficient grip of the road wheel. In mentioning road wheels, this of course means only two wheels out of the four, the remaining two wheels being steerers only, and of little or no service in preventing side-slip. My contention is, that if all four wheels were drivers, as well as two of them steering, side slip would entirely disappear, as, owing to all four wheels being tractors, they would have four points of control or effectual grip, which would entirely eliminate side slip. The tyres would also last longer, owing to the tractive force being spread over four wheels instead of two.—Yours faithfully,

H. H.

TYRES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR.—With reference to the letter in your issue of the 16th inst., signed "Tyred Out," it seems unkind to say that your correspondent deserves all the tyre troubles about which he complains, and yet I hardly think he will get any sympathy from brother motorists; of course, it is quite evident that he has brought his trouble on himself by using tyres utterly unsuited to the weight they have to carry. I gather from his letter that his car weighs about 13 cwt., and seats four, and yet "Tyred Out" confesses that it is only fitted with 2½ inch tyres! No wonder he is "tyred out"!

In order to show what results are obtained by using suitable tyres, will you allow me to compare my own recent experiences with those of "Tyred Out"? Ten weeks ago I received delivery of a new three-seated car, weighing eight cwt., and fitted with 3½-inch Dunlop tyres (of the new "Gordon-Bennett" cup type). I have run this car 800 miles, the tyres are scarcely marked, and have never been touched with an inflater since I got the car. If "Tyred Out" will replace his diminutive tyres with 3½ or 4 inch ones of reasonable thickness, he will probably be as free from trouble as I have been.—Yours truly,

H. W. BARTLEET.

PROPOSED CAR-NUMBERING LEGISLATION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR.—I support the attitude of Mr. Norman D. Macdonald, Chairman of the Scottish Automobile Club, in his objections to the proposed legislation for the numbering of private motor-cars, so well stated in his letter to the executive of the A.C.G.B.I. and supplemented in his letter in your *Journal* last week. The reasons stated by Mr. Macdonald against numbering cannot be too often or too strongly urged on those who are rushing this Bill with the sole object of getting the "14 miles an hour" limit removed. Mr. Macdonald says, and I agree with him: (1) The whole matter is being rushed at in needless haste. (2) The general body of motorists have not asked for such things. (3) No time has been given for the public to educate itself. (4) After all we are getting along well enough. (5) Except in certain districts the public mind seems all in favour of us now. The executive of the A.C.G.B.I. may dispute the first statement above quoted, but they surely will not deny the other four. Yet in this position of matters the Executive lend themselves to and support the agitation in favour of numbering.

I fear I shall not be able to attend the meeting on November 6th at the Automobile Club when this matter comes up for discussion, hence this letter to you. With all respect to the executive of the A.C.G.B.I., it appears to me that their reasons for supporting the numbering of cars submitted in the Secretary's letter to the Press are extremely lame and

weak. In that letter we are asked, in considering this question of numbering, "to bear in mind the fact that the authorities and the public are daily becoming more incensed and irritated by the reckless motorists who, after inconveniencing—nay, more, injuring—other users of the highway, drive on without stopping in order to avoid identification." Is this really a fact? After five years' experience as a motorist, and during that time repeatedly motoring through more than a dozen of the busy central counties of Scotland, I most confidently affirm that the Secretary's statement above quoted is the reverse of fact as regards Scotland at all events. While I do not class myself in the Secretary's category of reckless motorists, I admit that in the 20,000 miles or so I have covered since I commenced motoring I have many times incensed, irritated, and inconvenienced other users of the highway, but through no fault of mine, just as other users of the highway have inconvenienced me, through no fault of theirs. The cause of the irritation, etc., against me was not because I drove on without stopping, but because horses, and more often their drivers, were frightened at my approach. I, in turn, was inconvenienced—though rarely incensed or irritated—in such cases through being obliged to stop. My irritation was almost invariably at the innumerable times I had to stop, because of horses standing unattended on the highway at public-house doors. All this, however, was in my early motoring days. While then it was the rule to meet frightened horses and drivers, now in a day's travel it is the exception, and as for the unattended horses at public-house doors, while they are as numerous as ever, I now pass them without their even condescending to show any interest in me or my car. The other fact we are asked in the Secretary's letter to bear in mind is "Methods of identification would at once secure the punishment of offenders." This may or may not be a fact, but certainly the method of identification ought not to be by such numbering on the car as could be read by a policeman when the car is passing him at the rate of 20, 30, or 40 miles an hour in a cloud of dust. The police are surely capable of identifying a car by its general description, which can be telegraphed or telephoned to the next village or town on the road taken by the reckless motorist, and, if necessary, the car can be followed up in this way to its destination for the day.

We have reasonable county councils and reasonable policemen, in Scotland at least, who do not raise prosecutions for travelling at speed beyond the legal limit except when an accident has occurred owing to the excessive speed, or in the rare case when a motorist has been warned by the authorities to in future moderate his speed in certain districts, and fails to obey the warning.

Another important point to be kept in view is the prejudicial effect numbering will have upon the motor-car industry. The injury in this direction will, I fear, outweigh the benefits to be derived from the removal of the speed limit. At present many gentlemen keep both a stud of horses with private carriages and also one or more motor-cars, and the numbers doing so are rapidly increasing. If the motor carriages must by law have huge numbers upon them in a prominent place so as to be easily seen and read by everyone on the highway then it will assuredly follow that many gentlemen who now own motor-cars will cease to use them, and many others will refrain from buying vehicles. Mr. Macdonald correctly interprets the view that will be taken of numbering, when he styles it the brand of Cain. The objection to numbering may be largely sentimental, but in this matter sentiment has got to be reckoned with. You cannot reason against sentiment.

The last two sentences in the Secretary's letter give away the whole case in favour of the numbering of cars. He says: "Identification would bring about the punishment of roughs and blackguards. The existing attitude of most of the authorities gives reason for believing that the man who uses his automobile as a gentleman would have no reason to fear that he would be the victim of injustice." That is to say, because there are a few roughs and blackguards amongst motorists, "the man who uses his automobile as a gentleman" is to be subjected to this indignity and to be branded with the mark of a rough and blackguard. If there must be identification then the Executive ought to devise some less objectionable method. If the speed limit cannot be removed except upon condition of consenting to numbering then the law ought meantime to be allowed to remain as it is until the public have been educated and are ripe for the removal of the speed limit without any such condition. Meanwhile the members of the A.C.G.B.I. ought to have confidence in, and believe the Secretary's statement that "the existing attitude of most of the authorities gives reason for believing that the man who uses his automobile as a gentleman would have no reason to fear that he would be the victim of injustice." In this sentence the Secretary correctly interprets the attitude of the authorities in Scotland to those who use their cars as gentlemen and that with the law as to speed limit as it now stands.

In conclusion, I venture to affirm that there is not a motorist in Scotland who desires the speed limit removed if it is to be at the cost of the indignity and stigma of numbering, and if the A.C.G.B.I. are to persist in their Bill, then I suggest that the last clause thereof be as follows: "This Act shall not extend to Scotland."—Yours faithfully,

JAMES BURNS.

THE Austrian Automobile Club is organising a tour from Vienna to Breslau, for October next.

THE Automobile Club of Brunswick has just been formed at Brunswick, Germany.

THE BIG TRIAL.

Below we give the entries and numbers of the cars entered in the Reliability Trials of the Automobile Club, which commence on Monday next —

CLASS A.

Official No.	H.P.	
1 ..	3	Humber bicycle.
2 ..	2	Humber bicycle.
3 ..	5	Century tandem.
4 ..	5	Century tandem.
5 ..	5	Baby Peugeot.
6 ..	1½	Werner Motocyclette.
7 ..	1½	Ormonde Bicycle.

CLASS B.

8 ..	4	Oldsmobile.
9 ..	5½	Locomobile.
10 ..	5½	Locomobile.
11 ..	4½	Swift.

CLASS C.

12 ..	8	Parr Light Car.
13 ..	8	Parr Light Car.
14 ..	8	Argyll.
15 ..	10	Duryea.
16 ..	7	Hallamshire Voiturette.
17 ..	10	Hallamshire Voiturette.
18 ..	8	Dennis.
19 ..	7	Star.
20 ..	5½	Locomobile.
21 ..	5½	Locomobile.
22 ..	4½	Renault.
23 ..	8	M.M.C. Voiturette.
24 ..	6	De Dion Bouton.
25 ..	7	Benz.
26 ..	6	White Steam Car.
27 ..	9	Rex.
28 ..	10	Georges Richard.
29 ..	6	White Steam Car.

CLASS D.

30 ..	10	Decauville.
31 ..	10	Georges Richard.
32 ..	9	James and Browne.
33 ..	12	Gladiator.
34 ..	14	Hallamshire Touring Car.
35 ..	10	Brooke.
36 ..		Light car fitted with Simms 8-h.p. motor.
37 ..	8	Milnes.
38 ..	10	Star.
39 ..	10	Wolseley.
40 ..	7½	Wolseley.
41 ..	10	Wolseley.
42 ..	12	Belsize.
43 ..	12	New Orleans.
44 ..	9	New Orleans.
45 ..	8	Clarkson and Capel.
46 ..	8	Brush.
47 ..	8	De Dion Bouton.
48 ..	8	Clement.
49 ..	8	Argyll.

CLASS E.

50 ..	9	Daimler.
51 ..	12	Gladiator.
52 ..	10	Ariel.
53 ..	14	New Orleans.
54 ..	12	Century.
55 ..	12	Century.
56 ..	14	New Orleans.
57 ..	10	M.M.C.
58 ..	10	Benz.
59 ..	7½	Germain.
60 ..	20	Georges Richard.

CLASS F.

61 ..	18	Beaufort.
62 ..	6	Gardner-Serpollet.
63 ..	6	Gardner-Serpollet.
64 ..	10	Peugeot.
65 ..	12	Brush.

CLASS G.

66 ..	12	Humber.
67 ..	12	Humber.
68 ..	16	Ariel.
69 ..	20	Wolseley.
70 ..	10	Mors.
71 ..	8	Wilson and Pilcher.
72 ..	12	Benz.
73 ..	16	Dietrich.
74 ..	15	Gormain.
75 ..	16	Clement.

CLASS H.

Official No.	H.P.	
76 ..	12	Daimler.
77 ..	12	Daimler.
78 ..	20	Star.
79 ..	18	Newton Pearce Car.
80 ..	10	Panhard.
81 ..	20	M.M.C.

CLASS J.

82 ..	20	Maudslay.
83 ..	20	Pascal.
84 ..	20	Pascal.
85 ..	24	Dietrich.

CLASS K.

86 ..	22	Daimler.
87 ..	22	Daimler.
88 ..	15	Panhard.

Those following have not been classified, as the particulars are not in the possession of the Automobile Club:—

89 ..		Carriage entered by J. D. Siddeley.
90 ..		Milnes Voiturette.
91 ..		16-h.p. Milnes.
92 ..		24-h.p. Milnes.

THE ROUTES.

MONDAY.—Starting from the Crystal Palace at 7 a.m., the day's journey will be to Folkestone and back, via Bromley, Foot's Cray, Farningham, Wrotham Hill, to Maidstone (31 miles), where there will be a compulsory stop of 15 minutes. The journey will then be continued to the Pavilion Hotel, Folkestone Harbour, where 45 minutes must be spent ere the return is made by the same route to Maidstone, for another quarter of an hour stop. The return to the Crystal Palace will be by way of Seal, Farnborough, and Hayes Common.

TUESDAY.—Eastbourne will be the turning-point in Tuesday's run of 120 miles. The compulsory stop of 15 minutes will be made at Tunbridge Wells, which will be reached via West Wickham and Sevenoaks. After three-quarters of an hour stop at Eastbourne the return journey will be along the same route to Lower Horsebridge, and then via Uckfield, Edenbridge, to Westerham village, where a halt of 15 minutes will be called before proceeding to the Palace.

WEDNESDAY.—On the third day Worthing will be the destination, via Epsom, Leatherhead, Dorking, and Horsham, where a delay of 15 minutes will be compulsory. Thence the journey will be resumed through Southwater and Broadwater. The return to the Palace will be via Arundel, Pulborough, Dorking, Reigate, and Purley.

THURSDAY.—Brighton is the place selected for the fourth day, proceeding via Merstham, Redhill, to Crawley for the compulsory stop. At Brighton three-quarters of an hour will be spent, and 15 minutes at Horley on the return.

FRIDAY.—This day will be devoted to hill-climbing competitions, the route being via Wickham to Sevenoaks and Tonbridge, with a hill-climbing trial on River Hill. The journey will be continued up Polhill, descending towards Farnborough, and turning to the left for Knockholt to Sundridge. Then to Westerham village and hill, with another competition on Betsom's Hill. The return to the Palace will be via Wickham.

SATURDAY.—For the concluding day's run to Bexhill and back, the compulsory stop will be at Tonbridge.

MOTOR-CYCLE RACING AT THE CRYSTAL PALACE.

The following is the list of entries for the A.C.G.B.I. motor-cycle races held at the Crystal Palace on Friday, the 29th inst.

G. T. Vince, 1½ h.p. Minerva.	Charles Tomlin, 1½ h.p. Westfield.
Jas. Parsley, 2 h.p. Minerva.	E. T. Arnott, Princeps.
C. A. Smith, 2½ h.p. Ariel tricycle.	J. Cusins Nixon, 3 h.p. Hewetson.
S. A. Fairweather, 2½ h.p. Ariel tricycle.	S. C. Holloway, 1½ h.p. Minerva.
C. B. Winzer, 1½ h.p. Ixion.	J. G. Ridout, 2 h.p. Minerva.
Wm. W. Genn, 2 h.p. Minerva.	A. Flamand, 2½ h.p. Minerva.
Ernest H. Arnott, 2½ h.p. Werner.	W. Parry, 2½ h.p. Minerva.
Ernest H. Arnott, 2 h.p. Werner.	A. G. Sidwell, 1½ h.p. Force.
F. E. Coles, 1½ h.p. Brown.	J. Van Hoeydonk, 2½ h.p. Phoenix.
A. H. Bambridge, Shaw.	H. Goodwin Green, 3½ h.p. Orient.
Stanley A. East, Shaw.	F. W. Chase, 2½ h.p. Bat.
Edwin Perks, 2½ h.p. Singer.	Bert Yates, Humber.
A. B. Farhall, 1½ de Jong.	T. B. Andre, 2 h.p. Mitchell.
H. Martin, 2½ h.p. M.M.C.	W. J. Westfield, 1½ h.p. Westfield.
C. Jarrott, 8 h.p. De Dion tricycle.	R. I. Bateman, Humber.
H. Starley, A. V. Motor.	D. Citroen, 1½ h.p. Minerva.
T. E. Newman, 2½ h.p. M.M.C.	F. W. Chase, 2½ h.p. De Dion.
James Adams, 1½ h.p. Ormonde.	F. R. Wade, 1½ h.p. Daw.
James Adams, 2½ h.p. Ormonde.	F. R. Wade, 2½ h.p. Daw.
T. H. Tessier, 2½ h.p. Clement-Garrard.	Cecil Edge, 6 h.p. De Dion tricycle.
A. Mayer, 2½ h.p. Aster tricycle.	George Petry, 1½ h.p. Sarolea.
A. E. J. Steele, Aster.	J. W. Stocks, De Dion Bouton.
F. R. Goodwin, 1½ h.p. —.	A. A. Pentead, 4½ h.p. Soncin.
J. J. Leonard, 2 h.p. Werner.	H. D. Davis, 2 h.p. R.M.M.C.

Three races were run off—a five-mile handicap, an hour's scratch race, and a ten-mile handicap. We shall publish the results in our next issue.

FURIOUS DRIVING CASES.

ALWAYS drive carefully when going to court. Robert Gale explained to the Kingston magistrates that he did not drive too quickly, but Mr. Innes, the chairman of the Bench, replied:—"If you drove your car at the same pace as this morning when I saw you come to the court you could not have helped knocking anyone over who stepped off the kerb."

A MOTORIST who was alleged by the police to have travelled at twenty-five miles per hour at Brentwood was fined £3 and costs. A similar offence at Worthing produced £10 for the county funds.

AN apology from the Hon. F. Guest, the employer of H. Herman, was read on Saturday to the Norwich magistrates in connection with the furious driving of a motor-car. It transpired that the hon. gentleman's motor-car was being driven at a speed variously estimated by witnesses at from fifteen to twenty miles an hour on the outskirts of the city. The excuse was that a storm was brewing, and the occupants of the car were endeavouring to reach their destination before it burst. The Bench said they were determined to stop reckless motoring, and imposed a fine and costs of £5.

SERGEANT JARRETT'S stop watch has just secured convictions against five motorists. Motorists passing through Ripley must be careful.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Brentwood	E. F. Usborne, Writtle	17 m. p. h.	£2 and costs.
"	P. Dodson, Long Acre	25 m. p. h.	£3 and costs.
Kingston	R. Gale, Kensington	Above legal limit.	£2 and costs.
Kings Heath (Birmingham)	G. H. Lancaster, Birmingham	20 m. p. h.	20s. and costs.
Lowestoft	E. W. Jensen	Above legal limit.	£5 and costs.
*Hove	F. J. Price, Brighton	" "	5s. and costs.
Perth	J. S. Phipps, Kiltarlity, Inverness	" "	£10.
Tadcaster	E. D. Brookes, Bradford	" "	£1 and costs.
Godstone	O. Coles	20 m. p. h.	£2 10s. and 12s. 6d. costs.
"	O. Frankel	Above legal limit.	£2 10s. and 12s. 6d. costs.
"	S. Beall	" "	£2 10s. and 12s. 6d. costs.
"	A. P. Wright	18 m. p. h.	Dismissed.
"	R. Lucas	22½ m. p. h.	£2 10s. and 12s. 6d. costs.
"	S. Daven	Above legal limit	£2 10s. and 12s. 6d. costs.
"	A. Ellis	" "	£2 10s. and 12s. 6d. costs.
"	F. Strang	" "	£2 10s. and 12s. 6d. costs.
"	F. Parrish	" "	£4 and 12s. 6d. costs.
*Lancaster	G. Sharpe, Lancaster	28 m. p. h.	40s. and costs.
Norwich	H. Herman, North Wales	Above legal limit	£5
Havant	G. Wilder, Rowland's Castle	" "	£10 and costs.
"	J. Oakley	" "	£10 and costs.
Tonbridge	J. G. Wells, London	18 m. p. h.	£1 12s. and 13s. costs.
Ripley	W. Ruthven	18 m. p. h.	£3.
"	G. Weller, Midhurst	23 m. p. h.	£3.
"	H. Lesemann, Manchester Square, W.	Above limit	£3.
"	G. Stephens, Carlton Gardens, S.W.	21 m. p. h.	£3.
"	T. E. Treherne, Cardiff.	22 m. p. h.	£3.
Ipswich	E. Fraser, Blackheath	16 m. p. h.	£5 and costs.

* Motor-cycle cases.

AT Perth Sheriff Court, Jay Shaffer Phipps, Beaufort Castle, Kiltarlity, Inverness shire, was cited to appear on a complaint charging him (1) with driving a motor-car at a greater speed than twelve miles an hour, contrary to the Light Locomotives on Highways (Scotland) Regulations Act, 1896, on the public road between Pitlochry and Blair Atholl on the 18th July; and (2) with failing to stop the car as long as might be reasonably necessary to allow Alexander Stewart, Chamberlain, Moulin, who was in charge of a restive horse, and who put up his hand as a signal for that purpose, to pass. Accused failed to appear, and was, on the second hearing, fined £10.

AT Havant Petty Sessions on Saturday, George Wilder, of Stansted Park, Rowland's Castle, and James Oakley, servant to Captain the Hon. A. Greville, one of the King's Gentlemen-in-Waiting, were each fined the full penalty of £10 and the costs for driving motor-cars at a rate of twenty miles an hour. In the case of Mr. Wilder it was stated that he drove into the congregation leaving Enisworth Parish Church, the people having to fly in all directions to escape the vehicle.

LEAVING CARS UNATTENDED.

AT the South-West London Police Court, Reginald Cockle, a lad of 19, living at 9, Bramford Road, Wandsworth, has been summoned by the police for intruding the Local Government Board's regulations respecting motor-cars, by "quitting a light locomotive of which he was in charge without having taken precautions against its being started in his absence."

Mr. B. Wontner appeared to prosecute on behalf of the Commissioners of Police, and observed that the case was one of considerable public importance. On August 8th, at nine o'clock in the evening, a motor-car belonging to Mr. Levita, of Ennismore Gardens, South Kensington, drove up to the Spread Eagle Hotel, High Street, Wandsworth. It contained three men, including the defendant, and they all alighted and left the car. Within less than two minutes the car was restarted, and it dashed wildly down the street. The roadway was full of pedestrians, and some nine or eleven persons were knocked down and more or less seriously injured. There was a suggestion, continued Mr. Wontner, that some passer-by set the car going, but the point of the case was that the defendant had no right to leave the car in that uncontrolled fashion. Evidence was given by a number of persons, including a 'bus conductor, who stated that a boy re-started the car. He did his best to "catch the rascal," but failed. The witness added that in his opinion the defendant, who jumped into the car and endeavoured to stop it, acted with great pluck the moment he saw the car had been restarted. The magistrate said the case was a serious one, and he imposed the maximum penalty of £5, with three guineas costs.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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COMMENTS.



THE suggestion that a Committee of the Automobile Club should offer to officially examine cars belonging to members of the Club and the Motor Union, and attach to them a plaque showing that the vehicle cannot, under the best conditions, be driven at more than twenty-five or thirty miles an hour at its top speed, accelerated, is one that requires careful consideration. If such an examination served to brand all vehicles not so marked as dangerous cars, it would prove very awkward for owners not belonging to the organisations named. Doubtless it would tend to increase the membership of the Motor Union, but we should prefer to see that Association continue to gain strength by virtue of its positive advantages and not on such a negative policy.

A Legal Point.

ANALYSING the provisions of Mr. Scott Montagu's parliamentary Bill, the *Law Times* says:—"The £10 limit of a fine for a breach of the regulations might be well increased, with even a more severe punishment for second and further offences, and this, we think, is a far better way of dealing with the question of pace than fixing a definite limit of speed. There is, however, a clause in the draft Bill which is to enact that an appeal shall lie to the High Court on a conviction for any breach of the Act. We must enter an emphatic protest against any such radical alteration of the law as is suggested. The local Bench is a good and useful tribunal to decide these cases, and the recent increase of activity on the part of the police in seeing that the law is not infringed has been entirely brought about by a certain class of motor drivers, who consider that the roads are made entirely for them, and whose last consideration is the safety of others using the roads."

"The Dangers of Motor-Cars."

At a meeting of the Sherburn Rural District Council last week, some discussion arose with regard to the speed at which motor-cars were driven through the villages, to the danger of persons. The Chairman suggested that sign boards should be put up for the purpose of regulating the speed of the cars and preventing accidents, but the Council decided to instruct the clerk to write to the Chief Constable of the East Riding Police, in order to try and secure convictions against those who drove above a lawful rate of speed.

Automobiles in the Congo Free State.

A DESPATCH has been received at the Foreign Office from H.M. Consul at Boma, forwarding a copy of a letter received from Captain Carton, a Belgian military officer who is in charge of a survey and construction party employed by the local government of the Congo State in trying to open up a route practicable for automobiles between Nsongololo and the River

Kwango. Captain Carton's letter states that the road which he has been engaged upon will in a few weeks be practicable for motor-cars of all kinds which have been tested in Europe, for a length of ninety-three miles. This road has a breadth of thirty-nine feet, of which twenty-six feet are available for vehicles. The surface is especially hard and durable, and there is no decline of more than one in ten, the hills being relatively few in number and short. Captain Carton has also completed the survey for a prolongation of the road for more than 60 miles, and he expresses the hope that this section will be ready for use within three or four months at the most. This route, it is said, will not only give a means of rapid access into the interior of Africa, and be a powerful aid to the economic development of the country, but will not fail to attract adventurous tourists, as it passes through extremely picturesque and most varied scenery.

The Ordnance Survey.

A BLUE BOOK containing a report on the progress of the Ordnance Survey up to the 31st March last has been issued. In the introductory remarks it is stated that during the year 1901-2 good progress was made on the various services on which the Ordnance Survey is engaged. One of the main features of the work has been the further acceleration of the re-survey of Ireland. The revision of Great Britain has also progressed more rapidly than was estimated. It is now anticipated that the re-survey of Ireland will be completed by the end of 1914, a year earlier than was originally estimated, while the revision of Great Britain will be completed by the end of 1907, the date named in the last estimate. The four-mile outline map of England has been revised, and the whole has been published. County maps on this scale have also been published. A coloured edition of the four-mile map of England, with hills in brown, is in course of preparation, and publication has been commenced in the North of England. A four-mile outline map of Scotland is in course of publication, and a coloured edition with brown hills, similar to that of England, is being prepared, and publication has commenced in the North of Scotland.

Leaving Cars Unattended.

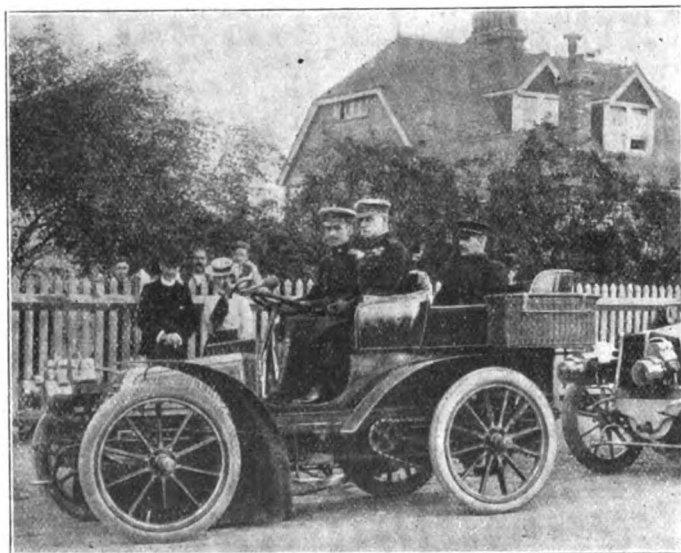
IN our issue of the 16th ult. we reported the case of a motor-car driver who left a car outside a motor-car works in Wandsworth, and, having disconnected the engine, went in search of the proprietor. In his absence someone threw the engine into gear, with the result that the car was started, and several people were injured ere it was checked. The driver acted with admirable promptitude as soon as he was aware of the occurrence, but that did not prevent him having to appear in the police court for infringing the Local Government Board's regulations respecting motor-cars, by quitting a light locomotive, of which he was in charge, without having taken precautions against its being started in his absence. The result was told in our last issue, and we are compelled to ask why the police do not take action against the drivers of horse-drawn vehicles who leave their carts, etc., unattended on the roadside—to the great danger of the public.

Motor Tracks.

THERE are now three sites for proposed motor tracks under the consideration of the executive of the A.C.G.B.I., these being situated at Lowestoft, Felixstowe, and Bexhill respectively. There is no doubt that a motor track has become essential to the welfare of the English branch of the industry, and particular care will have to be taken as to the final selection of the site which will be recognised as the official track of the Club. Bexhill, Felixstowe, and Lowestoft are all pleasantly situated, but the Committee will also have to consider their convenience of access so far as manufacturing firms in the north of England and the Midlands are concerned. Of course, from the public point of view, the course at a seaside place should prove useful in familiarising people with speeds above the present absurd limitation; but, if a track could also be provided in a more central situation, it might, perhaps, be more convenient for manufacturers as well as for amateurs.

A New Road Surface.

MR. E. P. HOOLEY, the surveyor for the county of Nottinghamshire, has promised automobilists a new road surface, and, as we have already announced, this is likely to be submitted to public test at an early date. We understand that the material of which this surface is composed is not specially expensive at the outset, and if the claims made for it are anything like justified, it would in the end prove extremely economical. It is made by treating iron slag hot from the smelting furnace with gas tar. When made and rolled it is said to be entirely waterproof. From what we have heard it ought not to be noisier than a road surfaced with granite metalling. The fastest automobiles can go over the surface in dry weather, it is claimed, without raising dust, and that alone will make all who use the road look to the promised experimental section of road with unusual interest.



MR. MARK MAYHEW PILOTS EARL ROBERTS TO HYTHE.

A Motor-Bicycle Trip.

A PARTY of motor-bicyclists went from Fareham to Lee-on-the-Solent on a recent Saturday, and had a series of interesting adventures. There were five gentlemen on motor-bicycles, and one—a brother of Mr. Littlejohn, a local cycle maker—had a seat in a trailer. With regard to the others, two were Messrs. Beard and Littlejohn, another was a gentleman from Aldershot, and two of the party are amongst the latest local converts to the

use of the motor-bicycle. The destination was reached at five o'clock, and when the inner man had been refreshed, all six set out to have a look at the fleet, leaving their machines behind. They walked as far as Stokes Bay, but a storm came on, and they had to seek shelter till midnight. They subsequently hailed a cab, and reached Lee-on-the-Solent about one o'clock on Sunday morning. Then it was discovered that the person with whom the machines of the party was left had locked up his premises, and was not to be found. This effectually defeated the pre-arranged plan of returning home during the night; what was far worse, however, they could not get a bed anywhere. But they found a house where they were allowed to rest on the floor. On rising in the morning the party dried their sodden garments as well as they could, and later in the day the homeward journey was commenced. All went well until nearing Fareham, when something broke in one of the engines and caused no little delay. The motor was taken to pieces in the road by the mechanics of the party and repaired, and on resuming the journey a quick run was made to Alton. There two members of the party came to grief over a dog, Mr. Littlejohn being upset by the animal, whilst the occupant of the trailer was shot out clean over his brother's head. Both fell heavily on the road, and Mr. Littlejohn received such severe injuries to the knee that he had to be conveyed home by train. The remainder of the run was completed without any other accident or incident.

An East Coast Reflection.

STAYING at Clacton recently a member of our staff was surprised that only two motor-cars crossed his vision, while more than a score of motor-bicycles were easily counted. This is partly attributable to the flat and uninteresting country behind Clacton, Walton and the neighbouring east coast towns which have sprung into popularity by the persistence of railway and steamboat companies. Some time ago there was a motor-car service in the place but local prejudice proved too strong for its vigorous growth. And it must be remembered that towns in the midst of picturesque scenery present the best situations for prosperous public motor-vehicle services.

Incomprehensible.

AN Anerley gentleman calls our attention to a paragraph in a local paper by Dr. Gordon Stables, in which that gentleman declares the motor-car to be "the most uncomfortable of all methods of touring. For all the scenery you can see you might just as well be in a railway carriage. Depend upon it the motor-car is not the future mode of progression." What has happened to the worthy doctor, whose love of outdoor life should have made him a devotee of the automobile? In the early days of the *Journal* he was rather less antagonistic; why this change and the adoption of such an unreasonable attitude?

Horses and Motor-Cars.

WE are glad to note a better tone adopted by many of the daily papers up and down the country with regard to motor-cars. Commenting on a recent police court case, the *Norwich Press* remarks: "The horseman complains that the motorist flies by with reckless inconsiderateness, and the motorist retorts that the terror of horses is in nine cases out of ten inspired by the nervelessness of those who drive them. May it not fairly be laid down as a general principle that the greater responsibility, inasmuch as it involves the need for more steadiness of hand and firmness of mind, rests with the driver of horses? The horseman has to deal not merely with cranks and levers whose operation is practically invariable, but with a creature of marvellous nervous development, capable of responding sympathetically to the mood of the person who seeks to control it. It is well, therefore, that the horseman should consider how to deal with the new and unaccustomed circumstances in which

motor traffic has placed him. We remember that at the time when the electric tramways were opened in Norwich, a few days were set apart in which horses might be familiarised with the cars in motion. There is an automobile in everybody's neighbourhood nowadays, and it would be a not unreasonable expectation that the owner of an excitable horse should seek an opportunity of acquainting the one with the other. But if that be impracticable he might, at all events, refrain from sawing nervously at the animal's mouth every time a motor-car approaches, and so infecting it with the funk which he himself experiences. The average horse will pass a motor-car without any perilous degree of alarm, if only it is driven quietly with a fairly tight rein, and it is not inspired with a sense of uneasiness by being beaten or by being jagged at the mouth. It is of the utmost importance that the owners of horseflesh should meet the new traffic in a spirit of indulgence and accommodation. There are some magnificent motoring roads in Norfolk, and we hope to see them used more than ever for motoring purposes."

A Carriage Accident.

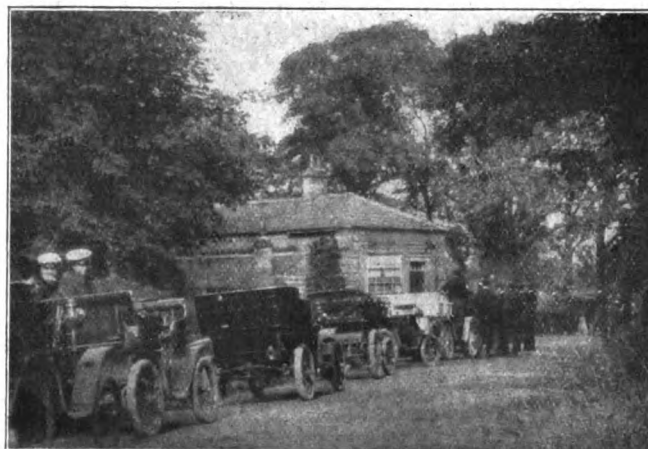
So many accidents in which motor-cars have figured have lately been recorded, that the newspapers seem inclined to overlook the dangers of horse-drawn vehicles. And yet they are familiar and frequent enough to warrant conspicuous space in the daily journal. A carriage mishap of an exciting



say twenty or thirty miles, the motor wagon will cover 100. Weight will by-and-by be a minor consideration. There will be travelling locomotive grocer shops, taking to the suburbs, over a wider and wider circle, tea and coffee, sugar and spices, Norwegian salmon or ice, Australian beef, New Zealand mutton, Canadian and Danish butter, and all our own products in the provision line. It is rash to prophesy, but we see already the beginnings of this change, and every week records some new advance in the improvement of the motor-vehicle. Then there is the motor-cycle. A cyclist went the other day sixty-six miles on his motor, the whole cost of conveyance being under a shilling; is it not probable, then, that even the scattered villages will be scoured by the ubiquitous motor-spied traveller? There will be no suburb, no village out of his rounds; no cool, sequestered vale of life safe from intrusion."

A Lowestoft Protest.

COMMENTING on the case of Mr. Jenson, reported in our last list of alleged furious driving cases, the *Lowestoft Journal* says the verdict was "unreasonable because, presuming that the car was going at the pace alleged, there was no danger, and it was not shown that anyone was inconvenienced in even the slightest degree. If magistrates are going to take the word of country constables, who admitted that they had not timed cars before, against the testimony of experts, then it is indeed a bad



TWO SNAPSHOTS AT THE YORKSHIRE HILL-CLIMBING TRIALS AT HAREWOOD BANK.

character recently occurred in the neighbourhood of Barry. Lady Windsor and some friends were driving in a small brake from Cadoxton, near Barry, to Sully, a picturesque village on the coast, to meet Lord Windsor, who was golfing at Lavernock, a mile from Sully. On approaching a bridge the near horse suddenly shied and knocked the off-horse towards the wall of the bridge. In a moment the vehicle, occupants, and horses were thrown over the low parapet into the stream below. Lady Windsor and Lady Paget were drenched to the skin, and others of the party were floundering on the banks. The hospitality of Sully Rectory was taken advantage of, and a messenger was despatched to Cadoxton, two miles distant, for blankets and fresh clothes. Another messenger drove off to find Lord Windsor, who returned with his motor-car, in which Lady Windsor, Lady Paget, and the Hon. P. Windsor Clive returned to St. Fagan's Castle, Lord Windsor's seat.

Trade and the Car.

In an article on the changing conditions of trade the *Daily Telegraph* says:—"The petrol wagon is now following the track of the pleasure car. Where the horsed van can trot round from Harrod's, Spiers and Pond's, Whiteley's, the Army and Navy, and all the other stores, companies, and delivery centres

look out for the motorist, whose only chance of safety would seemingly lie in crawling. Moreover, it is regrettable to see that the police authorities have adopted tactics similar to those that have made Surrey notorious, and which have resulted in motorists giving the roads in that county a wide berth, to the great loss of several places. If plain-clothes men are to be stationed at the milestones of the roads leading to Lowestoft the inevitable will follow. Motor-car owners, who are invariably men of means, will keep away, and much harm will be done. Lowestoft is not so flourishing that it can afford to have visitors turned from its doors. We know that a certain section, with whom motor-cars are not in favour, are ready to say anything against them; but the motor has come to stay, and absurd attempts to arrest progress will fail with ignominy. Those who engage in these attempts should remember Mrs. Partington and her mop, trying to keep back the sea; and George Stephenson and the cow.

Certificates for Drivers.

DURING the last few days we have heard many stories of side-slip, and upon this point Mr. F. S. Edge says that correctly-designed motor-carriages properly driven have absolutely no danger from side-slip, but the carriage portion of the car must be inside the wheels and not projecting behind the back wheel.

some two or three feet, as often seen in badly-designed motor-carriages. A law to prevent the use of obviously improperly designed motor-cars would be very useful, and save many ignorant people from accidents. A careful observation of the accidents reported seems to show that mishaps are more frequent with horse-drawn vehicles and cyclists than with motor-cars. In nearly every case it is found that the incompetent user of the particular vehicle, no matter how propelled, is the cause of the accident. Hence Mr. Edge's suggestion that some certificate of capacity should be required of every user of the roads, from a lumbering farm wagon upwards.

Motor-cars in Rhineland.

OWNERS of motor-cars in Berlin are said to be rather put out by the vigilance of the police, which is now somewhat tardily being shown. These "töf-töfs," as they are called, are declared to be a source of great danger to life along the Grunewald roads between Potsdam, Berlin, and Spandau, and have quite spoilt the chief Sunday pleasure resort for the citizens of Berlin. In other parts of Germany the people are also rising up against the reckless drivers of these "disagreeable vehicles." At Brohl, on the Upper Rhine, a Belgian count ran over and killed an old gentleman with his motor-car; at Linzig an eight-year-old little girl met with a similar fate, and it was with great difficulty that the villagers were prevented from tearing the owner of the car to pieces in revenge. A party of Belgians tore through Puenderich, on the Moselle, the other day, running over and mortally injuring a small child. The result is, according to one newspaper man, that the Rhine authorities are about to issue very severe regulations to put an end to this furious driving.

Exit Vanderbilt.

THE news that Mr. W. K. Vanderbilt has sold all his automobiles except one—a slow steam machine for humdrum use, is not likely to thwart the automobile movement in the States. He says the fatal accident to Mr. Fair has had no weight in his decision, which has been reached because public opinion and municipal ordinances are increasingly preventing any use of high-speed machines. Should the report prove true, motorists will rejoice that at least one driver who has offended all reasonable men in America by his high speeds will no longer threaten the popularity of automobilism.

The Military Ride.

Now that the military ride from Brussels to Ostend is over, tales of cruelty, and the carcasses of horses that died during the contest, or have since been shot, are all that remain. Otherwise its results were nil. Those who denounced the long motor-car rides from Paris to Vienna, and similar expeditions, should compare those achievements with the wretched equine performance of last week. The adoption of the motor-car will save much suffering on the part of the poor dumb beasts in military service as well as those engaged in the ordinary drudgery of daily burdensome toil.

Motorists Aid the Police.

RECENTLY the police of Brighton and Maidenhead have had the assistance of motorists in effecting captures, and now those of Hounslow have to acknowledge their indebtedness to an automobilist in a case where they would probably have failed but for the help of a motor-car. A well-known London motorist was driving home about 9.30 p.m. from Maidenhead the other Sunday, and had reached a point about two miles west of the Hounslow Police Station, when he was stopped by a cyclist, who told him that a man had been brutally assaulted by some

roughs and that the latter had run off towards Hounslow. The motorist immediately had the injured man placed in the back of the car and drove him swiftly to the police station, passing on the way about eight or nine of the aforementioned roughs. It being extremely dark at the time, they, of course, were unaware that he had their victim on the car. Upon arriving at the police station the injured man was carried inside; and then two constables were taken back in the car. They found the roughs drinking in a little beerhouse by the roadside. The actual man who committed the assault was so taken aback at the sudden appearance of the constables that he gave himself away almost immediately, and was taken in charge. The two policemen and their prisoner were then driven back to the police station, where the man was safely lodged. The whole affair, from the time the injured man was picked up to the time the prisoner was under lock and key, was not more than twenty minutes. After the police had arrested their man his friends were somewhat inclined to resist, and as they would have been compelled to walk the prisoner over two miles along a very dark road, the risk of an attempted release was very great; but as the police pushed their man into the car, and he was driven off at a great pace, his friends did not have a chance to do anything.

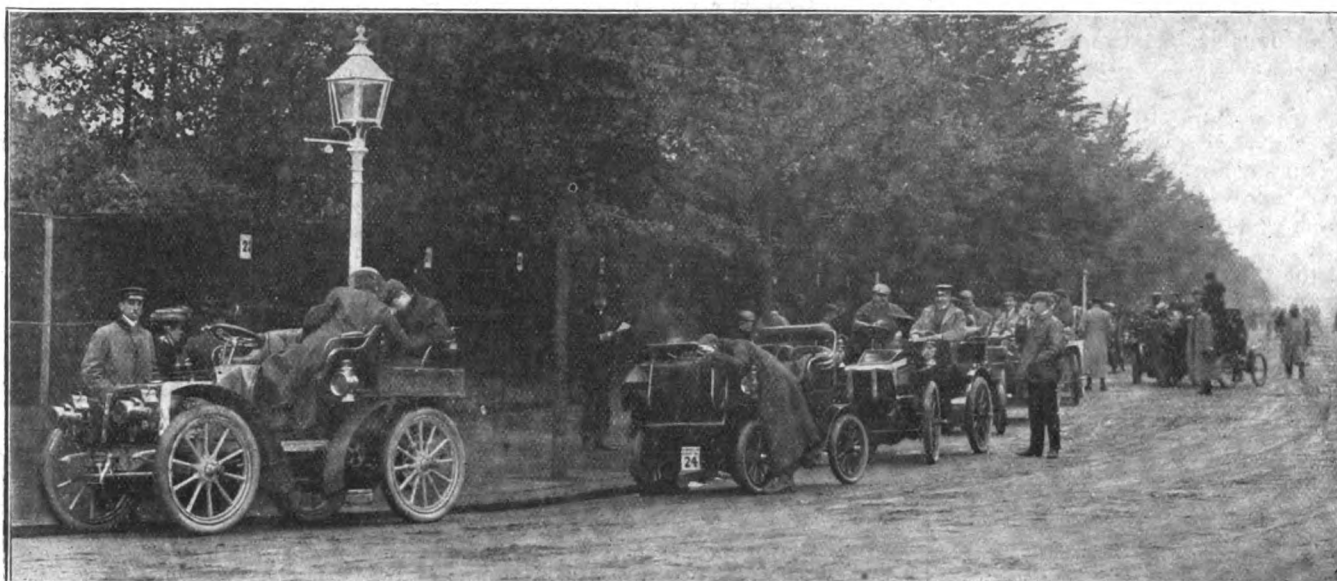
Leather Clothing.

REMEMBERING that fashion plays quite as important a part in the prosperity of an industry as pure utility, there seems no real reason why the rapid advance into favour of the motor-car should not, in spite of the displacement of harness, prove of lasting benefit to the leather industry. The *Leather Trades Circular* notices that progressive houses are advertising special makes for upholstery purposes, whilst for some time past, as we have before pointed out, leather coats, capes, etc., have been before the patron of the motor-car. Our contemporary cannot, however, allude to the matter without reminding readers that the bulk of the goods are still imported, and were even a part of the remarks of dealers to be put into print we should hold ourselves open to the charge of belittling our domestic manufacturers to the glorification of the foreigner. Very little effort has apparently been taken to cater at home for what promises to be a very important industry. The successful exploitation of the chrome process has very materially altered the character of modern leather, and its waterproof qualities, complete softness, and its resistance to wear place it on a much superior platform either to former vegetable, mineral, or oil tannages. The fact that the nature of the tannage permits such an admirable grain finish, which is not much deteriorated by washing, is the all-important point in favour of the motorists' leather clothing.

September Magazines.

SOME of the humours of automobilism find expression in twenty sketches in this month's *Strand Magazine*, in which commences a series of articles on the humour of sport. [The drawings are taken from *Punch*, *Puck*, *Life*, *The King* and other English and American journals, and serve to demonstrate the truth of the opening sentence of the article by which they are accompanied, viz., that "the joke-maker and comic draughtsman have discovered in automobilism a veritable El Dorado." Fortunately, the ancient gibes as to the horses losing respect for automobiles after drawing scores of them up hills, etc., have lost their point; but the article will provoke many a laugh—among those who motor as well as those who don't. *Pearson's Magazine* has a contribution of more serious import dealing with the various applications of motive power to agricultural operations, and illustrated with various views of American appliances, including a steam tractor that draws eighteen ploughs through a stubble field, doing an amount of work equal to what would ordinarily require fifty horses.

The Reliability Trials.



THE SCENE AT THE START ON MONDAY.

THE Motor-car Reliability Trials that have taken place this week should do much to influence public opinion and to allay the fears entertained by many that the automobile is a snorting, uncertain, perfumed machine driven by an inconsiderate and reckless piece of disguised humanity. In 1900 the 1,000 miles Trial of the Automobile Club familiarised the people of many towns with the appearance of road vehicles drawn by power other than that of the horse, which has done duty since the time of Ahab. The trials which were conducted last year in Scotland proved a great education to the people of northern Britain. Those of the present week will demonstrate to the whole of the Kingdom that motor-cars have attained the stage of absolute reliability in running, that they are perfectly subject to control, that motorists can and do travel at reasonable speeds, and that the official organisations of the automobile world—or, at least, that section which is concerned with Great Britain and Ireland—does not encourage racing along the common highway. In fact, no racing vehicles have been allowed in the contests; all the cars entered were intended for touring only—and for touring purposes they are proving admirably adapted.

No maker was allowed to enter more than two cars of any particular type and horse-power, and the trial was divided into two sections. 1. Motor-vehicles themselves. 2. Parts of motor-vehicles. In the latter division a new electrical ignition arrangement and a new commutator have been tried. On one of the cars was a dust screen, the performances of which have been weighed with considerable interest. On the Napier car, on which Collier tyres were tested, was a combined throttle and governor entered by Mr. S. F. Edge.

As the trials were intended for reliability only, there was no advantage in travelling at more than 12 miles an hour. 300 was the maximum number of marks which could be gained, and one mark was deducted for every minute the vehicle was at rest, from the time of starting to the end of the run, except, of course, for the three compulsory stops per day for refreshments, for traffic, tyre troubles, etc. Hill-climbing was exempt from the restrictions as to speed.

On Friday the motor-cars arrived at Sydenham, many making short circuits around the great building and its greater grounds ere they discovered the narrow gate that led to the refreshment hall at the south end of the terrace—converted, for the nonce, into a *garage* of ample proportions and light. Those that arrived after noon on that day were disqualified—and the result was that of the hundred entries only seventy-two were officially declared in the Trial. Many pleas have been offered for the want of punctuality; but only the commiseration of competitors have been offered to the halting ones.

On Saturday, certain brake tests were held, to ascertain whether the trial vehicles were fitted with sufficient brake power, and especially if the brakes were strong enough to prevent the cars from running backwards on a steep up-gradient. These trials were of considerable interest, and took place on one of the steep hills at Sydenham. It was noticeable that the great majority of the vehicles answered well to the brakes, only a very small number proving inadequate for the purpose. As an official report will be published, it would be invidious to publish personal impressions of the individual performances.

In the Trial vehicles were required to carry their full complement of passengers, and Observers were appointed whose duty it was to check the time between various stages, also to note stoppages, etc., during the run. As each vehicle returned to the Palace in the evening, it has been driven to the cleaning enclosure, while it has been allowable to spend two hours in cleaning, if desired, and one mark has been deducted for every minute occupied in replenishing, oiling, lubricating, or adjusting, beyond the allotted time.

TO FOLKESTONE AND BACK.

The first day's run was to Folkestone, and as we walked down to the Palace from our abiding place at Sydenham at six o'clock on Monday morning the rain promised to be plentiful. It was not the heavy pelting that we encountered recently at Nottingham—memories of which have not yet dried—but a refined sort of drizzle as though sparing of water yet determined to maintain a

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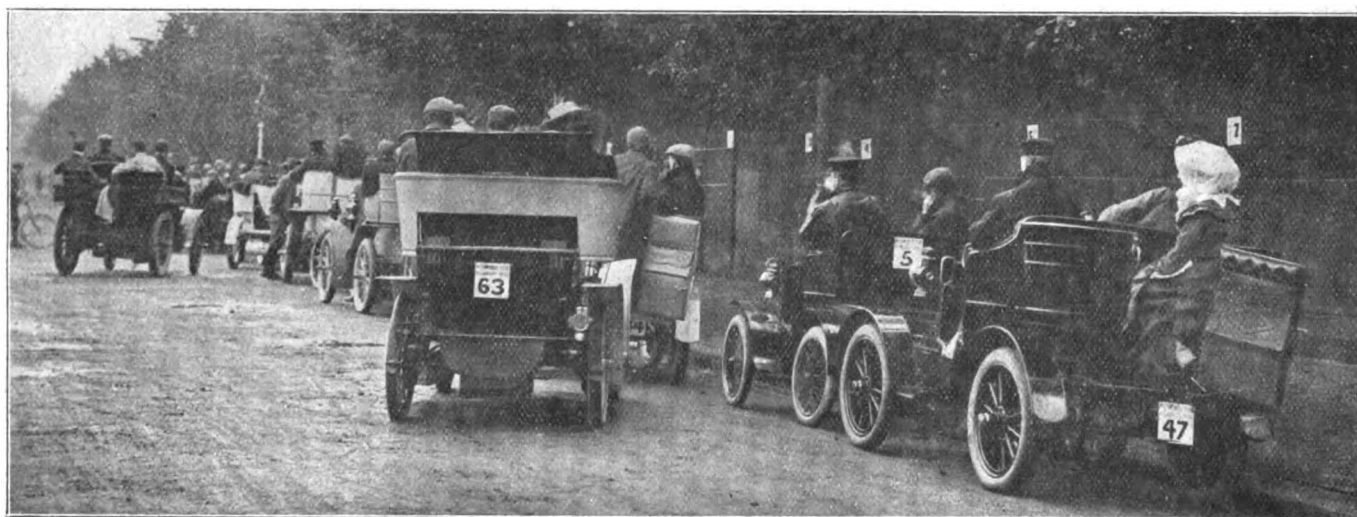
constant supply. Around the seventy cars that were being got ready for the journey were determined, earnest faces peering across the grounds of the Palace as though looking for that "view of eight counties" which is said to be apparent on a fine day. A few straw hats appeared; one or two Panamas had wandered into the concourse, their owners hoping that such attire would prove suitable to the occasion. Others, more familiar with the vagaries of the summer season, had donned leather raiment, and not a few favoured sou'-westers. Thus they roamed about the cars as though preparing a lifeboat for its launch. Lots had previously been drawn for pride of place, and as the cars sailed—the word is appropriate in such weather—up the hill and along the front of the Palace they settled down in front of the numbers that had been drawn. In this way No. 57, on which we had decided to spend the day became No. 41, with a 15-h.p. Panhard in front, and a 10 h.p. Georges Richard immediately in the rear. Thus by seven o'clock a long procession had been formed of cars of varying kinds. America was represented by the Oldsmobile, the Locomobile, and the White steam car. The Duryea car would have been present, but the particular vehicle entered for the Trial did not reach this country in time to arrive at the Palace before the fateful hour of noon on Friday; hence its disqualification.

Passengers did not care to dismount, so we waited long until all the cars were in line. Many carried pressmen, who

Technical Institute, and probably knew something of motor jumped out at the 15 h.p. Panhard, and, by keeping a distance of three feet away, was able to indulge in a fit of coughing without hurt and with comparatively little danger. Turning into the Albemarle Road a group of navvies were seen staring vacantly at the cars. "They don't seem to be working hard" suggested one of our passengers, who seemed hardly to understand the reply that their "very apathy in this particular instance makes the scene so realistic as a picture of a certain class of working man." The Observer, however, took a note of the remark.

Rubbing our eyes, for it was yet before eight o'clock—we got into Bromley and noticed two posters on the walls. One was an injunction to "Vote for Forster," the other an intimation as to the merits of the *Motor-Car Journal*. Mr. Forster is a motorist; hence the apposite reminder of the late Sevenoaks election (in which he motored to victory) in association with the *Journal* of the industry. We had travelled four and a-half miles in thirty-five minutes; two policemen had taken our number and four others had allowed us to pass, giving us such nonchalant glances as would have startled the speeding motorists—but for the fact we were not in Surrey.

Chislehurst—or such portion of it as was within view—was beginning to show autumnal tints and its usual picturesque-ness, which makes it so popular among suburban resorts. Beyond the Common were a number of sharp bends and corners, and



REAR VIEW OF THE START ON MONDAY.

must have thought the trip devoid of excitement; others had ladies; but all had their full complement. There was much of interest, photographers—mostly amateur, occasionally professional—attempting to take pictures in a light that was antagonistic. Mr. Percy Richardson drove by with Mr. W. M. Letts—both observers—as a temporary passenger; the Hon. C. S. Rolls sped by; a bold Frenchman in great yellow cloak stalked along reviewing the progress of the English industry as represented in the cavalcade.

At length the word to start was given and away went the cars at intervals of twenty seconds, Mr. S. F. Edge acting as marshal. Mr. C. Johnson, Mr. H. Edmunds, Mr. E. W. Hart Mr. J. D. Siddeley (hon. secretary for observers), and other motorists were in the little cluster through which the drivers had to steer, nearly knocking over the photographer who, on a slender ladder, was vainly endeavouring to find more light in the dull morning. Crawling cautiously down the Crystal Palace Park Road, we got into a fair stride in the Beckenham Road, and passed by the premises of the Crystal Palace Motor Engineering Company ere business had begun at that familiar place. So early was the morning that the milkmen had not wholly finished their work of distribution, nor was the postman far on his round. Still signs of early activity were apparent. An Irish terrier that had been basking in the shadow of the Beckenham

recourse to the route map was frequent. At nine miles from the start the road turned to the left. "Do not take this," said the directions, "but take road on right marked on finger-post, which is hidden by trees. This corner may easily be missed." As No. 57 reached the point it was discovered that the corner had been missed by No. 32—a 9-h.p. James and Browne car driven by Mr. T. B. Browne, who soon discovered his mistake and retraced his tracks. At Foots Cray a car was halting, and the driver appeared to be looking for something, on which point the Observer will probably have more to say.

Amid market gardens and Kentish orchards the cars now made their way, evidences of the industry of the locality being by no means confined to the fields, where women were gathering produce for the London market. A couple of motor-lorries were on their way to town fully laden with fruit from Swanley, and it was interesting to notice the indifference with which they were regarded by the "natives," who have become well accustomed to their presence. For the last three or four miles the rain had been insistent, but ere growing Swanley—growing in more senses than one—was reached it cleared up. Just before we entered the town No. 32 came by to attain the position it had deserted owing to easily missing a corner, and then No. 22 was descried, as though wavering in its intention whether to go forward or not. Immediately ahead was a Swift car, which we

passed ere the descent of the hill into Farningham. A great hay-rake drawn by an ancient quadruped obstructed about 9 ft. of the roadway, but steering by that monopoly of the road we passed through a delightful bit of English scenery, with the lych gate leading to the village church and the adjacent farm—a picture of quiet beauty that might have justified a few minutes' delay. But our driver cared not for the picturesque; he was thinking of a certificate, and



"BONNETS OFF."

possibly a gold medal. Mr. Jarrott had been out of sight for some time, and we were feeling anxious lest he should have forgotten the rules and gone forward at eighty miles an hour. Hence the relief with which his red Panhard was seen crawling along, as though it had made a spurt and then remembered that such conduct was unbecoming on English roads, and with a supply of policemen about that would have proved ample on Derby Day at Epsom. Keeping close behind him awhile, Mr. Lewis passed us on a Daimler, but we crept along and passed a Star that was travelling well. In fact, if rumour speak correctly, that car will shortly shine even more prominently in the automobile firmament.

When it is desired to stop on an automobile expedition it is well to select a convenient spot, and the De Dion that was next passed had wisely outspanned at the inn known to Kentish men as the Horse and Groom—a name that will probably be modernised to Motor and Man, in keeping with the changing fashions of the time. The roads, which had up to then been greasy, had begun to dry, and we were reminded of the fable of the old man and his coat as Mr. Jarrott doffed his sou'-wester to assume the yachting cap—just a touch of nature which shows that motormen are not entirely indifferent to appearance.

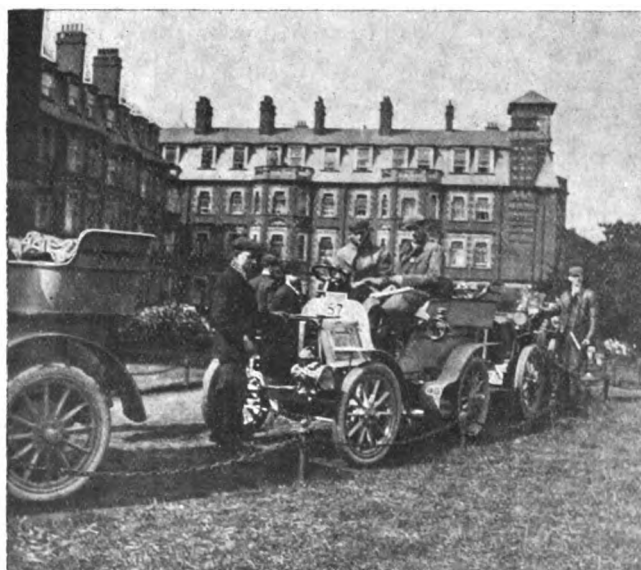
Mr. Astell having passed on his New Orleans where Mr. Peall was marking time, we strode along near No. 32. That car, which travelled well, was just in front, and our driver not fancying a position to the rearward decided to forge ahead. Unfortunately, a light trap was coming along, and just as it was hoped we were clear of both vehicles our car skidded and rushed backwards into the shafts. In less time than it takes to relate, our Observer ceased observations, being laid low in the mud; our driver was measuring the distance between car and cart; the mechanic and the writer were hanging over the two front seats while the driver of the trap hung head foremost between the pony and shafts, and his passenger sat in the hedge. This transformation had been quickly and quietly effected. Luckily the pony was well behaved, recognising in the motor-car one that intended no harm, and standing as though waiting to acknowledge that the foul was one of those accidental mishaps that will occur whether a horse or an engine is in front. The driver of the trap was extricated from his suspensory position

with his face cut and his nerves unstrung for awhile. Our Observer picked himself from off the roadway—a position of some inconvenience to passing cars—and when we totalled up the damage done to our party it amounted to a dent in the tonneau body, the smashing of the Observer's watch glass, the bruising of the writer's knee, and a delay of nearly ten minutes.

But in that short time we had lost our good position in the run, and car after car went forward, surprised and inquiring glances being shot from drivers and passengers, who saw a very dejected group and an innocent-looking pony—all trying to make the best of a bad job. One of the first cars to see us in distress was a brother M.M.C. of 20-h.p., carrying Mr. Buckea, one of the directors, who had waited for the tale of woe to be recited when in Maidstone. Then came a Daimler of even greater power, with Mr. E. M. C. Instone at the helm. Other cars followed in quick succession—Belsize, Renault, Georges Richard, and a 7½-h.p. Wolseley among the number.

Once started again, we were soon at Maidstone, right beneath that gun that seemed to threaten all who made unnecessary commotion on the King's highway. Maidstone has seen some stirring scenes. In the reign of an earlier Edward it was invaded by Continental merchants who started the woollen industry there; then in the fourteenth century Wat Tyler and his merry men ran across from Dartford to release John Ball and others in the local prison; three centuries later General Fairfax stormed the town; in the twentieth century a fourth event was added to the category of great epochs in the town's history by the temporary stay—for fifteen minutes—of three-score motor-vehicles, representative of a movement that will do more for the industries and prosperity of Kentish towns than ever did Edward III., Wat Tyler or General Fairfax. In face of such an event no wonder the townspeople welcomed the motorists right heartily.

From Maidstone to Ashford the route lay past woods and workhouses, by farms and villages, in pleasant succession. Through Lenham we slowed down and had the first sight we had had of a motor-bicycle—the Ormonde—in the Trial, while a Maudslay car, which was running splendidly, was also seen just before reaching the quaint old village of Charing, with its ancient butcher's shop—a wonderful relic of an earlier age. It was raining piteously, and very disconsolate appeared the Canterbury motorist who had run across to Charing to administer petrol and supply other appetising delicacies to cars in



NO. 57 SNAPPED BY A PASSENGER.

need. The wide street of Ashford was left behind shortly after, and emerging therefrom into the country again a nervous old dame treated us to such another display of feminine absent-mindedness as we described on the occasion of the last hill-climbing competition at Dashwood—referring, of course, to

the contest that actually took place. During the next two or three miles we formed part of a little procession in which were noticed a 10-h.p. Wolseley, a 12-h.p. Humber, two Locomobiles, one being driven by Mr. A. Ginder, a 10-h.p. M.M.C., and Mr. E. A. Perman on the 12-h.p. Gladiator. A little ahead was a car on the roadside, the Observer observing, but the driver not driving. Unfortunately the wind had carried a rug across the number—or full publicity to the exploit might have been given. Soon after leaving Sellenge the last smithy, ere reaching Folkestone, was passed. What a number of smithies were indicated on the official route! And how the farriers left their forges to glance



LADY OBSERVERS AT FOLKESTONE.

with unmistakable wistfulness at the new locomotion which has not yet found its perfect footing, although the Tyre trials are, it is hoped, likely to produce some good results.

In Hythe and Sandgate several public-service vehicles were seen, a new M.M.C. car having eight passengers aboard. On to the sea front we went, where bathers were disporting themselves in gallant fashion. And so on to the Royal Pavilion Hotel, where the cars were marshalled in front of that fine building. Luncheon was a hurry and a scurry to many of the drivers, some of whom found the curiosity of visitors a bit of a bore.

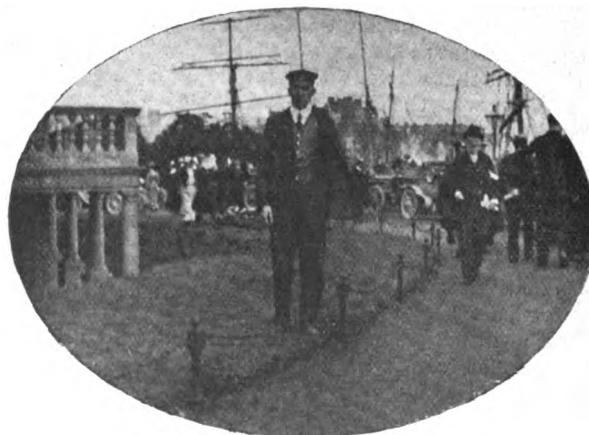
The return journey was made in better weather and the roads had dried considerably, although frequently recurring showers made them occasionally greasy. Some cars took the steep hill; others, like ourselves, went round for another view of the sea and to see a Star car and also a Parr going on to Folkestone. Two miles further on a Collier-tyred Napier was still on its way. Towards Ashford many of the wagons laden with great trees took up most of the roadway, while droves of sheep tried the patience of the drivers. At Charing Mr. E. H. Arnott was going along gamely on his trusty Werner. He was still bearing traces of the nasty fall at the Palace on Friday, while his wrist was giving him sad trouble. But he tired not and rode on bravely, as did No. 7 on his Ormonde machine. These were the only two motor-bicycles seen during the day's march. After another wait at Maidstone, the last stage was begun, and soon we encountered streams of labourers returning home. Near Polhill Mr. W. M. Letts awaited the oncoming cars from the vantage ground of a Locomobile. Beyond Lock's Bottom was a steep hill down to Hayes, where the Common was aglow with heather. Passing a succession of traction engines, No. 57 went on to West Wickham, where a Panhard in the tyre competition was in trouble. Then to the Palace was a short spin, where, behind Baron Henri de Rothschild, who was a passenger on his Pascal car, we made our way to the *garage*, having earned 292 marks for the day's performance.

The scene was full of life and the air full of water. There was a splashing of cars and a washing of bodies for full half an hour, while journalists who had skipped the trip awaited the arrival of the more hardy motorists to glean what there had been of incident and accident. Fortunately there was little of either; and after more petrol talk the company dispersed to sleep the

sleep of the travelled and the tired. There is not much exercise in the maintenance of a sitting posture for twelve hours—but it is tiring all the same.

EASTBOURNE AND BACK.

The weather outlook on Tuesday morning showed no improvement over the preceding day, and, taught by experience, extra provision was made by those taking part in the trials in the way of clothing to protect themselves from the unkind elements. On arrival at 6 a.m. at the Palace on Tuesday we were met with the unexpected news that the seat which had been placed at our disposal was, owing to a *contretemps*, no longer available. For a few moments the outlook for our day's trip was anything but hopeful, but the Wolseley Company came to the rescue, and we were very soon installed on car No. 41—a 10-h.p. Wolseley double phaeton, which is being driven by Mr. A. Prosser, of Glasgow. Seeing that the vehicle had earned full marks on the Monday, there was every prospect of a successful journey, a prospect which eventually became an actuality. No. 41 is a four-seated car, and the party on board included Mr. Prosser, Mr. J. D. Hill (Observer), the writer, and Ward (mechanician). Passing through the gate Mr. Edge, the marshal, instructed us as to our position on the Parade. Owing to some error a wrong number was given us, but the mistake was quickly put right, our proper position being No. 33, which we took up well within the regulation time. It was not, however, until 7.15 a.m. that we received the official authority to start. Down the hill we went, the only observers being the milkmen and early-rising servants. After passing through Penge and reaching open country, the roads were found to be in fairly good condition, one advantage of the rain of the previous day being found in an absence of dust—the bugbear of motorists, especially when travelling together in numbers as they are doing this week. Here and there, when passing through wooded districts, the roads were, of course, wet and heavy, but these were passed over successfully by the cars immediately in front and behind us. For some time we had been running in company with Baron Henri de Rothschild on the 20-h.p. Pascal car (No. 84), but near West Wickham a slipping clutch caused him to stop, and we left his car to the rear. At Hayes Common the rider of the 1½-h.p. Ormonde motor-bicycle (No. 7) came along in good style, and he kept with us for the remainder of the day. The way his machine travelled along, not only on the level but up the hills, was remarkable and worthy of all praise. A toot-toot of the horn notified us that the Baron's car (No. 84) was again behind us, and we let him pass. Nearing Green Stree



MR. C. JARROTT IN NAUTICAL TRIM.

we overhauled No. 35, the 10-h.p. Brooke, and running through the village had our first experience of troublesome dogs. We got through safely, but at night learned that another competitor had not been so fortunate, for Mr. E. H. Arnott, riding a Werner motor-bicycle, was brought to grief by one of the animals. He was rather severely hurt, and was unconscious for an hour, being, of course, unable to continue the trip. Running steadily along under the keen eye of our Observer, our car took all the

hills in good style, several of them on the top speed, much to the satisfaction of our mechanic, as the contented smile on his face denoted. Sevenoaks was beginning to wake up as we ran through at 8.30 a.m. Thirty minutes later saw us in the High Street at Tonbridge, and here we had another momentary incident, our way being barred by a quartette of cows. At Southborough almost the whole inhabitants gave us a hearty welcome, and pointed out the road to Tunbridge Wells. Just at the entrance to the town the cinematograph man was seen busy turning the handle for dear life as the cars came along. A few minutes later, 9.30, we drew up at the Royal Kentish Hotel for the compulsory 15 min. stop, and a run along the line of cars showed that we were thirteenth or fourteenth into the town. Our car was drawn up in front of a jobmaster's establishment, and it was somewhat amusing to hear the comments of the ostlers.

At 9.45 we were once more under way with the 20-h.p. Pascal (No. 84) in front of us. The slipping clutch brought this vehicle to a stop on Saxonbury Hill, and, as we ran by the Baron and his mechanic were seen to be manually aiding the car up the ascent. So far the weather had been on its good behaviour,

The local motor-agents were on the scene with vehicles loaded with petrol, while for the steam cars and many of the petrol vehicles the cry was for water. For the passengers, however, the cry was for lunch, and along with many others we trooped in to a cold lunch served in the Town Hall. There was only time to make a hasty meal, and soon we were all again ready for the return trip, which proved to be much more difficult than the outward one.

As the Town Hall clock pointed to twenty minutes to one we moved slowly away, and passing along the Upperton Road followed the familiar route to Willington and Polegate, and met some of the cars still on their way to Eastbourne. As far as Lower Horsebridge the road was the same as that covered in the morning, but there we turned to the left, and enjoyed a speedy straight run for several miles, being passed, however, by Mr. Cecil Edge, driving the Collier-tyred 16-h.p. Napier (T7). Somehow or other our car seemed to know that it was on its way home, for it pulled well, and it would seem that the speed allowances were rather more liberal on this part of the journey, seeing that the Observer reported at the different stages that we



Photo by]

THE CARS AT THE ROYAL PAVILION HOTEL, FOLKESTONE.

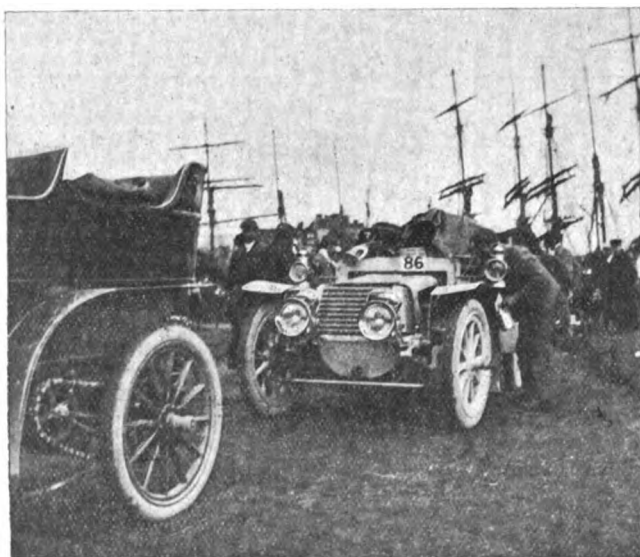
[Lambert Weston & Son.

but as Mayfield was reached a slight shower of rain was encountered. The engine of our car kept up its "ron-ron" unfalteringly, and we made short work of the hills and passed through Cross-in-Hand, Culverwood, Horeham, Hellingly, without incident of any kind and without coming across any cars on the roadside. At Lower Horsebridge a restive horse gave us a moment's excitement, but, this passed, nothing called for special mention until we reached Polegate, where the driver and occupants of the "Vigilant" four-in-hand coach gave us a cheer. As we neared Eastbourne we encountered the first stretch of loose road metal. It must have proved very trying to some of the vehicles, especially as it was on a stiff up-grade, but No. 41 ploughed along steadily, and a few minutes later we were running slowly along the beautiful but crowded Terminus Road and on to the sea front. On reaching the Town Hall we found that very few of the cars had followed the proper route in Eastbourne, the bulk, instead of driving along the Promenade, making straight for the Town Hall, where we pulled up at 11.55 after a steady uneventful run.

The scene was, of course, a lively one; cars followed one another in quick succession, and the queue extended a long way.

had occupied the requisite time. And then we struck the hilly country, and what is worse, the rain, which now came down continuously. At Maresfield a hen endangered its life, while a couple of horses behaved in an unseemly manner, taxing the energies of three men to keep them quiet while the cars passed. And now came a long steady climb of several miles up Blackham Common, which tried the capabilities of the vehicles to the utmost. In fact No. 52 and T7 required to be pushed, while T1 was seen at a standstill. The Wolseley went up steadily without a stop or without any assistance. The pace was not fast, but gave us an opportunity of enjoying the beautiful view from the top of the Common. Soon we were descending to a lower level, and running through Edenbridge; after which came a stiff pull up Crockhamhill Common, on which one car, whose number we could not see, was stopped. With the heavy rain the roads were now in a wet and muddy condition, and we were glad of the fifteen minutes' rest out of the wet at Westerham, which was reached at 4.32 p.m. Between us and the Palace was the stiff climb up Westerham Hill, a climb which was made all the more difficult owing to the wet and soft condition of the

road. It was with some trouble that our car found a way up the hill, for a couple were stopped on the road side, while two or three others were being pushed. Slowly we went, however, and a smile of satisfaction passed over all our faces as we found ourselves at the top. From thence we made a steady run to the Palace. the only incident being the taking of a wrong turn on Hayes Common, an error which was soon rectified. Past the Clock House station, through Penge, and up the Crystal Palace road we went—in the rain—and the clock was striking five as we pulled up at the Rockhill entrance. A little delay ensued on getting inside, owing to the marshalling of the cars, our official time of return being 5.10 p.m. At the time of writing, the number of marks secured by our car is not known, but judging from the day's run the 10-h.p. Wolseley, No. 41, should repeat its Monday's record of maximum marks; for in the capable hands of Mr. Prosser, we had made the journey to Eastbourne and back without incident of any kind. It is difficult for those taking part in the trials to ascertain the performances of others,



LUNCHEON TIME AT FOLKESTONE HARBOUR.

but so far as our trip went we did not see a single car break down. The steep hills and bad roads combined proved too much for several vehicles, but those who have not made the journey from Eastbourne to London over the route followed on Tuesday have no idea of the number and steepness of the hills that have to be surmounted.

At the Palace, on Tuesday night, the scene was a pitiable one. water, water, everywhere; and the motorists as they arrived home had anything but a comfortable appearance. Notwithstanding this, however, the cars appeared to have on the whole all behaved well; for, enquiring at 8 p.m. at the Club's headquarters, we learned that sixty-seven cars had started in the morning, and that all were home except one, and that was the Secretary's!

TO WORTHING AND BACK.

A brighter morning on Wednesday cheered the passengers and revived the spirits of the drivers who had had quite enough bad weather. Certainly, the opening days were not as bad as the climatic conditions of the Welbeck Trials—they could not have been worse—but they were bad enough. Hence the joy that prevailed in the ranks of the motorists and their friends when the sun shone out with a strength that gave warmth indeed. The run was one of 120 miles, Worthing being the objective.

The start was by a different route to that of the Crystal Park Road, Church Road leading the way to South Norwood Hill. After some experience of the joys of motoring over tram lines, and also of negotiating through the traffic of Croydon,

Wallington was reached. By way of Carshalton, Cheam and Ewell, Epsom was passed—a very different place on an ordinary day to that when the Derby takes all sorts and conditions of people to the pleasant little town. Following the telegraph wires through Ashted the long procession journeyed *via* Leatherhead, Dorking, Capel, and Kingsfold to Horsham—a total run of thirty-five miles. There a compulsory stop of fifteen minutes was made and then, by way of Broadwater, Worthing was reached after a good run of twenty miles. After luncheon the return was through an interesting country, Arundel, Pulborough, Billingshurst, Reigate, Merstham and Purley each having their points of beauty to those who feel a joy in our varied English scenery.

THE LAST DAYS.

Thursday's run was a comparatively short one, being to Brighton *via* Redhill, Crawley, and Handcross. The stopping places were Crawley on the outward and Horley on the homeward journey. Friday is being devoted to hill-climbing, and an additional brake test in the region of Sevenoaks and Westerham. To-day, Saturday, the final run will be made to Bexhill, a stoppage at Tonbridge being compulsory before reaching Bexhill, and also at Godstone on returning.

TRIAL NOTES.

GOLD and silver medals will be given in each class, the awards to be made by adding together the marks gained by each car during the trial for: (a) reliability; (b) hill-climbing; (c) horse power and weight; (d) steering gear; (e) brakes; (f) condition of car at the end of the Trial.

AMONG the gentlemen acting as honorary observers in connection with the trials have been Dr. Peake (Leicester), Mr. E. Estcourt (Wroxham, Norfolk), Mr. E. Peall (Brixton), Dr. Mill (Wigan), Mr. R. M. Wright (Lincoln), Mr. G. H. Kirk (Nottingham), Captain Chapman (Stokenchurch), Mr. Frank Morris (King's Lynn), Major Murray (Lymington), Mr. W. H. Crowdy (Swindon), and Mr. J. Todd (Brayton, Cumberland.)

THE Hozier Engineering Company, Limited, inform us, under date the 28th ult., that they had been working practically night and day to complete the three "Argyll" cars for the Reliability Trials, and were compelled to send them off per passenger train without having had a road trial. They, however, arrived too late.

LAST week's *Penge and Anerley Press* reported that "next Monday, and during the week, the famous Automobile Club will hold a 650 miles motor reliability trial in the grounds of the Crystal Palace."

IN connection with the A.C.G.B.I. Reliability Trials, which are being held this week, the Continental Caoutchouc and Guttapercha Company is offering a series of prizes for cars gaining gold medals in Section I. and fitted with Clipper Continental tyres. For Classes A, B, C, the prize is of £10 in each case; Classes D and E, £15 each; Classes F and G, £20; and Classes H, J, K, and L, £25. In addition a prize of £25 is offered to the actual driver of the vehicle whose car is fitted with Clipper-Continentials, and whose tyres at the end of the Trial show the least signs of wear, providing that such car has been awarded a gold medal.

MESSRS. DENNIS BROS., LIMITED, write us as follows:—The reason why the Dennis car is not running in the trials for which it was entered is that the car, fitted with new tyres, on its way to the Crystal Palace on Friday morning, last week, unfortunately punctured just outside Kingston. The puncture was of such a serious nature that, before effectively repairing it,

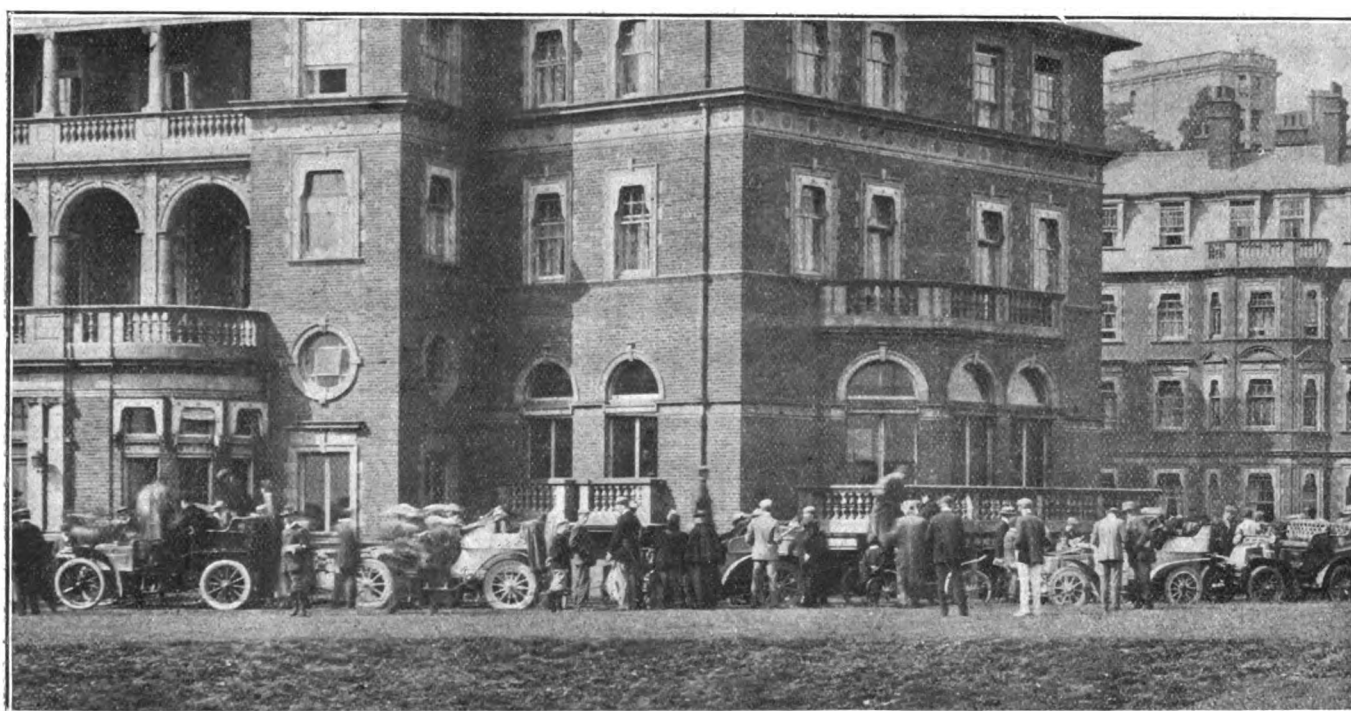
over an hour had passed away, and the car arrived at the Palace gates just ten minutes late (12.10). The garage was locked, and we were informed by the Secretary of the A.C.G.B.I. that our entry could not be accepted, and that the Committee would finally decide in the afternoon whether the car would be allowed to run. The Committee decided to disqualify the car, and, although we admire them for strictly upholding the rules, yet we do not see that this rule is of such great importance that the expense gone to by manufacturers in preparing for these trials should be absolutely ignored, as, from personal observation, the cars seemed to have no benefit in arriving Friday at all (except cleaning), while the representative simply whiled away the afternoon. Surely the time could have been extended to a later hour in the day, say 3 p.m., giving firms who had to send some distance a better chance of arriving in time. To prove to our numerous friends, who will be eagerly looking for the performance of the Dennis car, and as we have every confidence that we could run a longer distance than the whole 650 miles without stopping at all, we shall be glad to meet the winning car of class C (the class in which we had entered) for a trial run of reliability, both cars to

Argyll; 50, 9-h.p. Daimler; 55, 12-h.p. Century; 58, 10-h.p. Benz; 61, 18-h.p. Beaufort; 68, 16-h.p. Ariel; 72, 12-h.p. Benz; 73, 16-h.p. Dietrich; 78, 20-h.p. Star; 79, 18-h.p. Newton Pearce; 80, 10-h.p. Panhard; 85, 24-h.p. Dietrich.

AT the Palace on Monday we met Baron de Turckheim, who is greatly disappointed at the fact that the two De Dietrich cars (Nos. 73 and 85) have had to be kept out of the Trials. Owing to the heavy fruit traffic across the Channel an unexpected delay took place in getting the two cars from Dieppe to Newhaven, with the result that they arrived at the Palace too late for admittance. The two cars are on the Turcat-Mery system, with vertical four-cylinder engines, one being of 16-h.p. and the other 24-h.p.

MOTOR steam lorries are employed by the Medway Brewery, Maidstone.

KING EDWARD MANSIONS, 210, Shaftesbury Avenue, W.C., is the new address of the Collier Twin Tyre Company.



THE CARS AT FOLKESTONE—PREPARING FOR THE RETURN JOURNEY.

start together over the same course and the loser to be the first car which has to stop, except for tyre troubles, for a stake of £50 a side, and if we prove successful we shall be pleased to pass the amount over to any charitable institution recommended by the Committee of the Automobile Club; or, failing the acceptance of this offer, we hope shortly to arrange a non-stop run from Land's End to John o' Groat's without even stopping the engine.

OWING to inability to get it ready in time the Newton Pearce Motor Car Company, Limited, withdrew the car they had entered.

THE following is a list of the non-starters, the absence of the cars from the trials being in most cases due to late arrival on Friday last week:—3, 5-h.p. Century Tandem; 13, 8-h.p. Parr light car; 14, 8-h.p. Argyll; 15, 10-h.p. Duryea; 16, 7-h.p. Hallamshire voiturette; 17, 10-h.p. Hallamshire light car; 18, 8-h.p. Dennis; 25, 7-h.p. Benz; 27, 9-h.p. Rex; 34, 14-h.p. Hallamshire touring car; 37, 8-h.p. Milnes; 43, 12-h.p. New Orleans; 45, 8-h.p. C. and O. car; 46, 8-h.p. Brush; 49, 8-h.p.

A MOTOR-CAR repair department has been opened by Messrs. Day and Ockelford at their Reliance Works, St. Leonard Street, Bromley-by-Bow, E.

MOTORING visitors to Lewes will be glad to learn that a motor-car garage with inspection pit has just been established in connection with the White Hart Hotel, in the High Street.

TO-DAY (Saturday), the Manchester Automobile Club will hold a week-end run to Chester, making the Blossoms Hotel their headquarters. A covered yard with an inspection pit has been provided at the hotel, where a supply of petrol is also stocked. Weather permitting, a boating excursion by electric launch will be arranged for Sunday.

A 50-MILE economy test for motor-bicycles was run off recently on the Manhattan Beach track, New York. There were nineteen starters, of whom only seven completed the fifty miles without a stop. The winner was E. J. Edmond, who, on a 2-h.p. Auto-Bi, only consumed 4 5-16 pints of spirit for the fifty miles. Although the event was not one of speed, we may add that the winner's time was 1hr. 39min. 37sec.

THE RELIABILITY TRIALS—THE DAILY RECORD OF MARKS. (300 marks maximum).

										Monday.	Tuesday.	Wednesday.
CLASS A. (Vehicles declared at a selling price of £150 or less).												
Official No.	H.P.											
1	...	3	Humber bicycle	...	...	...	...	...	...	—	—
2	...	2	Humber bicycle	...	...	...	...	...	...	—	—
4	...	5	Century tandem	...	...	...	...	...	...	294	300	
5	...	5	Baby Peugeot	...	...	...	...	...	...	299	295	
6	...	1½	Werner Motocyclette	...	...	...	...	...	...	—	—
7	...	1½	Ormonde bicycle	...	...	...	...	...	...	—	—
CLASS B. (Cars valued between £150 or £200)												
8	...	4	Oldsmobile	...	...	...	...	...	...	Broke down.	—	
9	...	5½	Locomobile	...	...	...	...	...	...	Held over.	262	
10	...	5½	Locomobile	...	...	...	...	...	...	289	293	
11	...	4½	Swift	...	...	...	...	...	...	299	282	
CLASS C. (Cars valued between £200 and £300).												
12	...	8	Parr Light Car	...	...	...	...	...	...	282	Broke down	
19	...	7	Star	...	...	...	...	...	...	273	297	
20	...	5½	Locomobile	...	...	...	...	...	...	292	270	
21	...	5½	Locomobile	...	...	...	...	...	...	296	295	
22	...	4½	Renault	...	...	...	...	...	...	267	286	
23	...	8	M.M.C. Voiturette	...	...	...	...	...	...	281	295	
24	...	6	De Dion-Bouton	...	...	...	...	...	...	268	299	
26	...	6	White Steam Car	...	...	...	...	...	...	294	296	
28	...	10	Georges Richard	...	...	...	...	...	...	Disqualified.	—	
29	...	6	White Steam Car	...	...	...	...	...	...	300	300	
CLASS D. (Cars between £300 and £400).												
30	...	10	Decauville	...	...	...	...	...	...	295	297	
31	...	10	Georges Richard	...	...	...	...	...	...	297	293	
32	...	9	James and Browne	...	...	...	...	...	...	300	Held over.	
33	...	12	Gladiator	...	...	...	...	...	...	300	300	
35	...	10	Brooke	...	...	...	...	...	...	289	300	
36	...		Light car fitted with Simms 8-h.p. motor	...	...	...	...	...	...	299	Held over.	
38	...	10	Star	...	...	...	...	...	...	295	Held over.	
39	...	10	Wolseley	...	...	...	...	...	...	300	295	
40	...	7½	Wolseley	...	...	...	...	...	...	300	299	
41	...	10	Wolseley	...	...	...	...	...	...	300	300	
42	...	12	Belsize	...	...	...	...	...	...	300	300	
44	...	9	New Orleans	...	...	...	...	...	...	295	299	
47	...	8	De Dion-Bouton	...	...	...	...	...	...	300	300	
48	...	8	Clément	...	...	...	...	...	...	248	Held over.	
CLASS E. (Cars between £400 and £500).												
51	...	12	Gladiator	...	...	...	...	...	...	296	298	
52	...	10	Ariel	...	...	...	...	...	...	279	252	
53	...	14	New Orleans	...	...	...	...	...	...	299	300	
54	...	12	Century	...	...	...	...	...	...	273	298	
56	...	14	New Orleans	...	...	...	...	...	...	299	Broke down.	
57	...	10	M.M.C.	...	...	...	...	...	...	292	Held over.	
59	...	7½	Germain	...	...	...	...	...	...	297	300	
63	...	20	Georges Richard	...	...	...	...	...	...	Broke down.	—	
CLASS F. (Cars between £500 and £600).												
62	...	6	Gardner-Serpollet	...	...	...	...	...	...	300	Held over.	
63	...	6	Gardner-Serpollet	...	...	...	...	...	...	291	Held over.	
64	...	10	Peugeot	...	...	...	...	...	...	299	299	
65	...	12	Brush	...	...	...	...	...	...	300	262	
CLASS G. (Cars between £600 and £700)												
66	...	12	Humber	...	...	...	...	...	...	300	294	
67	...	12	Humber	...	...	...	...	...	...	174	Non-starter.	
69	...	20	Wolseley	...	...	...	...	...	...	300	300	
70	...	10	Mors	...	...	...	...	...	...	255	—	
71	...	8	Wilson and Pilcher	...	...	...	...	...	...	300	291	
74	...	15	Germain	...	...	...	...	...	...	300	Held over.	
75	...	16	Clément	...	...	...	...	...	...	290	Held over.	
CLASS H. (Cars between £700 and £800).												
76	...	12	Daimler	...	...	...	...	...	...	297	298	
77	...	12	Daimler	...	...	...	...	...	...	296	300	
81	...	20	M.M.C.	...	...	...	...	...	...	300	300	
CLASS J. (Cars between £800 and £1,000).												
82	...	20	Maudslay	...	...	...	...	...	...	300	298	
83	...	20	Pascal	...	...	...	...	...	...	286	Held over.	
84	...	20	Pascal	...	...	...	...	...	...	294	286	
CLASS K. (Cars between £1,000 and £1,200).												
86	...	22	Daimler	...	...	...	...	...	...	300	300	
87	...	22	Daimler	...	...	...	...	...	...	300	300	
88	...	15	Panhard	...	...	...	...	...	...	300	300	

Wednesday's Marks not available at time of going to press.

NOTE.—These returns are subject to correction.

CONTINENTAL NOTES.

BY AUTOMAN.

ACCORDING to an American consular report there are no less than 900 motor-cars and 300 motor-cycles in the city of Algiers. Algeria is a country specially adapted to the use of automobiles, both on account of its excellent roads and the steep grades which prevail. As far into the country as roads are built, they are constructed with great care and kept continually in repair. Many of them are military roads adapted for the rapid movement of soldiers. Other roads are almost as good, owing to the necessity of bringing heavy loads of wine from the vineyards of the interior to the seaboard.

MR. CHARLES M. SCHWAB, president of the American Steel Trust, is making a motor-car tour through France. He came to Paris from Havre in a 40-h.p. Mercedes, and he has since been to St. Germain and Versailles.

GABRIEL'S marvellous speed at Deauville, averaging one hundred and thirty-six kilometres, three hundred and fifty metres, or 84½ miles per hour, is without any doubt an astonishing result, produced as it was on an ordinary road, and in front of throngs of spectators, through the ranks of whom, barely separated by twenty paces, one ton of steel, iron, brass, aluminium, and rubber came bounding along, steered and con-

roads "petroleumed" to lay the dust, we shall no doubt have them carefully marked for limited speeds where it is necessary, and unlimited where it is permissible.

MOTOR-CARS are rapidly acquiring vested interests. There are workmen kept busy, families sustained, shops and offices filled, country hotels made prosperous, immense buildings in towns rented, and a host of other interests now to be considered, and these are growing so rapidly that the enemies of automobilism will soon find they are treading on someones corns at every step and retire into the oblivion which awaits them.

FRANCE has understood this first and is reaping a rich harvest in consequence, and the legislation is wisely helping instead of hindering the industry, which will soon be one of the most important in the country.

By the latest computation there are 10,000 self-propelled vehicles in and around Paris, and yet these form but a tiny fraction of the number of horse-drawn vehicles in the same area, but the numbers are increasing steadily, and every factory which turns out a decent modern car is continually adding new buildings and new machinery in order to add to its production. It is evident, therefore, that the roads will shortly be under the influence, by right of numbers, of the self-propelled vehicle. The roads around London will follow, and it would be well for



EARL ROBERTS AND GENERAL STAFF AT THE SCHOOL OF MUSKETRY, HYTHE. (See last issue).

trolled by human hands and brains. Certainly a very few years ago, when the top speed of a 3½-h.p. car was gazed on with wonder and a grandmotherly legislation decreed that it should be limited to 12 miles an hour, anyone who had had the temerity to seriously predict such a figure would have been looked upon as crazy.

THE question is whether such a speed on a machine which is designed in consequence is any more dangerous, or as dangerous, as the top speed was on the car of six years ago. I question it very much. There will, of course, always be accidents; that is unavoidable. But then there are accidents due to all kinds of locomotion, and the great proportion of them are never heard of anywhere outside the district in which they take place, whilst a motor-car accident is at once exaggerated and telegraphed all over the country, if not all over the world. Then, again, the motor-car is at present the rich man's luxury, and an accident which occurs to a millionaire is far more interesting from a journalistic point of view than a similar event in which a simple citizen is concerned.

HIGH speeds in towns and villages are, I admit, inexcusable, but I see no reason whatever why speed should be limited on a perfectly open road. With the advance of automobilism no doubt new rules of the road will come into use, and, after having the

those who propose to set new legislation in movement to act with great care, lest in attempting to improve matters they make them much worse.

IN France a "contravention" costs one franc and expenses, about sixteen francs in all, and the police are now so used to automobiles that to get a "contravention" there must have been a serious breach of the law and a really dangerous speed in a populated area.

IN England, however, things are quite different, and if numbering is adopted it may become impossible for automobilists to traverse certain districts, where the authorities are prejudiced, for the police may then be given simple instructions to take the number of every automobilist who passes through the district, and all speeds will be considered dangerous. At present, at any rate, one is stopped and knows the worst, while if numbering is adopted one may go blissfully sailing on at a reasonable speed and get a crop of twenty summonses in as many miles. English motorists had better bear the ills they have, than fly to others that they know not of.

TALKING about the increasing production of motor-cars in France, I was invited last week to visit the new works, in the suburbs of Lyons, of the firm of Rochet, Schneider and Company. They have purchased a large piece of land and set up quite a

model works, exclusively designed for the manufacture of motor-cars. The works are small at present, but the plot of land is large, and it is intended gradually to extend until the whole of the land is covered. Messrs. Rochet, Schneider are preparing for next year a four-cylinder car of 16 to 22-h.p. and very much on the lines of the Mercedes—that is to say, with the inlet and exhaust valves mechanically governed, and with the “honey-comb” radiator. The city of Lyons is, as all those who have visited it will remember, most picturesquely situated on the Rhone and Saone, just above their junction. Half of Lyons is situated on a hill on the right bank of the river, and so steep is the hill that there are various cable railways leading to it. There are roads, too, but steep winding ones, where horse traffic can go with difficulty and only at a walking pace; even then it is a long journey up the hill, for the gradient is 17 per cent., and the road narrow, through squalid streets badly paved and with sharp twists and turns at every twenty yards. In fact, the conditions for a test of hill-climbing are the most difficult. M. Rochet took me up one of these hills on the second speed, and finished off by an experience of no ordinary character—that is to say, we climbed a hill with a gradient of one in four, ending in a sharp turn, and on the gradient we turned round and came down again, having to back and advance four times in the narrow space in order to get round. It required a combination

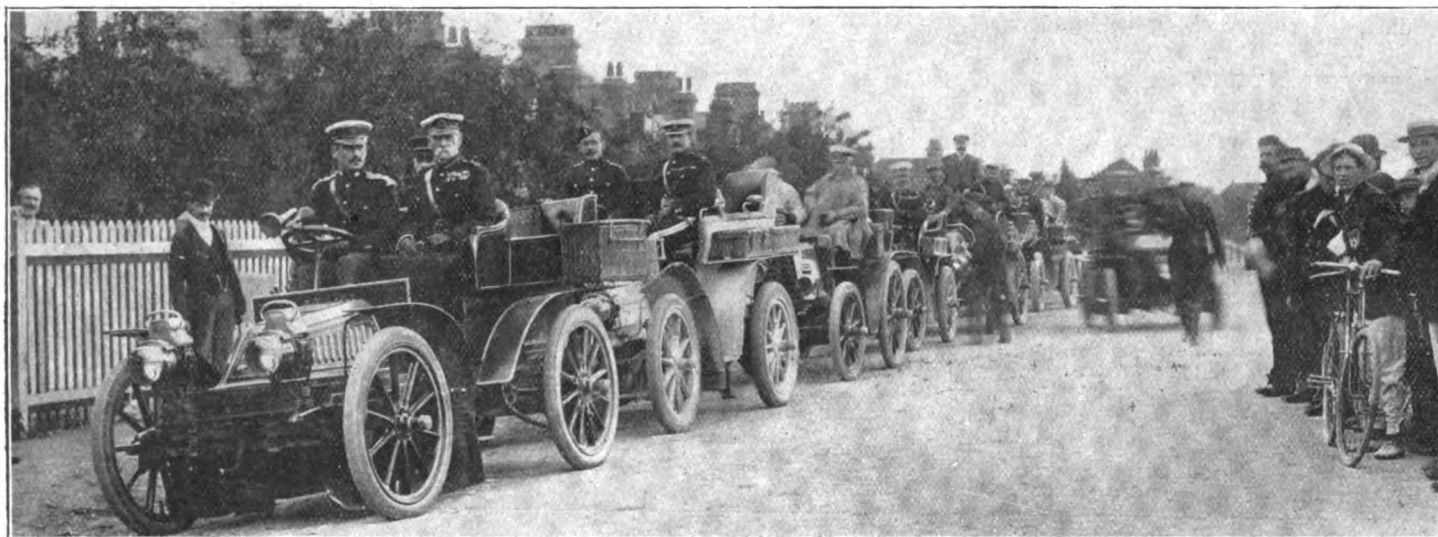
provincial mayors from making necessary local restrictions for automobiles, but at the same time the Government warns the mayors that should they exceed their powers the Commissioner of Police will intervene in support of motorists.

THE Vulcan Motor and Engineering Company, of Southport, are enlarging their works to cope with the increasing demand for their voiturettes.

MR. A. SPENCER, chief of the Public Control Department of the London County Council, states that raising the flash point of oil would have the immediate effect of keeping low flash oil out of the country, while it would in no way affect the importation of petroleum spirit.

AN investigation has been begun into the affairs of the Tripler Liquid Air Company, which went into bankruptcy last summer. The concern was to revolutionise the automobile business, and at the motor show held in New York, in 1900, it exhibited a runabout propelled by liquid air.

THE Automobile Club of America is continuing its good work in the way of furnishing sign-posts along public highways. Within the past few weeks a number of iron sign-posts have been placed in position between New York and Bridgeport at the principal intersections of highways *via* the Boston Post Road.



EARL ROBERTS AND GENERAL STAFF AT SHORNCLIFFE. (See last issue).

of hill-climbing and brake power not often met with, but then the Alps are quite near, and cars in this district must be perfect in these two matters, or else the risk of accident is too great.

A SNAPSHOT which appears in this issue shows a horse and a motor-car entangled in a most peculiar manner. It was at Deauville, whilst the races were proceeding on the promenade. All the side roads leading to it were blocked with vehicles, self-propelled and otherwise, and, seeing a crowd, I went to see what was going on, and found that a horse had in some unaccountable manner got his foot between the big chain pinion of a Panhard and the side of the car and could not get it out. It was caught at the fetlock joint. Just as I took my snapshot the poor brute, after frantic efforts, gave a lurch sideways which allowed its hoof to pass, and it got off with some nasty cuts round the fetlock.

THERE have been a number of complaints made to the Government in France by mayors of various districts, who say they have not power under the new law to prevent abuses of the roads by “chauffards,” which is the French for “scorchers,” and which must not be confounded with “chauffeurs.” The Government has replied that the new law is not intended to prevent the

AN automobile engineer to the New York Department Dock and Ferries has been appointed.

MR. D. CITROEN, agent for the Minerva bicycle motor, sends us a copy of an “open letter” he has addressed to the Ormonde Motor Company, from which we quote the following: “My absence from town on holiday accounts for the delay in replying to your communications to the Press and to your circular headed ‘A Correction and a Challenge.’ I stated the ‘Minerva’ won by eight points, which is the fact. The terms of the match were that each firm deposited 250 frcs. to abide by the result of the race. Out of this fund 400 frcs. were to be divided between the winning team and the balance was to be given to the losers. The four riders of the ‘Minerva’ have received the 400 frcs. as the winning team. . . . I repeat that the bore and stroke of the ‘Kelecom’ motors used in the match were considerably larger than those of the ‘Minerva.’ I am willing to believe that you were guided by the misstatements of your correspondents, the manufacturers of the ‘Kelecom,’ but you can now easily verify the facts as stated by me, and if you then take steps to remedy the wrong you have done me, I am quite willing to accept your challenge for another match between Kelecom and Minerva motors, provided they are of identical dimensions.”

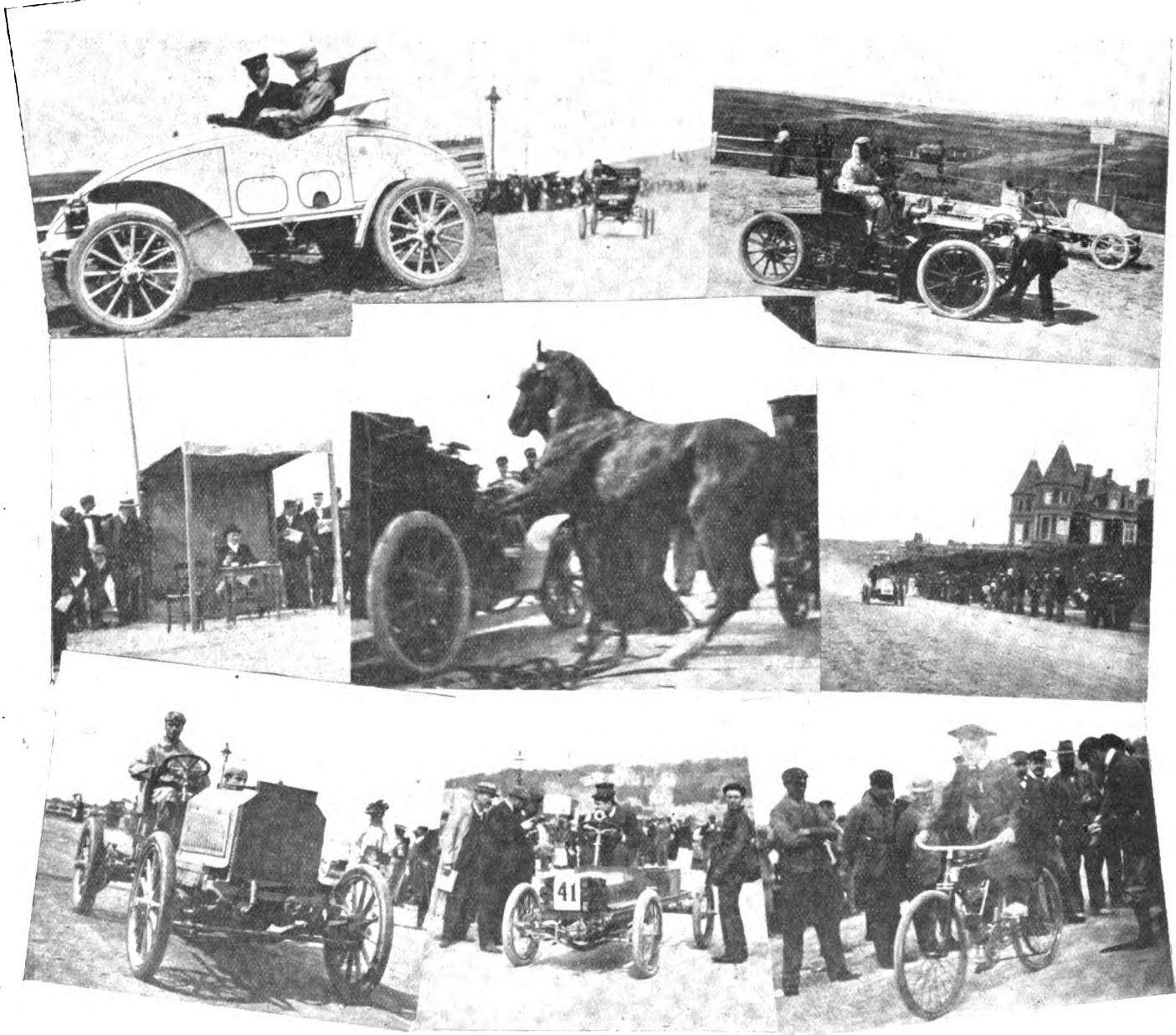
THE KILOMETRE TRIALS AT DEAUVILLE.

By "AUTOMAN."

(Concluded from page 516.)

DEAUVILLE is quite a small place, in fact, a suburb of fashionable Trouville, which was created by the Duke de Morny in the time of Napoleon III. It is separated from Trouville only by the narrow mouth of a little stream which forms a basin for fishing boats and yachts.

to try the course, and they took full advantage of the permission, some of them spending the whole morning in running up and down the kilometre. The track was measured off on the macadam promenade, which used to separate the villas from the sea front; the sea, however, has receded in recent years, and there are now a couple of hundred yards of sandhills between the promenade and the sea. The track is not quite straight, there being two slight bends, so that one cannot see from one end to the other. At noon there was a rush for lunch, and evidently the hotels were quite unprepared for the crowds of visitors, or for the appetites of the *chauffeurs*, for the disorganisation was such



M. AND MME. SERPOLLET ON "THE WHALE."
THE JUDGE'S BOX.
E. RENAUD ON PEUGEOT RACER.

THE LOCOMOBILE IN FULL FLIGHT.
EQUINE CURIOSITY.
ONE OF THE CLEMENT RACERS.

MADAME BOB WALTER ON VINOT-
DEGUINGAND CAR.
AUGIERES ON MORS RACER.
A LADY COMPETITOR.

THE DEAUVILLE TRIALS.

TSBHM

On the most moderate computation there were 250 motor cars circulating about the streets of Deauville on the morning of the competition, and considering that out of these over eighty were racers with little or no exhaust box, readers can imagine the "vacarme" produced—I can find no English word adequate to describe it.

From nine o'clock until noon the competitors were allowed

that at last, exasperated by waiting and shouting for the *garçons*, by mutual consent everyone started to forage for himself, and whilst one secured the bread another secured the cheese, and I was lucky enough to obtain a *biftec au pommes* which an unwary waiter had deposited for a moment, and Mr. and Mrs. Serpollet and myself disposed of it whilst the *garçon* was searching for it in vain.

At one o'clock, and before we had finished our coffee, the first bicycle passed the end of the Terrace. It was Derny on a Clément; and then they followed at two minutes intervals. The weather was fine but a haze covered the sun, and there were heavy and threatening thunder clouds all round.

At the start I found Rigal arguing about not being allowed to be pushed, for his bicycle had no means of starting otherwise, with its 8-h.p. motor, and the rules had not provided for the case, so that his record will not remain official.

Conspicuous amongst the cyclists was Madame Jolivet, dressed in bright red bloomers, blouse and hat. The Lamberjack bicycle, mounted by Demester, was a most curious machine with its enormous motor.

After seeing a good many cycles start I wandered up the course and found Gaudichard installed in a little pavilion with his chronometer on the table in front of him, and the telephone at his back to communicate to the finish the exact time at which each competitor passed over the chalk line which crossed the track in front of him.

As the voiturettes commenced to fly past, interest began to grow, until presently They rushed by on a Decauville, and it was evident to the spectators that his was the fastest of all the cars that had yet passed, and I noted how easily the human eye can detect a difference of a few seconds in the speed of the kilometre. A little further along I met Serpollet, full of hope, going to get up steam, and he left me his cyclo-stereo camera and asked me to snapshot him with it as he passed. Alas! I had to return him his camera later without the coveted negative.

Amongst the four-seated cars, Millot on his Peugeot heralds the first success in the racing field for the new manufacture of this firm. The *pièce de résistance* was, of course, the category for the cars weighing 1,000 kilos, and a Mors monster was the first to rush by like a veritable whirlwind. Le Blon on a Serpollet went by next like a flash, leaving a cloud of steam behind, beating hollow Serpollet's record at Nice; and now the excitement was at its height, for it was Serpollet's turn, and he was sure to beat all records.

Every eye was strained towards the start, and presently came the "white whale," but hardly had it rounded the bend when it swerved to the right, turned round and went back before it had crossed the starting line, and the telephone brought news of a false start, the steam pressure not being high enough.

A Mercedes came next, and then three Mors in quick succession, and Gabriel's wonderful time astonished everyone including M. Emile Mors, who freely admitted that he never expected such a record as 26 2-5 seconds for the kilometre—that is to say, at the rate of 84 miles and 1,196 yards per hour. Jarrott's turn passed by amidst general disappointment that he should not have come up to scratch, and Chauchard on a 70-h.p. car snatched the Panhard record from him by nearly two seconds. At length the telephone rung through the news that Serpollet was off again, and almost as the message came through, the "white whale" hove in sight coming on like lightning, a sure winner, as M. Mors, who saw it pass by, declared afterwards. There only remained 150 metres to be done, when a joint in the boiler gave out under the tremendous pressure of between 75 and 100 atmospheres—that is to say, between 1,000 and 1,500 lbs. per square inch, and the "white whale" came to a standstill, thus ending what has been a red letter day in the progress of automobilism. The records established will be hard to beat on account of the conditions under which they were made, for there was a ten-mile breeze astern, and this accounts for the wonderful speeds. Take for instance Le Blon, who had a car identical with Serpollet's "Easter Egg," and who beat Serpollet's Nice record by 12 kilometres per hour.

The sun was preparing to sink in the sea when the competition ended, and comparatively few cars started back to Paris until Wednesday morning, when I had my first experience of a long run on a steam car. Being invited to return with a friend on a 12-h.p., we started off on Wednesday morning. Oh, the beautiful roads of France—mile after mile, for nearly forty leagues, smooth, open, straight roads, on which we kept up a steady jaunt

of forty to forty-five miles per hour. What strikes one first about the steam car is, of course, the absence of noise and vibration, and the engine stopping when the car stops; undoubtedly steam has its advantages.

We landed in Paris of course in good time for lunch, having only had one stop to take in fresh water about half-way.

The following are the official results of the Deauville kilometre contest, which was an unprecedented success from all points of view, and which may be put down as a classic meeting to take place annually.

1ST CATEGORY: MOTOR-BICYCLES.

Series A (less than 30 kilos).

Drivers.	Machine.	Time. m. s.
1 Barré	Bruneau	0 49½
2 Derny	Clément	1 5½
2 Muller	Clément	1 5½

Series B (30 to 50 kilos).

1 Barré	Bruneau	0 43½
2 Lamberjack	Lamberjack-Demester...	0 44½
3 Labitte	Werner	0 47½

2ND CATEGORY: MOTOR-CYCLES (MAXIMUM 250 KILOS).

Series A (starting with assistance).

1 Rigal	Buohet, 8-h.p.	0 28½
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Series B (starting without assistance).

1 Osmont	Dion-Bouton, 8-h.p. tri...	0 33½
1 Demester	Demester-Lamberjack...	0 33½
3 Loste	Buohet	0 37½

3RD CATEGORY: VOITURETTES (250 TO 400 KILOS).

Series A (1 or 2 places occupied).

1 Rigal	Buohet	0 41
2 Volatum	Clément, 10-h.p.	0 42
3 Oury	Clément, 10-h.p.	0 42½

Series B (4 places occupied).

1 Houry	Clément	0 45½
2 De Clesles	Thellier-Passy	0 48½
3 Hemery	Darracq	0 49½

4TH CATEGORY: LIGHT CARS (MAXIMUM 650 KILOS).

Series A (2 places occupied).

1 They	Decauville	0 30½
2 Baras	Darracq	0 30½
3 Rutishauser	Serpollet, 12-h.p.	0 31½
4 Rigolly	Gobron-Brillie	0 32½

Series B (4 places occupied).

1 Millot	Peugeot, 16-h.p.	0 39½
2 Tart	Clément, 16-h.p.	0 40½
3 Ravenez	Decauville	0 41½

5TH CATEGORY: HEAVY CARS (MAXIMUM 1,000 KILOS).

Series A (2 places occupied).

1 Gabriel	Mors	0 26½
2 Chauchard	Panhard	0 26½
3 Le Blon	Serpollet	0 27½

Series B (4 places occupied).

1 Pannecake	Panhard-Levassor	0 28½
2 Charley	Mercedes, 40-h.p.	0 34½

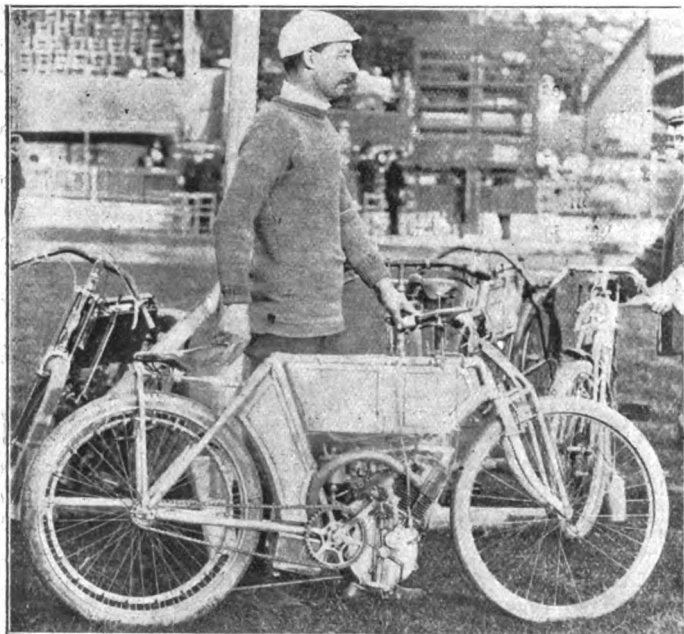
By employing one Vaughan and Brown's "Vanbee" motor delivery vans, Messrs. Toler Bros. were able, on Sunday last, to supply London papers in Brighton two and a-half hours earlier than would have been otherwise possible. The van carried 12 cwt. of newspapers.

As many gentlemen are away, and consequently unable to attend the meeting called for the 4th inst. in connection with the formation of a Sheffield and District Automobile Club, it has been postponed until Thursday, the 25th inst.

UNDER the name "Olol" the Long Acre Motor Car Co., Ltd., have lately placed on the market a special gear lubricant. They state that grease or black oil, which is at present almost universally used as a gear lubricant, proves unsatisfactory in actual use, as the gears fling grease on to the sides of the gear box or cut furrows into it, hence after the first few revolutions they run without lubrication, while black oil is too liquid and leaks out of the joints. "Olol" is claimed to have just sufficient consistency to cling to the gears, but does not leak out; it makes a skin of grease between the gears which practically eliminates wear and tear.

MOTOR-CYCLE RACES AT THE CRYSTAL PALACE.

LATE.—too late many of us thought—in the afternoon of Friday the 28th ult., the third annual series of motor-cycle races, under the auspices of the Automobile Club, took place on the track at the Crystal Palace. The attendance was the largest that has yet been recorded at these events, and what with the inspection of motor-vehicles standing quiescent in the temporary garage at the southern end of the Palace and the lively



J. VAN HOODYDONK AND HIS PHOENIX RACING MOTOR-BICYCLE.
[Photo by] [Russell.]

display of speedy motor-cycles that strained the eyes in the twilight the public had a good motor lesson.

Punctuality is a virtue that was exceeded last Friday, and the races which were announced for 5 p.m. commenced at 4.30 p.m. It would have been better still had the pistol been fired at 3 p.m., in which case the last lap would have been covered when the light was still good. As it was twilight came all too soon: for awhile the great glass roof shimmered with the glowing glory of the setting sun—and then stood out in duldest outline in a darkest sky. The lateness of the hour was, in fact, the one rift in the lute; otherwise all went well—the arrangements and the automobiles both giving evidence of thought and skill in their manipulation.

The first event was a one-hour scratch race open to any motor-cycles for the *Autocar* challenge cup, won last year by Mr. C. Jarrott, who then travelled 36 miles 798 yards in the hour on a 8-h.p. De Dion motor-tricycle. Twelve riders had been selected by the Committee to contest the event, and six others were held in reserve in the case of absentees. Curiously enough, the winner proved to be a reserve man, and the only other competitor who finished was also not of the original dozen. A good start was made, but some of the competitors dropped out early. Tessier's motor constantly misfired, and he soon gave up, as did Chase, Wade and E. T. Arnott. A loose handlebar troubled Jarrott, who left the track, shortly after to resume and then to give up ere the half hour had been reached. At the end of thirty minutes J. Van Hooydonk had covered 21 miles, being a lap ahead of E. H. Arnott, who was doing well on his Werner. At the end of the three-quarters of the hour Martin gave up after travelling 32 miles, and Hooydonk increased his lead, while Arnott and Parry struggled in grand style. Unfortunately, in getting round the bank the latter could not avoid pressing Arnott, who came on to the

grass, where he had a nasty fall. In addition to being severely shaken he was badly cut about the face; but with characteristic pluck rode again during the afternoon. Hooydonk completed 42 miles 290 yards in the hour—a record for the race and for the Phoenix, Arnott being placed second after the disqualification of Parry.

THE MOTOR-CAR JOURNAL Cup was the second trophy to be competed for, and this was run in five heats, thirty-two entries having been received for the five-mile handicap. The winner of each heat and the fastest loser were to compete in the final. The winners of their respectation heats were

	Cycle.	m.h.p.		Start.	Time.
				laps yds.	m. s.
T. E. Coles	Brown	1½	62 by 70	4 300	7 19½
E. Perks	Singer	2½	73 by 70	1 140	7 8
S. C. Holloway	Minerva	1½	62 by 70	4 300	6 28
G. Van Hooydonk	Phoenix	2½	75 by 75	0 440	6 58
F. R. Wade	Daw	1½	64 by 70	4 0	7 20½
A. S. Sidwell	Force	1½	60 by 70	4 0	—

The latter won his place in the final by reason of being the fastest loser. It will thus be seen that a different motor won each event, the final producing a very interesting contest, all wondering if J. Van Hooydonk, whose riding was one of the chief features of the meeting, would overtake the liberal start given to his competitors. In the end S. C. Holloway won, his time being 6min. 26 1-5sec., slightly better than that which entitled him to run in the final, F. R. Wade being second, and J. Van Hooydonk riding strongly into third place. Last year Jarrott won in 10min. 10 4-5sec., and in 1900 A. E. J. Steele in 11min. 2 2-5sec.

It was now growing late, the Mellin air-ship was let out for a few minutes and returned to its shed; and interest was languishing. No exciting finishes, such as enlivened the last motor-cycle meeting at Plymouth, had taken place, and the lap scorers particularly looked weary and sad. But with the third event a change took place. Combining the two heats into which the 10-mile handicap for the *Automotor's* challenge cup had been divided resulted in a large number—16 in all—facing the starter. More lap scorers were requisitioned, and as the first half-dozen riders rose up the bank to the right of the timekeepers interest revived. There was something that fired the nerves to see a score of motor-cycles rushing round at break-neck speed. Every minute the light weakened and the pace quickened. The riders looked mere specks at the further side of the course as they



E. H. ARNOTT ON THE WERNER.

travelled at a terrific pace. In fact we doubt if such a thrilling contest—made all the more so by the element of danger that existed—has been seen at the Palace. What would have happened had one of the riders slipped when going round the bend it is fearful to imagine. E. H. Arnott (2½-h.p. Werner), H. Martin (2½-h.p. Excelsior), A. E. J. Steele (Phebus Aster)

tricycle), J. J. Leonard (2½-h.p. Werner), E. Perks (2½-h.p. Singer), W. Parry (2½-h.p. Minerva), and J. Van Hooydonk (2½ h.p. Phoenix), travelled at a rattling pace, reeling off the laps at a rate of over forty miles an hour. The winner was the limit man, S. C. Holloway (1½-h.p. Minerva), who had a start of 14 laps 490 yards, or very nearly half distance. Time 9 min.



MR. S. C. HOLLOWAY, THE WINNER OF THE "MOTOR-CAR JOURNAL" CHALLENGE CUP.

36 sec. J. E. Ridout (2-h.p. Minerva) was second, and J. Van Hooydonk third. Thus ended a race meeting which should have begun at an earlier hour, a point which we hope due notice will be taken in 1903.

THE Motor Cycle Union of Ireland have decided to hold another hill-climbing competition on Saturday, the 13th inst.

WE notice that one of the ladies' papers is offering to supply patterns of costumes suitable for ladies when motoring.



THE "MOTOR-CAR JOURNAL" CHALLENGE CUP.

THE Marquis of Aylesbury has just purchased a 9-h.p. Darracq car from Mr. W. Lea, of the Motor-Car Depot, Liverpool.

MR. C. N. WILLIAMSON is about to ride through Corsica on a motor-car.

MR. PINE, of Townwall Street, Dover, has just had a run from that town to Land's End on a motor-bicycle built by himself, and fitted with a Minerva engine.

A NEW tyre is being introduced which, by a series of compartments in the inner tube, is expected to stop the rush of air which takes place at high speeds. The lining of each compartment has a small hole so that the tyre can be deflated in the ordinary way.

HERE AND THERE.

"EXPRESSIVE speed" was the term used by a witness at Lancaster Police Court to describe the pace of a motor-cyclist.

WE hear that Mr. A. Bonar Law, M.P., Parliamentary Secretary to the Board of Trade, has just ordered a 10-h.p. double-cylinder Argyll car.

THE Ivel agricultural motor has been the subject of some interesting experiments in Lincolnshire, being attached to reapers and binders, ploughs and cultivators, with equal success.

A DONATION of £20 has been made to the Smith Infirmary, Staten Island, by the Automobile Club of America, in recognition of the services rendered after the accident on May 21st last.

ONE of the largest motor horns we have seen is on view at the depot of Messrs. G. T. Riches and Company, 4, Gray's Inn Road, W.C. The sound it makes can be heard even above the roar of London traffic.

MR. G. H. COX, of Southsea, district agent for the Hozier Engineering Company, recently made the run from Glasgow to Southsea on an Argyll car in three and a half days, the distance being 530 miles.

MR. A. ARMITAGE, of Guildford, a member of the A.C.G.B.I., writes, recommending Mr. W. Manners, cycle agent, Filey, to any motorist touring along the east coast of Yorkshire, and in need of repairs or supplies.

THE Automotor Accessories Company have opened a depot at 23, Southampton Row, Holborn, W.C., for the sale of motor parts and accessories, more especially Timken roller bearings, Midgeley tubular steel wheels, Bell odometers, motor-tyres, etc.

AT a rural district council meeting in Lincolnshire a member has declared that no check on the speed of motorists was likely to be imposed by the County Council, for most of the Councillors were themselves owners of automobiles.

A MERRYWEATHER steam motor fire engine and some motor vehicles, supplied by the Road Carrying Company, Limited, have been on view at the Royal Lancashire Society's Agricultural Show, at Preston, this week. Motor lorries also figured in the Guild procession on Wednesday.

THE series of articles on "Ignition Devices for Automobiles," by S. R. Bottone, which have been running through the pages of the *English Mechanic*, will shortly be published in book form by Mr. Guilbert Pitman, with the addition of an introductory chapter treating specially on structural details, choice, and management of the motor-car.

AUTOMOBILE maps for London, Edinburgh, and Glasgow are being produced by Messrs. W. and A. K. Johnston in a very convenient and durable form. That for the Scottish capital also outlines fifteen good tours from Edinburgh and gives descriptions of the roads on the way. A special feature is the circular method of indicating the distance from place to place, while the strong and durable method of production should be appreciated by all who tour.

A NEW non-slipping pulley for use on motor-bicycles has lately been put on the market by Mr. O. C. Payne, of the Motor Works, Hartlepool. The pulley has a V-groove, into the sides of which a series of holes are drilled in such a position that the belt is squeezed somewhat into them in passing over the pulley. The pulley is made of cast steel, and the grip further assisted by moulding the V-groove instead of turning it, thus leaving the rough skin just as delivered from the sand. The liability of the fastener pulling through at the joints is claimed to be greatly reduced, and the life of the belt considerably extended. Another claim for the pulley is that it to some extent acts as a variable gear, as the greater the load on the motor the deeper the belt sinks into the groove, thus giving a lower gear ratio. The pulley is supplied to fit the standard Minerva engine spindle.

M. MAETERLINCK, the Belgian dramatist, is an enthusiastic motorist, his own car being a De Dion.

A MOTOR-CAR and cycle exhibition is to be held at Exeter from October 17th to 31st next.

THE Shah is reported to have ordered half a dozen motor-cars during the course of his visit to London.

TO-DAY (Saturday), the Irish Automobile Club will hold a run from Dublin to Bray.

AIX-LES-BAINS is reported to be "swarming" with motor-cars.

MOTOR-CARS were well to the fore in the London County Council bye-election in St. Pancras on Saturday.

H. MARTIN beat T. H. Tessier's motor-cycle grass record of 9 min. 59 sec. for five miles by covering that distance in 9 min. 54 1-5 sec. at Uxbridge on Wednesday last week.

WE learn that the War Office trials of motor tractors for military purposes, which were to be held next spring, have been postponed until October, 1903.

MRS. ARTHUR PEARSON, who is one of the most enthusiastic of our lady motorists, is about to become the possessor of a Clement car.

WE hear there is a toll over the bridge called the "Dog in the Doublet," on the road between Whittlesea and Crowland Abbey.

THE Swift Motor Company inform us that in order to keep pace with the demand for Swift voiturettes they have been obliged to increase the price to 175 guineas.

A CONCESSION has been granted for carrying the mails by motor-car between Quito, Ecuador, and the terminus of the railway constructed ninety miles inland from Guayaquil.

THE Earl of Dudley, the new Lord Lieutenant of Ireland, is a keen motorist—a fact which may be of interest to the members of the Irish Automobile Club.

MR. H. J. TURNER, of Braziers End, Bucks, reckons there are 3,000 motor cars in England, representing a value of £2,000,000. We fancy he is much below the mark.

DURING the twelve months ending with June last the value of the motor-cars and parts thereof exported from the United States amounted to £189,704.

THERE is some talk of organising a congress of American automobilists, with the view of promoting new and more favourable legislation with regard to motor-car traffic.

AT the last quarterly meeting of the Kesteven County Council, held at Grantham, the Council agreed to contribute £100 towards the freeing of the South Kyme Ferry Bridge from tolls.

THE Berlin correspondent of the *New York Herald* (Paris edition) says:—"At the coming congress of German jurists the question of damage suits brought by victims of motor-car accidents will be discussed, and a Bill formulated protecting the public against reckless driving by automobilists on the highways."

TO the end of July last, the value of the motor-cars and parts exported from Belgium had this year amounted to £34,734, as compared with only £21,826 in the corresponding period of last year. There has also been an increase in the imports of foreign motor-cars and parts into Belgium—from £19,254 in the first seven months of 1901 to £23,221 in the seven months ending with July last.

AN inquest has been held at Preston Infirmary on the body of a schoolboy named Mace. The other afternoon a motor-car was out for a trial spin. A number of boys began swinging on the back, with the result that Mace's legs were caught between the spring and the spokes of the wheel. The wheel had to be removed before he could be extricated. The jury returned a verdict of accidental death.

SIR EDMUND MONSON writes to the *Times*—as he did a year ago—protesting against the reckless pace indulged in by some motorists.

THE subject of granting driving certificates by the A.C.G.B.I. to qualified drivers of motor-vehicles is to be referred to a special committee to be appointed in October.

THANKS to the help of a passing motorist the police have been able to arrest a young man wanted at Maidenhead, on a charge of stealing a pony and trap.

MESSRS. THOMAS HAIGH AND Co., of 52, West Street, Sheffield, who have been appointed official repairers to the A.C.G.B.I., are keeping a stock of motor accessories, petrol, etc.

ALTHOUGH the owner of a motor-car, resident in Ireland, does not have to pay a licence duty, such tax is immediately incurred should he bring it to England for a few days.

A NEW combination tool to facilitate the removal of the outer covers of pneumatic tyres has just been put on the market by Mr. Eyquem, of 191, Boulevard Pereire, Paris. As will be seen from the illustrations, it takes somewhat the form of a pair of pincers, the end of one of the arms being adapted to fix itself against the rim. To remove the cover, to repair a puncture,

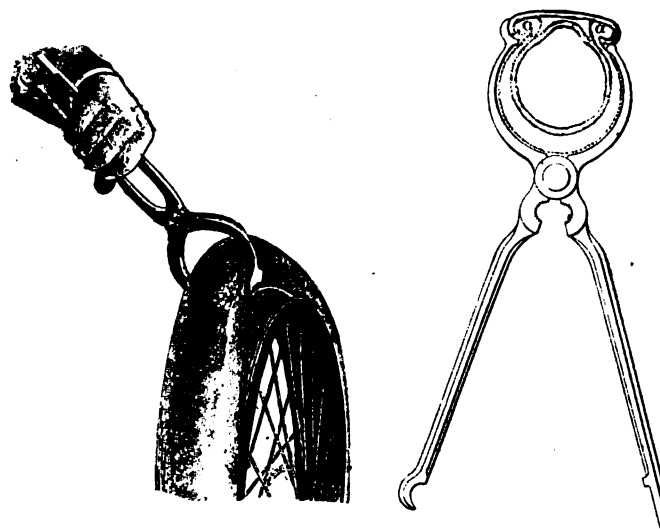


FIG. 1.

FIG. 2.

the tool is fixed as shown in Fig. 2; a slight squeezing pressure on the ends quickly detaches the thickened edge *a* from its recess in the rim. By repeating this operation at different points, the whole of the edge is soon released. The handle end of the tool, which is formed to act as a tyre lever, is then used to lift the thickened edge of the cover over the rim.

AROUND Tunbridge Wells is a variety of charming scenery, a guide to which has just been published by Messrs. Goulden and Curry, of that town. This is supplemented with an excellent road map of that district—to say nothing of several illustrations of real merit. Tunbridge Wells, Penshurst, Tonbridge, Crowborough, Southborough, Lamberhurst have historical associations as well as picturesque locations, and in the third edition of the guide their main features are interestingly described.

A MOTOR-CAR belonging to Mr. A. S. Marriott, architect, Dewsbury, has been destroyed under singular circumstances. He had been to a house at Savile Town, and on leaving was accompanied by Mr. Crowther. They had crossed Thornhill Road into South Street, when the "sprag" fell to the ground, and on alighting Mr. Marriott discovered that the flexible cord, which had held the "sprag" in position, had burned through, and that the car itself was on fire. Mr. Crowther at once jumped out, and some one near procured a bucket of water and before he could be prevented threw it on the machine. The result was that an explosion occurred, and in a few seconds the whole car was ablaze.

A PARTY of Americans now in England is said to be contemplating a motor-car tour through Persia.

WE understand that the directors of Humber, Limited, have made arrangements for transferring their motor department from Coventry to Beeston, Notts.

ONE of the motor lawn-mowers introduced by Messrs. Ransomes, Sims, and Jeffries, at this year's Exhibition at the Agricultural Hall, Islington, is now in use at Kew Gardens.

THE Eastbourne Town Council, having obtained the necessary Parliamentary powers to provide a motor-omnibus service, is now collecting information with regard to the most suitable types of vehicles.

SEVERAL electric motor-cars have been ordered from the Electric Vehicle Company, of Hartford, Conn., by the New York Edison Company, for the use of the superintendents of the various illuminating and power stations in New York and Brooklyn.

THE Betterment of London Association is about to issue a series of "Occasional Papers." One will deal with licensing motor-car drivers. We should have thought that the crawling of hansom and other cabs would have been more in keeping with its object as indicated in the title.

THE expert employees at the Garrard works and those of Messrs. Clement each think they can get more out of their 21lb. touring bicycle motors than the other, so a series of private matches are being arranged to be run off—one part in France and the other *revanche* in England.

A TELEGRAM from Tangier states that the Sultan of Morocco has had a narrow escape while motoring near Fez. The driver of the car lost control of it, and the machine turned sideways and dashed into a stone wall. Fortunately it was not going at a fast pace, but His Majesty was badly shaken.

AT the meeting of the British Institute of Health at Exeter, Mr. H. Tozer, vice-chairman of the Westminster committee for housing the working classes, said that a cheap and efficient system of locomotion offered the most immediate, though not complete, solution of the housing problem.

MESSRS. LEDBETTER AND VENNING, who have been for several years with the Locomobile Company of America, have commenced business at 55, College Street, South Kensington, as the Steam Car Industries Company. They have a well-equipped *garage*, and undertake repairs of all kinds, making a speciality of light steam cars.

MR. E. M. C. INSTONE, the manager of the Daimler Company's works, is convinced that were every would-be automobilist required to pass a practical examination in the management of his car, the number of accidents—small as it is at present—would be materially reduced, and the public would feel a greater sense of security.

MR. CHARLES D. SHAIN, 11, Broadway, New York, has sent us a sample of an "auto wire terminal" which he has lately placed on the market. It is a copper stamping to which the ends of the ignition wires are to be soldered. By its use the annoyances caused by loose wires and poor connections are claimed to be obviated.

GASOLINE, the American equivalent of petroleum spirit, is steadily advancing in price in the United States. In 1899 gasoline suitable for internal combustion engines was sold at 3½d. per gallon, while now the retail price is 9d. to 10d.—an increase in four years of nearly 200 per cent. The chief cause for this enormous rise in price is said to be the great increase in the demand for the fuel, both for automobile and domestic purposes.

ON Tuesday last week Mr. E. H. Arnott drove his 2½-h.p. Werner motor-bicycle for six hours on the Crystal Palace track, during which time, inclusive of all stoppages, 212 miles 550 yards were covered. An analysis of the intermediate figures shows that the fastest running for fifty consecutive miles was 1h. 14m. 49s., but a brief halt prevented the 100 miles being completed at 40 miles an hour, the best century being 2h. 34m. 50s. On the whole run the fastest ten miles were at the completion of 200 miles, and occupied 14m. 19 4-5s.

THE fact is not generally known that the Werner carburettor is protected by patent.

THE Chief Constable of Bristol has promised to give attention to speedy motorists passing through that city.

AN automobile meeting is arranged to take place at Brescia, Italy, on the 7th and 8th inst. There are to be speed races for different distances, and an international endurance competition.

A MOTOR-LAWN mower was recently tried in the grounds at the Capitol, Washington, U.S.A. The grass was clipped in about one-third the time occupied by a horse-drawn mower.

THE U.S. Army authorities have, it is reported, abandoned the experiments with war balloons, and have commenced experimenting with aeroplanes for use in war.

MR. C. H. WORDINGHAM, M. Inst. C.E., of Manchester, is inviting tenders on behalf of a public institution for an electrically propelled brougham and omnibus.

A TOUR in motor-cars around the country was recently undertaken by a number of automobilists of Buenos Ayres, Argentine Republic.

LORD BERWICK is making a long tour through France on his motor-car, visiting Blois, Chambord, and several of the other chateaux for which the Touraine district is famous.

THE Vicar of Plumpton, Cumberland, does not regard automobiles in a friendly way. He hints at the formation of a boys' brigade trained with catapults to shoot to a hair's breadth would effectually deal with his pet aversion.

ON Saturday, W. Parry on a Minerva motor-bicycle paced J. D. Daymond in the Anerley Club's one-hundred miles handicap at the Crystal Palace, when the latter won in 3 hrs. 34 mins. 44 2-5 secs. The Minerva piloted him throughout the race without a stop.

MR. ROBERT B. HOLMES, a member of the New York Stock Exchange, has just finished an automobile trip through the United States of 1,700 miles. On his entire journey he did not meet with the slightest accident, which, considering the state of the roads in America, is a remarkable record.

OWNERS of steam vehicles in Minneapolis, Minn., U.S.A., have been notified by the State boiler inspector for that district that every steam vehicle must be submitted for inspection, at a cost of 25s., every year, in accordance with the boiler inspection law of the State.

THE North-Eastern Railway Company is about to experiment with petrol motors with a view to competing with the electric tram services in the Newcastle district. Two 50-h.p. Napier engines have been ordered, which will be built into self-contained coaches accommodating about thirty passengers. It is expected that better results will be obtained by a system of separate automobile carriages than by trains of carriages on the local lines.

DR. CROSSLEY, of Burnley, recently journeyed in a day from that town to Edinburgh on his Singer motor-tricycle, arriving there after a most enjoyable run. He got over Shap Fell in grand style, only having to assist the machine for a short time near the top. On the following afternoon Dr. Crossley went from Edinburgh to Longtown. The rain came down in torrents, in fact it was so bad that in several places the stream had flooded the road, the small arches of the bridge being unable to carry through the quantity of water. For ten hours the machine plugged along without so much as a mis-fire.

THE "Ideal" is the name of a new motor-bicycle which has just been put on the market by Mr. W. Bravery, of Upper Grosvenor Road, Tunbridge Wells. The frame is of special design, rigid, and strongly built to stand vibration and the strain of the motor, which is of 2-h.p., with Simms-Bosch magneto ignition and timing lever. The engine is mounted vertically in the frame, forward of the bottom bracket. A special form of corrugated non-slipping pulley is fitted, while the large pulley belt is well stayed to the rim of the rear wheel. Automatic lubrication and petrol capacity for 200 miles are provided.

CORRESPONDENCE.

MECHANICALLY-OPERATED INLET VALVES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice that your Continental correspondent in a recent issue refers to the tendency among German and French motor-car builders to adopt mechanically-operated inlet valves. Up to the present automatic valves, operated by the suction stroke of the motor, have been almost exclusively used, and when well constructed they seem to operate very satisfactorily. They may be (and generally are) completely enclosed, and produce a minimum of noise. The number of conspicuous operating parts is reduced, and the motor presents an appearance of greater simplicity than when the exhaust valve springs, push rods, cams, and (possibly) cam gears are duplicated. And what is more, there is, I venture to submit, an actual gain in simplicity.

In my opinion the possible advantages of mechanical operation of the inlet valves are few. Greater accuracy in the time of opening and closing may possibly be secured. It is conceivable that large valves of motors with high piston speed are too sluggish in closing, and that on this account a certain amount of power is lost. The lifting power depends upon the area of the valve head, and varies, therefore, as the square of the valve diameter. The tension of the spring must be made proportional to this lifting power. The weight of the valve, on the other hand, increases faster than the square of the diameter, as the valve head must be increased in thickness at the same time that its diameter is enlarged. Hence the weight of a valve is a higher function of the valve diameter than the spring power should be, and a large valve is, therefore, sluggish in closing. Another defect of automatic inlet valves which might be remedied, at least partially, by mechanical operation, is their liability to gum and stick in their seats. With the greater operating force of mechanical operation the valves, if gummed, would no doubt be dislodged in general, but cases occur where the valves become exceedingly tight in their seats, and then breakages might occur. Mechanical operation has its advantages and drawbacks. I doubt that the former are equal to the latter in a motor of moderate piston speed. I should be glad to hear the opinions of other motor experts on the subject.

—Yours faithfully,

ENGINEER.

DE DION TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—“Doctor of Medicine” with his De Dion sparking troubles has my sincere sympathies. I can quite endorse Mr. Ward’s letter in the last issue of the *Journal* respecting the doctor’s troubles resting with his spark. I have now my second car with De Dion ignition, and owing to the niceties of adjustment, troubles also from oil splash, and working loose of platinum contact, I have taken the advice given, I think, in your correspondence columns some little time back to a correspondent suffering from pitting of platinum contact, and have had fitted to my 8-h.p. De Dion engine the best trembler coil I could obtain, and work in conjunction with it an advance sparking apparatus, consisting of a fibre wheel with earthed metal contact as used on Panhard cars. I have had the trembler coil (which is fitted with a Carpentier trembler) and accumulators placed in a neat box on the dashboard, so that I am able to reduce wiring to a minimum. I ought to add that I find the De Dion engine is not quite so elastic in its action, but I do not mind that as I have now an absolute reliable spark, which, although the commutator is frequently smothered in oil, is not affected by same, and when running either very slow or fast sparks perfectly.—Yours truly,

CHUCK.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I see a correspondent speaks of turning the starting handle of his motor-car for twenty minutes at a stretch, and then being relieved by his driver. I myself know well what a lot of “coffee-grinding” a De Dion motor may sometimes require, but I have not carried the process to such a length as this. The main fault seemed to be in the carburettor rather than in the sparking arrangements, and it might remove your correspondent’s difficulties to substitute a Longuemare for the De Dion. The latter firm have brought out five or six patterns, of which the best seems to be the one used by the makers of the “Progress” cars. I, however, prefer the Longuemare on the whole. There is a handy little guide book published by De Dion containing useful hints on managing their cars, which your correspondent should get, if he has not already done so.

I conclude he knows how to adjust this contact breaker, and that he has satisfied himself that this sparking plug is perfect, and his battery not run down. Opening the compression tap for awhile is sometimes a great help to inducing the motor to start. One or two turns at the handle ought to start the motor, when in proper order, with the contact-breaker nicely adjusted, but all motors are tricky at times.—Yours truly,

T. B. H.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Kindly allow me to thank those correspondents who have so promptly replied to my letter. It may perhaps interest them to know that after tracing the wires through their whole circuit, and testing them at different points, I found the trouble was in the high-pressure circuit,

at the outlet of the coil leading to the sparking plug. The screw nut of the contact within the vulcanite case had by some means or other worked loose, and the terminal wires were nearly all fractured, the ends falling to the ground when touched. However, after rectifying this, although firing took place, I found there was not sufficient voltage to get a regular spark when travelling, which produced an intermittent and jerky working, which was very unpleasant. The battery (not the dry one sent out with the car) had only two pairs of two-volt cells, one pair in use and the other in reserve. Acting on the advice of one of your correspondents, Mr. Guest, and the local engineer I usually employ for repairs, I connected the whole of the four cells, which gave me eight volts, since which I have had no further trouble. I am now convinced that Mr. Guest is right, and that four volts is not sufficient to get a satisfactory spark for a 4½-h.p. car. The two-volt cells cannot be charged higher to be of any use.—Yours truly,

DOCTOR OF MEDICINE.

FROM MANCHESTER TO EDINBURGH.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The following may be of some interest to you and your numerous readers. Some time ago I bought an 8-h.p. twin-cylinder motor-wagonette, to carry six, from Messrs. Horsfall and Bickham, of Pendleton, Manchester. I took delivery of the car at their works, and ran it, with four passengers and luggage, from Pendleton to Edinburgh without a hitch of any kind. We left Pendleton at 4 p.m. on Friday, July 18th, and arrived at Lancaster (County Hotel) at 8.50 p.m., having lost one hour at Adlington owing to a puncture.

We left Lancaster on Saturday morning at 8.15, ran over Shap Fell, and arrived at Penrith at 12.55. Here we lunched, and restarted at 2.15, reaching Hawick at 6.10 p.m. Here a stop was made until 7.7 p.m., Edinburgh being safely reached at 11.40 p.m., the last 25 miles being through heavy rain and pitch darkness.

The car behaved perfectly all the way, and neither a pin nor a nut stirred. The distance run was 212½ miles, and the petrol used 7 gallons, which, at 1s. 3d. per gallon, is just under ½d. per mile. I am perfectly satisfied with the car in every way. Since arriving in Edinburgh I have driven it to Skelmorlie, Oban, etc., and have had no trouble whatever.—Yours truly,

WM. STEWART KENNEDY.

THE A.C.G.B.I. MOTOR-CYCLE RACES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As two spectators of the Automobile Club’s Motor-cycle Meeting on Friday last week, we should like to know why the winner of the 10 miles handicap was allotted the prodigious start of 14 laps 490 yards. This is practically half the race, and in order that, say, Jarrott (who was 500 yards) might have won, he would have been obliged to travel quite sixty miles per hour. Such a handicap as this destroys all chance of a sporting finish to the race. We think the fact that a 45-mile bat is about the highest possible speed on the Palace track should be taken into consideration when drawing up the handicaps.—Yours truly,

W. T. LITTLE AND E. HARRALD.

PROPOSED CAR-NUMBERING LEGISLATION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As a reader who hopes some day to have a car of his own, I send the following extract from a letter in one of our Edinburgh papers, which will be of interest in view of the letter of Mr. James Burns, in your last week’s issue. It is from Mr. John Love, of Kirkcaldy, who says:—“As a pioneer of the industry in the East of Scotland, and giving place to no one in my enthusiasm for automobilism, I never wish to see such a bill as the Montagu Bill passed into law. If it could be passed, nothing would be more detrimental to the motor industry in this country. It is right that the speed limit should be increased. While we have been going too slow, the French have been going too quick. Laws have been made in France limiting the speed, and if we in this country can have a speed limit of twenty-four to thirty miles per hour in the country, in my opinion it ought to satisfy any sensible being. In the matter of speed the King shows a good example. His latest car is geared to twenty-four miles an hour, and for all practical purposes, pleasure, and comfort, no one using the King’s highway should want more. It will not be the foreigner or foreign competition that will injure the motor industry of this country, but our own countrymen who like playing at the game of scorching, and I am sure all sensible automobilists pray to be saved from such friends. The Montagu Bill is a most impracticable Bill, and I shouldn’t think it is ever likely to be converted into law.”—Yours truly,

SCOT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am very glad to see that there is an agitation against the proposed numbering of motor-cars. I think that the speed limit is by no means an unmixt evil if it has the effect of forcing the makers to push the trade in cheaper moderate-paced cars. Why should the silly practice of pushing the sale of flyers be so much in favour at a time when it does so much harm to the motor movement? I think that if

motorists could make up their minds *never* to go fast when there is traffic about, in villages, or on winding roads, the speed limit would soon be abolished or become a dead letter. Let the makers cater for a large class of users of moderate-paced and moderate-priced cars, and we shall soon be on friendly terms with those who administer the law, as motorists will then be sufficiently numerous to have a strong influence in our country.—Yours faithfully,

CECIL JACKSON.

STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Your correspondent "H. C. V." is quite right; I *do* think a steam car is a source of eternal worry. I know of two or three steam cars of the light American type which have been given up by their owners, as the cars spent most of their time under repair, although carefully driven and well looked after. Concerning "H. C. V.'s" remarks upon the steam pressure, no doubt so long as there is water in the boiler, pressure will be kept up, but what pressure? Probably about 50lbs. Surely the whole art of steam car driving, as in locomotives, is the keeping up of full-running pressure. If "H. C. V." drives, as he seems to infer that he does, without looking at either steam or water gauge, I should imagine he would get stuck on every hill he came across, and that he would scorch his boiler pretty often.—Yours truly,

J. SHEARMAN.

MOTOR-CAR ACCIDENT (?)

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The *Western Daily Press* had the following:—"An accident took place at Edithmead, near Burnham, to a furniture van, belonging to Messrs. Davey, of Clifton. A passing motor-car at Edithmead Bridge alarmed the horses, which became quite beyond control, and the driver of the van was thrown beneath the wheels of the conveyance. Messrs. Hemby and Parish, who chanced to be near, at once aided the injured man."

A friend of mine met Mr. Parish after the accident, and heard the true facts of the case from him. It seems that the van was ascending the hill with a man sitting on either side of the shafts, the horses being harnessed tandem fashion. A train passing under the bridge frightened the leading horse, and owing, I should suppose, mostly to the positions of the two men in charge of them, the horses turned round in the narrow road and bolted down the hill. If horses are to be driven (?) in this way, we shall soon hear of more broken legs, etc. It is certainly very unfair to make the motor-car a sort of public scapegoat, and in this case there was not a motor even in sight, and this fact ought, I think, to be made public. Perhaps you will see your way to publish it in your valuable paper.—Yours truly,

A MEMBER OF THE A.C.G.B.I.

NO LIGHTS.

D. TEBBIT, of Russell Square, London, was summoned at Hove for having the care of a certain motor-car, and not carrying attached to the said car a white light visible within a reasonable distance in the direction which he intended to proceed and exhibit a red light so visible in the reverse direction, in The Drive, Hove, at 1 a.m. on August 9th. Defendant was fined £2 and costs.

FOR driving a motor-car after the light had gone out Mr. G. Pyle, of Penarth, has been fined at Newport (Mon.).

FURIOUS DRIVING CASES.

At the Dingwall Sheriff Court, recently, the driver of a motor car was charged with furious driving. The driver of the Strathpeffer train was called to give evidence. He declared that the car was going faster than his engine, and although he tried to gain upon it he failed. Other indignant witnesses protested that the automobile was travelling more rapidly than the train in which they were conveyed. This was sufficient for the Sheriff. A heavy fine alone would purge an offence so great; and one of £5 was accordingly imposed. What would happen if a motor-car were found speeding along at a greater rate than a train on one of our southern lines?

In the case at Chelmsford against Edgar Fraser, of Blackheath, Police-sergeant Willmer said that he and Police-sergeant Peters, at Widford, compared watches across the telephone, and so timed the car.

At the Huntingdon Petty Sessions, Mr. Owers was charged with driving a motor-car along the North road at a greater speed than twelve miles an hour. He pleaded guilty.—Sergeant Storey said he was at Brampton and saw the defendant travelling in a motor-car, and he went 1584 yards in 1min. 53secs., which was at the rate of 28½ miles an hour. Defendant admitted the offence, and said as it was a straight, clear road, he was indulging in a speed run. Fined £5 and costs 9s.

At the Bradford West Riding Police Court, Mr. C. J. Spencer, general manager of the Bradford City Tramways, has been summoned, on remand, for driving a motor-car at a greater speed than twelve miles an hour. Mr. F. D. Wardle, Deputy Town Clerk of Bradford, who appeared for the defendant, asked that the case might be adjourned for

a fortnight, to allow of the attendance of two witnesses who were now in London. The hearing of the case was adjourned to September 10th.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Saffron Walden	C. Watts, Richling	26 m. p. h.	£5 and costs.
Dover	W. Haines	20 m. p. h.	£2 including costs.
Harrogate	J. Fielden, Guildford	Above legal limit.	£2 and costs.
Chelmsford	E. Fraser, Blackheath	" "	£5 and costs.
Doncaster	P. Fairhurst, Mold	" "	20s. and costs.
Bournemouth ...	G. H. Cox, Southsea	" "	£5 and costs.
Huntingdon ...	E. Owers, West Hampstead	" "	£5 and costs.
Loughborough	F. Kinchen, Earlsdon, near Coventry	" "	£5 including costs.
Bradford	C. J. Spencer, Bradford	" "	Adjourned
Woking	S. Dobson, Ealing	" "	40s.
Chertsey	J. Ediss, Addlestone	17 m. p. h.	30s.
"	G. H. DuCros, Regent's Park, N.W.	Above legal limit.	£3.
Yarmouth	B. Miller, Yarmouth	" "	£1 including costs.
Keighley ...	F. Holgate, Lightcliffe	Above legal limit	20s. and £1 2s. 6d. costs.

MOTOR-CYCLE RACING.

QUITE 15,000 spectators assembled at the Canning Town track on Saturday last, on the occasion of the second meeting organised this season by the West Ham United Football Club. One of the events was a five miles motor-bicycle race between H. Martin and J. Van Hooydonk, Martin conceded 30 seconds start to his opponent. Hooydonk was caught at the end of two miles, but he managed to again get in front and finally won by a length in 8min. 3sec.

H. Martin won a two miles scratch motor-cycle race by 200 yards from Hooydonk, in 3min. 5sec., Rigal retiring.

In an attempt to break the ten miles motor-bicycle record, Rigal set up the following flying start records: One mile, 1min. 25-2-5sec. Two miles, 2min. 36 2-5sec. Three miles, 3min. 46 4-5sec. After going another lap the driving belt of his machine broke.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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COMMENTS.



THE whirr and rattle of two dozen automobiles filled the air at Headingley on Saturday last when the grounds of Castle Grove were invaded by motor-cars. Mr. H. R. Kirk had invited the members of the Yorkshire Automobile Club to a garden party; and the affair, the first of its kind, was a great success. Amongst the cars in the gardens were Mr. F. J. Borland's De Dion, Mr. W. Wharam's Renault, Mr. Steele's Benz, Mr. W. Jessop's M.M.C., Mr. F. Beevers' M.M.C., Mr. Martin's De Dion, Mr. Knowles' Renault, Mr. H. Routh's De Dion, Mr. E. H. Hepper's Belsize, Mr. Edwin Boyd's M.M.C., Mr. B. Mason's motor-bicycle, Mr. Benbrough's tricycle, Mr. H. R. Kirk's Panhard, Mr. W. Bolton's Gladiator, Mr. W. Jackson's Daimler, Mr. Dawson's De Dion, Mr. R. Winn's Peugeot, Mr. W. Booth's Renault, Mr. T. Whitaker's Lanchester, Mr. W. Burrow's De Dion, Mr. L. von Halle's De Dion, Mr. King's Century, Mr. G. Firth's quad, and Mr. A. W. Dougill's Loidis. An excellent string band discoursed music on the lawn, and a party of glee singers added to the pleasure of this part of the programme, the scene being a most delightful one. Altogether there were nearly a hundred guests present. In the evening there was a hill-climbing contest in the grounds. Mr. Kirk had kindly given prizes of a pair of silver candlesticks, a silver cigarette case, and a silver blotter for each of three classes, and the results were as follows:—For cars up to 4½-h.p., Mr. Borland's 4½-h.p. De Dion; cars up to 8-h.p., Mr. Routh's De Dion; cars 9-h.p. and upwards, Mr. T. Whitaker's 10-h.p. Lanchester. A vote of thanks to the host was subsequently carried, on the proposition of Mr. E. H. Hepper, and Mr. John and Mr. Reggie Kirk responded. It is hoped that this garden party may prove but the first of a succession of other similar functions for automobilists in various parts of Yorkshire.

Motor Lorries for the Army.

THE report on the trials of self-propelled lorries for military purposes, held in the Aldershot district last December, has just been issued. The Committee observe that the trials show that steam lorries are good and serviceable machines for present supply, but they point out the great possibilities of internal combustion lorries burning heavy oil. Compared with horse-draught, these trials have shown that self-propelled lorries can transport five tons of stores at about six miles an hour over very considerable distances on hilly, average English roads under winter conditions. The load transported by each single lorry (five tons), if carried in horse-wagons of service pattern, would overload three G.S. wagons, requiring twelve draught horses, besides riding horses, whose pace would not ordinarily exceed three miles an hour. Moreover, the marching of 197 miles in six consecutive days over hilly roads would not have been accomplished by horses even at that speed without the assistance of spare horses. On the whole, the Committee consider that a lorry drawing a single

wagon, while having the disadvantages accruing from the use of a trailer, does not obtain, owing to there being only one of these vehicles, the full advantages which should belong to the system, and they consider that for handy and rapid work of distribution among troops and near the front of an army a lorry without trailer is preferable. At the same time they consider that for the heavier work of moving stores in large quantities to the depots a powerful tractor, drawing a train of wagons behind it, will be found most suitable.

What is Wanted.

As a result of the trials the Committee recommend that they be empowered to take steps to obtain for trial a lorry or lorries on the following lines: To carry three tons, driven by an internal combustion engine burning heavy oil only; weight as light as consistent with due adhesion; wheels large and broad, and fitted with a means for rapidly applying numerous "spuds" for use on boggy ground. Speed up to eight miles an hour; large platform area. In conclusion, the Committee call special attention to the demonstration afforded by these trials of the entire harmlessness to roads of vehicles considerably exceeding in weight and road-speed the limits allowed by the present regulations on the subject, and also fitted with wheels to which road strips have been fixed, so long as these wheels are of large diameter and have tyres of considerable width. It has now been proved that the existing regulations are unnecessarily restrictive, whilst they stand in the way of the development of a most important method of transport and branch of industry. The Committee strongly recommend that this matter be brought to the notice of the proper authorities, feeling confident that the removal of these restrictions will tend to assimilate the commercial and military types of vehicles, and it is not only important, therefore, from a service point of view, but also will have a most beneficial effect on the manufacturing industries of the country and its commercial development generally.

The Removal of Restrictions.

THIS latter point is particularly gratifying to those who have urged for some years that the present restrictions with regard to heavy motor-vehicles should be removed. Hitherto the suggestion has been made in the interests of commerce and trade; but now there is the added weight of the Army authorities, who consider the matter from the point of view of national defence. Surely this should be considered by our legislators.

Accident to Mr. Rolls.

SATURDAY'S evening papers had sensational placards announcing "Motor smash—Hon. C. S. Rolls injured." Within a few hours the victim himself was reading the results, up-to-date, of the Reliability Trials at the Crystal Palace. The matter has been so greatly exaggerated that a plain, unvarnished account of the mishap sounds very tame in comparison with the earliest accounts that were freely circulated. What really occurred was that whilst driving very slowly amongst a lot of traffic in the evening of Thursday week near Barnet, a fast-trotting

horse and trap bore down upon him at full speed on its wrong side and without lights. Mr. Rolls put his car as far as possible to the left and almost stopped, but could not avoid the horse vehicle, which drove right on to the car. The horse and its driver were bruised, and a boy in the cart was temporarily stunned, but no one else was hurt at all, and although the impact caused him a slight shock at the time, Mr. Rolls was at business again next morning as usual, and the car was running within twenty-four hours of the occurrence, the engine and mechanism not having been affected in the least. A number of telegrams of sympathy have been received by Mr. Rolls from all parts of the country, some of which were addressed to the "Nurse in Charge," and when motoring to the Crystal Palace on Saturday he was met by many astonished friends who thought he was in hospital.

Furious Driving.

So many roads are now under the supervision of the police with regard to the speed of motorists, that we have decided to place most of our references to the subject in small type in future—otherwise it will be impossible for us to keep our readers fully informed of the animus exhibited by magistrates. We shall always be glad to make known the roads that are particularly dangerous for motorists—owing to the activity of the police—and prompt information on that point will be welcome to the growing army of motorists. Judging by the remarks of Colonel P'Anson, mentioned in our reports of furious driving cases, the severity of the police is extending to Yorkshire.

The Manchester Club at Chester.

THE Manchester Automobile Club had a run last week end to Chester, starting from the rendezvous at Altrincham Station at 2.30 p.m. A good show was made by a large muster of members and their friends, who thoroughly enjoyed the splendid opportunity of the first fine Saturday they had had



EARLY ARRIVALS AT ALTRINCHAM STATION.

for some weeks. The run itself called for no special remarks—a few slight delays taking place—so slight that they can only be reckoned as "experiences." As a contrast to the road a trip was made on the river on Sunday in the well-trimmed electric launch "Beta." One could not help but remark that this silent automobile offered advantages over her sister the roadster(ess), the absence of dust and vibration being those mostly dwelt upon by the visitors. The cars were represented by the Daimler, Empress, Century, Progress, Clement, Peugeot, New Orleans, and others, including a new Eagle car. Several members returned

on Saturday, but the stay under the hospitable roof of the Blossoms Hotel well repaid those lingerers who returned on Sunday, much the better for a most enjoyable outing. Participants in the run included Mrs. Ralph Jackson, Messrs. Victor O'Neill, W. E. Rowcliffe, J. B. Bindloss, Ralph Jackson, J. Higginson, F. A. Baume, A. E. Jones, Charles Frost, E. A. Shirley Price, W. Lloyd Jones, Herbert Bright, J. M. Kenworthy, Melville Ashworth, F. M. Lowther, and E. M. Duggan. Mr. J. Hoyle Smith, the hon. secretary, was unable to be present owing to his taking part in the Reliability Trials in the South of England.

A Midland Motor-Car Service.

RECENTLY we announced that a motor-car service was about to be established between Erdington and Salford Bridge, the present terminus of the steam trams from the Old Square, Birmingham. The trial trips commenced on Saturday last, when three complete journeys were accomplished in an hour, and this very satisfactory performance was repeated for four consecutive hours; that is, twelve journeys were accomplished in that time—as a matter of fact, in a few minutes under the four hours. This was the more remarkable seeing that as many as seventeen passengers (fourteen on the car and three on the steps at the back) were regularly carried on the vehicle, which took them in splendid fashion up the steep ascent of Gravelly Hill with hardly any perceptible diminution of travelling speed. The rides being free—"for this occasion only"—there was naturally keen competition for a seat on the car, and the trials were witnessed by a crowd of interested spectators, who several times expressed their approval of the "going" properties of the vehicle and the enterprise of its proprietors by hearty cheering. On Sunday afternoon an invited party boarded the car, including representatives of the motor-car and insurance companies and Mr. N. Deekes, the inspector of carriages and vehicles. Should the venture prove successful a limited liability company will be formed to develop the scheme.

Police at Crawley.

BAFFLED during the Reliability Trials, the police have been particularly alert since that event, and have been setting traps two miles the London side of Crawley for motor-cars. Their favourite time appears to be between 6 and 8 p.m. When Mr. Frank Wellington, of Regent's Park, N.W., was returning from Brighton on Sunday, three policemen rushed out and stopped him. A man in plain clothes said that he had watched the car cover a distance of 200 yards in 15 secs., and in the course of questioning informed the motorist that he stopped his watch when he saw the car pull up alongside of a policeman who rushed out from the hedge. As a matter of fact, the sudden appearance of the police caused Mr. Wellington to put his brakes on fifty yards before he reached the said 200 yards, and he had previously stopped the engine and got down to make an adjustment to one of the cylinders not forty yards away from the man, who was armed with one of the famous stop watches supplied to county constables. This information may help to prevent other people being pounced upon when crawling at eight miles an hour. It is this sort of thing that is restricting the number of motorists who make use of our southern highways.

Motor Fire Engine for Plymouth.

THE Watch Committee of Plymouth have decided that they will try a motor steam fire engine, and propose that it shall be purchased of Messrs. Merryweather upon the following terms: The sum of £500 to be paid on the delivery of the engine; if at the expiration of twelve months the Corporation are satisfied with the engine, and desire to retain it, the sum of £400, being the balance of the cost thereof, to be then paid; or, if at the expiration of the said period the Corporation are not satisfied with the engine, and desire to return it, Messrs. Merryweather and Sons (Limited) to supply in exchange therefor an

ordinary horse-drawn engine without further payment. Corporations about to improve their fire extinction plant will have to consider the quick work possible with motor fire engines.

Motor-Car Imports and Exports.

THE returns just issued relating to the British imports and exports of motor-cars and cycles during August last show an increase both as regards the imports and the exports. To deal first with the imports, no less than 474 cars and cycles were imported into this country last month, the value of the same being returned at £133,882. The value of the "parts thereof" is given as £8,001, so that we get a combined total of £141,883, as compared with £118,926 in July last. Some of these imports were only of a temporary character, being re-shipped to foreign destinations. Thus last month the re-shipments comprised eighteen vehicles amounting in value to £9,527 and £132 of parts, bringing down the net imports in August to £132,224. During the first eight months of the current year imports of foreign automobiles and parts in Great Britain have reached a net total of £710,288, representing over 2,700 cars and cycles. As regards the exports of automobiles of home manufacture, the shipments during the past month amounted to thirty-seven vehicles of a value of £20,230. Of parts the exports attained a value of £1,347, making a combined total for August of £21,577, as compared with £12,799 in July last. It is satisfactory to find that, so far as the year has gone, that is to say, during the eight months ending with August, 213 British-built motor-cars and cycles have been exported, their value being roundly £94,700.

High Speeds in the Pulpit.

A MILITARY chaplain has preached from the *tonneau* of a motor-vehicle, and a Bishop has ridden to a Cathedral for Sunday service on an automobile; but it has fallen to the lot of the Rev. Chas. Hobbs, the pastor of the Baptist Church at High Wycombe, to introduce automobilism into his sermon. The reverend gentleman, on the occasion of his last monthly service for young men, selected as his text: "And the watchman told, saying, He came even unto them, and cometh not again; and the driving is like the driving of Jehu, the son of Nimshi; for he driveth furiously" (II. Kings ix. 20). In the course of his discourse, the rev. gentleman, having outlined the career of Jehu, and described him as a dashing officer who made a great dust when he drove through towns, went on to declare that motor-cars were leaving Jehu's chariot horses far behind in the race. A few days ago an American lady and gentleman were killed in France by a motor-car accident. The cause was set down to the bursting of a tyre and the man losing his head, but he was driving the machine, it was said, at something like ninety miles an hour. It was made to go sixty-eight miles an hour on the flat, and they were going at full speed down hill. The manager of the firm that sold the machine said the customer was afflicted with speed mania, a sad affliction, not only for motorists, cyclists, and horsemen, but for quiet-going people who like to make use of the streets they help to maintain. The Head Constable told him a little while ago he had received a telephone message from Beaconsfield to ask him to look out for a motor-car, which was going at furious speed, and take the number. He was near at hand, and the least possible time was lost in giving him the message, but by the time he was on the look out, the modern Jehu had thundered through Wycombe, and was tearing away well on towards Oxford. The Rev. C. Hobbs then applied the phrase "furious driving" to moral matters, drawing useful lessons for the guidance of his flock.

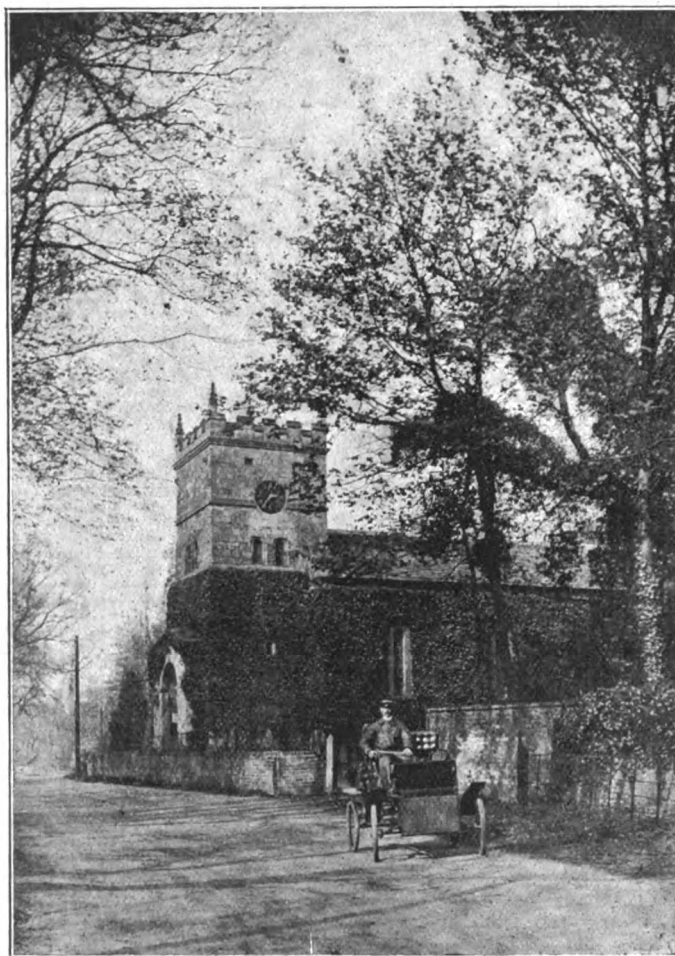
Hire Purchase.

FACILITIES are freely offered to assist intending motorists to purchase cars, and now comes the Automobile Supply Company, Limited, with a proposal to supply motor-vehicles to responsible purchasers on extended terms of purchase. It is thought that there is much prospective business on these

lines with farmers, market gardeners, and similar traders, and the company, by acting as intermediary between buyer and seller, hopes to serve a useful purpose. The trade will welcome every effort to popularise motors, whether for employment in the field or on the road, and doubtless there is much business to be done on the hire purchase system. But it requires careful handling.

An American Reliability Trial.

RULES for the New York-Boston 500-mile reliability run, organised by the Automobile Club of America, have now been published. The purpose of the run is to afford an opportunity for various types of motor-vehicles to demonstrate their abilities under circumstances as closely as possible simulating general touring conditions in the United States. The contest will be open to all classes of self-propelled vehicles made in the



MR. W. E. ALLISON ON HIS LOCOMOBILE AT EVERINGHAM CHURCH, NEAR MARKET WEIGHTON.

United States, or abroad, so constructed that at least two passengers are carried seated side by side; but no manufacturer, agent, or private owner will be allowed to enter more than three cars in one class. All vehicles, whether electric, steam, or petrol, will operate in the same class, the classification being on the basis of weight as follows:—Class A: Four-wheeled motor-vehicles weighing under 1,000 lbs., in commercial running and operating condition, with all tools, fuel and supplies on board. Class B: Four-wheeled motor-vehicles weighing 1,000 and less than 2,000 lbs. Class C: Four-wheeled motor-vehicles weighing 2,000 lbs. or over. Class D: Motor-cycles. Every vehicle will carry an official observer provided by the Club. Observers will record the actual time of the start and completion of the contest, and also the time of all stoppages from the actual stop to the actual start of the wheels, from whatever cause, and the cause of each

stop must be recorded in full on the record sheets with which they will be provided.

The Official Rules.

CONTROLS are to be officially established at the beginning of each day's run, at luncheon places, and at the end of each day's run. During the luncheon hour, at the noon control, contestants may take on fuel, which will be available, and make such adjustments and repairs as can be accomplished with the tools and extra parts carried on the vehicle, and with such local assistance as may be readily obtained under ordinary touring conditions, but will not be permitted to have work done on their vehicles by their mechanics or assistants travelling by train. All stops from whatever cause will be timed and recorded by the official observers. Stops for the following causes will be considered involuntary stops, and will not count against the vehicle, although such stoppages must be recorded: (1) Compulsory stop of one and a half hours for luncheon, which will be made at specified places indicated in the programme; (2) road blocked by traffic; (3) tyre troubles; (4) stoppage by police; (5) to avoid frightening timid horses; (6) to render aid in case of accident; (7) blocked railroad crossing; (8) demands of nature; (9) to recover articles accidentally dropped from vehicle; (10) to light carriage lamps. Steam vehicles will be allowed a total of twenty minutes' stoppage for petrol and water between controls in each half day's run, for which marks will *not* be deducted. One mark per minute will be deducted for time thus consumed in excess of twenty minutes. There will be a maximum number of marks for reliability for each day's run, viz.:-

	Miles.	Marks.
Oct. 9th, 1st day, New York to New Haven	79	316
Oct. 10th, 2nd day, New Haven to Springfield	68.6	274.4
Oct. 11th, 3rd day, Springfield to Boston ..	96.6	386.4
Oct. 13th, 4th day, Boston to Springfield ..	96.6	386.4
Oct. 14th, 5th day, Springfield to New Haven	68.6	274.4
Oct. 15th, 6th day, New Haven to New York	79	316
Total	488.4	1,953.2

This number is based on an average speed of fifteen miles an hour, or four minutes to the mile. The maximum number of marks for each day's run is ascertained by multiplying the number of miles by four, which represents a clean run at an average speed of fifteen miles per hour, and one mark will be deducted for each minute the vehicle is at rest from the time of starting to the conclusion of a day's run, except the involuntary stops provided for in the rules. An average speed of eight miles per hour (exclusive of non-penalised stops) must be maintained, but no average speed for each day's run in excess of fifteen miles per hour will be recognised or permitted. Certificates will be awarded as follows: First-class certificate, average speed from twelve to fifteen miles per hour; second-class certificate, average speed from ten to twelve miles per hour; third-class certificate, average speed from eight to ten miles per hour.

The Preservation of Tyres.

PROBABLY every automobilist is theoretically aware of the fact that oil of any kind is most destructive to rubber, if only as a reminiscence of his cycling days; but the increasing use of live axles on cars seems to render more care necessary in guarding against this source of damage. Fixed axle bearings have not much tendency to distribute oil over the wheels, and though chains, if freely oiled, may do this, their free oiling is rather the exception than the rule, to the great benefit of chain manufacturers. The live axle, on the other hand, carries a copious supply of oil or thin grease in its differential box, which often has a tendency to make its escape at one end or other of the axle, and, after lubricating the brake-drum on the way, to spread in a neat radial pattern over the inner side of the tyre. When this is wiped off, the traces of its destructive action on the rubber are generally more or less visible, while some is

sure to remain and continue its evil work between the tyre and rim. Probably many cases of failure in the edges of outer covers may be due to this cause, the balance being accounted for by the equally ill effects of wet in the same place. The latter, while rotting the canvas, also aids in its destruction by rusting and roughening the rim, and care in keeping the latter well painted will be repaid by longer life in the tyre.

The Oil Cure.

IN view of the interest now taken in the use of oil and similar substances for the purpose of laying dust, it is somewhat discouraging to see the statement that this method has been abandoned for the purpose for which it was first employed, namely, for dust prevention on the Boston and Albany Railroad. It has been in use there for some three years, and the reason given for its discontinuance is that the oily sand of which the roadbed chiefly consists is scattered to a certain extent, to the detriment of ladies' dresses, and that many complaints have been made on this score. It is possible, of course, that under the somewhat dissimilar conditions of a high-road this objection may not arise, and that with road dust a more binding effect may be obtained than with loose sand. This is, however, a matter for experiment. Another consideration, however, that may need facing is that of the effect of an oiled road upon rubber tyres. As is well known, most hydrocarbons have a more or less injurious effect on rubber, and whether this will prove an objection to the process remains to be seen.

The Reliability Trials.

ELSEWHERE we give the marks obtained by the cars running in the Reliability Trials of last week; no further official information was available at the time of going to press. Probably in a few days the judges will have completed their heavy task, and in an early issue their report and observations will be published. Competitors and the public will await their decision with interest; for, in many respects, the trials just concluded are the most important yet held in this country. This being the case, it was unfortunate that so many vehicles were shut out of the competition owing to unpunctual arrival at the Palace as well as to the confusion that prevailed as to the exact entrance they were to pass through. Of course it is necessary that a line should be drawn somewhere, but it is also advisable that rules should be tempered with discretion. Had it been agreed to admit cars up to noon on the Friday preceding the trials, and then to deduct a mark from the aggregate for every few minutes they were late—admitting none after, say, three o'clock—much dissatisfaction would have been avoided and a sufficient incentive provided to secure punctuality. Further reference to this idea is made on page 562 of the present issue.

APPLICATIONS for enrolment in the Volunteer corps of automobile owners should be made to Mr. Mark Mayhew, one of the vice-presidents of the Automobile Club, at Scio, Roehampton.

It is rumoured that the Hon. C. S. Rolls has realised the sum of £2,100 on his last year's Mors car, of Paris-Berlin fame. A large price we believe has also been paid for his 20-h.p. Panhard, which distinguished itself so well at the last Welbeck meeting.

AT Westerham, where the automobiles in the hill-climbing contests had a short stay, we noticed Mr. Edgar Soames, who had come over from East Grinstead on his Duryea car. It was similar to that which Mr. Henry Sturmeay had hoped to have included in the Trials, but which did not arrive from America in time.

AMONG the latest additions to the already long list of firms who have taken space at the Exhibition which is to be held at the Agricultural Hall, Islington, in March, 1903, is the well-known De Dietrich Company, of Luneville, France, who will have on view an imposing array of the latest type of De Dietrich (Turcat-Mery) cars.

The Reliability Trials.



(Concluded from page 536.)

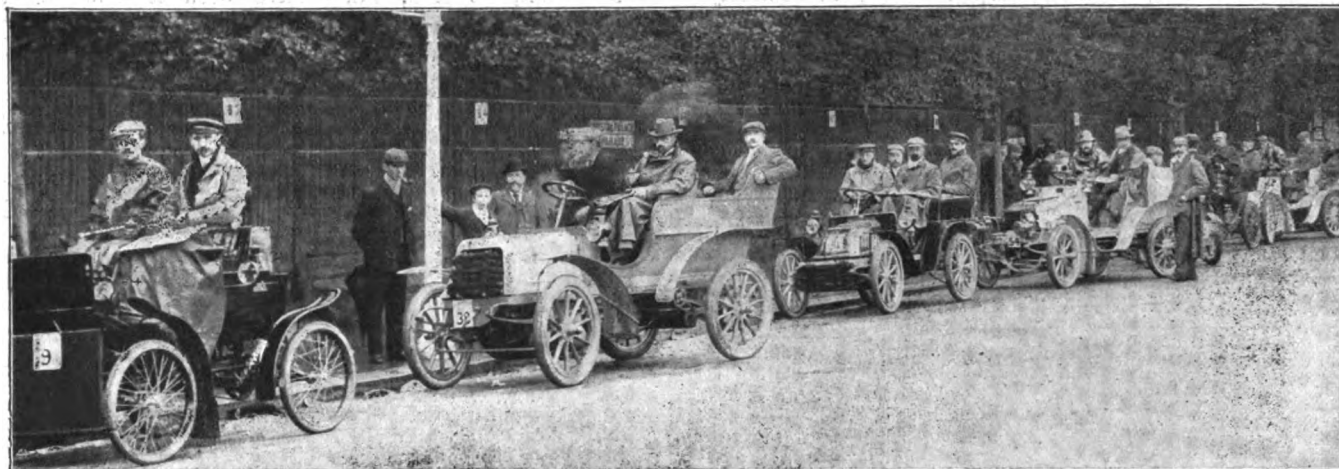


Photo by]

THE START FOR WORTHING.

[Argent Archer.

TO BRIGHTON AND BACK.

FAMILIAR to motorists is the Brighton road, and when that course was included in the Reliability Trials it was regarded by many as merely a bit of play for those northern motorists who know the charms of Scarborough and the pleasures of Blackpool, but to whom the southern resort was as unknown as the South Pole. But the mere play developed into farcical comedy as the day wore on, and those strangers who were to have been shown the land and the sea, were also treated to a fine exhibition of the harassing methods of the Surrey police and the worries and troubles of southern motorists.

Let us develop a reminiscent mood and recall previous organised automobile runs to Brighton. The last notable gathering was in November, 1899, the fourth anniversary of Emancipation Day. Then the cars struggled as well as they could, and out of 104 which started from London in the morning fifty arrived at Brighton by half-past four, and ninety-five before eight o'clock. The run on Thursday of last week—the fourth day of the Reliability Trials—was all over by the end of the afternoon, and despite a two hours' stay by the seaside the return journey to the Crystal Palace was safely concluded by every car. The change was really remarkable. A few years ago the route was strewn with cars in trouble and under repair; now the police are the only persons who seem to linger on the roadside. And as the county pays their expenses and provides them with new watches they do not mind telling the time—even if they sometimes sacrifice the truth in the endeavour.

To describe the start from the Palace would be merely a repetition of the introductory paragraphs of the accounts of the first three days already published in the *Journal*. We were on No. 86, a 22-h.p. Daimler, driven by Mr. A. Bush the head of the Daimler Company's testing department at Coventry. M. Wilson was the mechanic, while Mr. J. D. Hill, a motor-car expert, was the Observer, the quartette being made up by the writer. Going along the Sydenham road we got into Croydon, following in the wake of No. 35, driven by Mr. Maudslay Brooke, of Lowestoft. Via Purley Corner we reached Coulsdon in procession. There Marshal Edge was awaiting us, with Mr. F. T. Bidlake holding the watch, and sending the cars forward at intervals of twenty seconds. The famous Napier never failed during the week, but always got its owner to the expected spots in good time and without hesitation.

The considerate behaviour of the car was probably in imitation of Mr. Edge, who might have scuttled past the compulsorily laggard vehicles; but he sought bye-paths and unauthorised tracks in order to save the feelings of fellow-motorists in the procession, thus revealing a sportsmanlike character that should always be associated with automobilism.

When once again set forth on our journey we had a cheerful spin, passing the Brooke and going ahead of the Swift and the Locomobile. The Century was going well, and at Chipstead we hove towards No. 48, a thirsty car that made good running during the day. Three nuisances came into view on nearing Redhill. Firstly a policeman was seen taking notes as we passed through Merstham; then dust was flying and threatened inconvenience; and finally heavy spots of rain accompanied us through the town where police prosecute and magistrates persecute those who are speedier than themselves. At a quarter-past eight Redhill was well awake, and, raising our caps opposite Chalmer and Company's carriage and motor works, we made for the open country. Scampering over Earlswood Common the sun shone out with welcome brilliance, drying the raindrops ere they fell too far. A suspicious-looking man was on the roadside. "A bobby," said driver Bush; "Beware of bobbies," soliloquised the mechanic, who then confidentially told how to discover a policeman when disguised in plain clothes. "Always look at his boots," was his advice. Hence the downward glances that were shot from No. 86 whenever a person of the regulation height sauntered by. Further along in the middle of the roadway stood a man waving his arm to another man standing at the end of the road. As we passed by the stranger took out his watch. Crawling along we proceeded with snail-like pace towards stranger No. 2, and just turned the bend in the road to find an inspector and a sergeant behind a hedge. Our progress had been so slow that it was really wonderful we were not arrested for obstructing the highway. But we had waved a warning arm to the car behind; the signal had gone the whole length of the fleet; and the police were baffled. Right on through Horley we had the road to ourselves. Four constables were counted between Horley and Gatwick, and beyond Charlwood Park the police station was passed; but evidently there was no one at home; for all the police resources of the locality must have been utilised in lining the roads round about. At a quarter to nine we arrived at Crawley, passing under the signboard of the

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George Inn to find Mr. C. Jarrott, Mr. T. B. Browne, Mr. A. J. W. Dew, Mr. Bert Yates, and others, the recital of whose names is sufficient identification of their favourite type of automobile.

A quarter of an hour's interval afforded opportunity for the exchange of impressions regarding the police. All were agreed that the were more watchful than ever, and we heard that on the previous day four constables had been discovered hiding behind a hedge in order to catch motorists. Our time up, the journey was continued, a Gardner-Serpollet being immediately in front. Passing by Bannister's motor works we crossed the railway lines just in time to avoid delay by the closing of the gates, which caused the rest of the long procession to linger awhile. Just before reaching Tilgate Forest, No. 62 turned into a secluded lane as though to enjoy a quiet smoke. Certainly the driver dismounted, his Observer jumped, and the passengers got off the car as best they could. It was subsequently ascertained that a valve had stuck, causing all the commotion and necessitating the short stoppage. But after a little attention the vehicle got over the sulks and went along to

our reliable Daimler sped along the front. Within half-an-hour a double row of vehicles extended from Ship Street to Black Lion Street, the subsequent arrivals finding a place in single file in the latter thoroughfare. It was a dusty sight, and the motorists were as begrimed as the cars. Into the Old Ship they hurried to remove the dust of the road from their faces and to attend to matters of lubrication. Baron Rothschild was one of the lunchers, looking very weary after what, to him, must have been a slow procession. Forty-five minutes is not a long time for replenishment; all were eagerly applying themselves to the menu when Marshal Edge again appeared. As Observers were only human, and as their opportunities for efficient and lengthened feeding had been few during the week it had been ordained by the authoritative powers that the return journey should be delayed till thirty minutes past twelve. And then the luncheon was resumed with thankful expressions for the kindly forethought on the part of the Marshal. Possibly he felt sympathetic.

Brighton front is a busy place, and away from the beach and



Photo by]

THE LUNCHEON HOUR AT WORTHING—THE CARS AT BEACH HOUSE PARK.

[Walter Gardiner.

Brighton with eager speed. Near the Black Swan Inn, a couple of Benz cars were quietly resting. Throughout the week the number of Benz cars seen at various corners was noted by several Observers, and it was a matter of regret that this type arrived too late at the Palace for official inclusion in the Trials. After seeing more police we got to Handcross, and, up and down the switchback that followed, strode into Bolney. How different was the run compared with that of 1899. In the former year cars were plentiful on the way, their passengers gazing longingly on the roadside; now not a single car did we see—all had gone forward with a certainty that would have been regarded as phenomenal four years ago. In 1899 there was a big crowd awaiting the procession at every village; but motor-cars have become familiar sights, and their presence does not attract the spectators as of yore. The straight run into Brighton was uneventful, a stiff breeze blowing in a strong sunlight and all enjoying the different weather to that which had marred the earlier days of the run.

At half-past ten Mr. S. F. Edge—always punctual—awaited the procession at the Old Ship Hotel, and within a few minutes

the niggers came the visitors to inspect the cars and join in the lively throng of automobilists. Some of the motorists, seeing the name of Butler and Hedges, and recognising in the title the cognomen of a popular motorist called in an establishment in the King's Road—for petrol, of course; others wandered along the front, fully conscious of the stir they were making in the serried ranks of pedestrian holiday-makers. Thus the time whiled away until Marshal was seen standing on the Napier, and we edged away from the sea to face the landscape once more.

Leaving Brighton, where Inspector Ranger and Sergeant Tucker had found it a trying task to regulate the spectators who would crowd upon the cars, the run to Patcham was rather dusty. Just beyond Preston a horse shied—not at the car—but at a flock of sheep. Evidently motor-cars are not the only dangerous factors in road traffic; but it is hoped the fact that a horse has shied at a flock will not be made the occasion for an agitation against overgrown lambs. Further along Mr. J. F. Crundall was going strongly on his Humber motor-bicycle, and keeping an eye on the two or three constables watching by the roadside. In fact, the prevailing

note of the day had been one of suspicion. We had imagined a policeman in every tree, and many a harmless lad seated on a gateway was mistaken in the distance for a limb of the law—his importance falling into insignificance as we drew level.

It had been intended that the return would be made *via* Redhill, but the police having devised a trap for motorists on the road a detour was made. One of the fleetest cars had seen a furniture van full of policemen, and, as their purpose was evident, a change in the plans was made at the last moment, and so the trap was avoided. Really the way the police of the county have been behaving of late is too preposterous ;

bitten by the pigs that they could not appear in court." We had no idea the police had fallen so low. But it must be comforting to the much-harried motorist to learn that even the pigs are fighting for them against the officers of the law.

The trap was really laid between Horley and Merstham, and, in consequence, we were drawn up at an unexpected place—very distant from refreshment—and motorists went scouring the hedges for the enemy. As the cars outspanned on the roadside and the passengers were looking about, the scene was interesting, and even exciting. Thus we eluded the police, and then, by way of Woodhatch and Reigate, we went to



NO. 86 AT CRAWLEY.



ON BRIGHTON FRONT.



A DISTINGUISHED QUARTETTE. —The driver of No. 84, Mr. C. Jarrott, Mr. S. F. Edge, and Baron Henri de Rothschild.

and Mr. Staplee Firth is doing good service to the ratepayers in emphasising the cost of these prosecutions when he appears—as he frequently does—to defend motorists before the benches of Surrey and Sussex. The other day the police hid in pigstyes ; now they crouch behind hedges, and seem engaged in an effort to bring ridicule on what was once known as the dignity of the law. In fact, at one stopping-place we heard it said—and although it was probably a joke, an idea is conveyed that should not be forgotten—that a Sussex police official wants to have nigs muzzled, because, as he says, "three of my men who were hiding in pigstyes to time motorists last week were so badly



THE HALT ON THE REIGATE ROAD—MOTORISTS LOOKING FOR THE POLICE.

Merstham. Reigate looked pleased and surprised ; for had not motorists shaken the dust off their tracks in that town, promising never to visit it again ? But we halted not ; and did not even slow down at the sight of a constable on a bicycle. Our Observer had had an interesting chase among the route-guides for the road upon which we had travelled ; and it was with some feeling of relief that we got upon the ordained way. No cars passed us, and merrily we went along on the watch for the vigilant police. On the left towards Chipstead a group of people were standing, and in the distance we feared foes ; but as we drew near a welcoming cheer revealed

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the presence of Mr. C. Cordingley, Mr. Percy Richardson, Mr. Glass, and other motorists who had come along to see the cars and their riders. From Coulsdon to the Palace the run was uneventful save for the care of Mr. Lindsay Scott, who, mounted on his Mercedes, kept warning watch of those who lay in ambush, and proved a useful scout. He ought to be one of the most valuable members of Mr. Mark Mayhew's new corps of automobile volunteers. The way to the Palace was lined with ladies waiting to see the cars come home. Evidently such an early return was unexpected, and it is significant of the improvement that has taken place in motor-vehicles that whereas in 1899 fifty per cent. of the cars that started from London arrived in Brighton before half-past four, practically all, in 1902, had returned to town by that time. Our Daimler, of course, was early to the front, and earned its 300 marks for the fourth time in the week.

AMONG THE HILLS.

After a day of comparative ease—for the run to Brighton was the least exacting of all the trips—motorists endured much on Friday. That was the day of the Consumption and Hill-Climbing Trials, and special rules were issued for the guidance of Observers and competitors. On their arrival at the

cars on the weighbridge, and so give passengers and Observers a slightly longer and more natural rest.

Our seat was on No. 51, a four-cylindrical 12-h.p. Gladiator, driven by M. Mercy, whose familiarity with Continental races caused him to wonder at the game that he was brought from France to play in England. With him was M. Garcet, in whom we found a splendid companion, quite as enthusiastic over football as motoring. M. Garcet will shortly return to captain the French football team that is coming over in the winter. With the Observer there were four of us, and we scaled 1 ton 1 cwt. 1 qr. 4 lbs.—not a bad total—to which humanity contributed an excellent proportion. Off the weighbridge and away to the seventh place on the Parade was a run of but a few minutes, and ere 8 a.m. the Gladiator was in position, ready for the fray, the driver settling down to a study of the *Motor-Car Journal*, which was being sold like hot rolls to the expectant motorists. The chance that one's car might be included in the illustrations added a piquancy to the call for copies.

Seeing that there was a delay of an hour, we sauntered back to the weighbridge, chatting by the way with Mrs. Perman, who had gone through the Trial with ardent zeal—one of the few ladies who maintained their interest in the event throughout

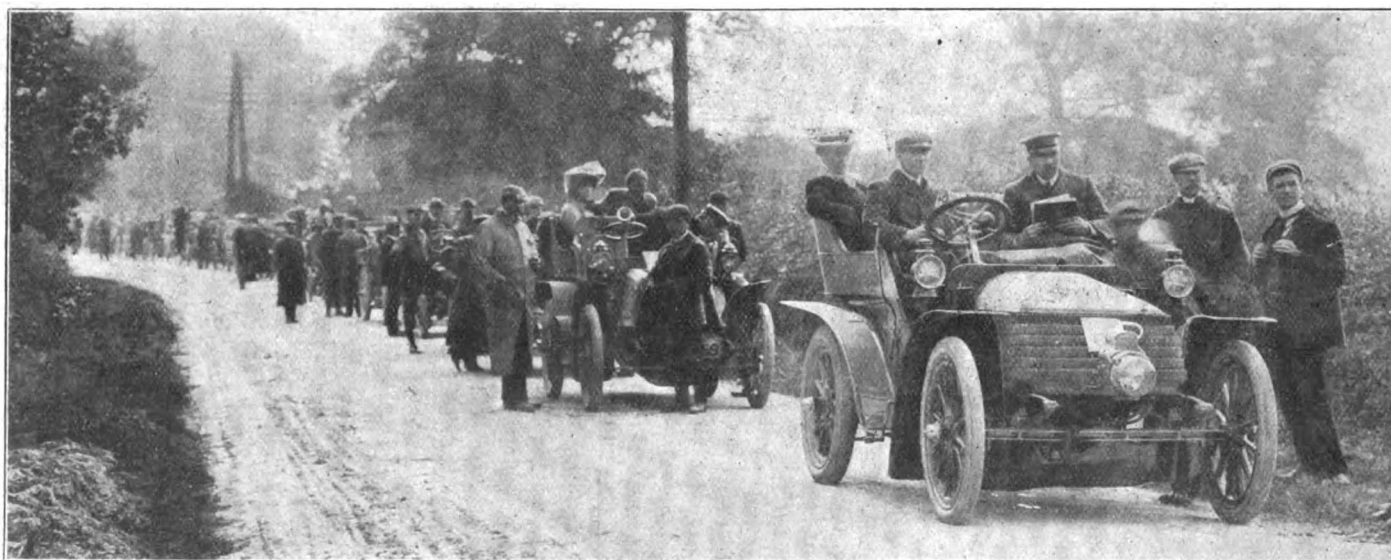


Photo by]

THE CARS AWAITING THEIR TURN TO MAKE THE ASCENT OF RIVER HILL, NEAR SEVENOAKS.

[The Biograph Studio.

Palace on the Thursday the cars were washed and prepared for the fifth day's test, and no work other than the filling of fuel tanks was permitted on Friday morning. The vehicles were divided into four contingents, these being required to proceed to the Terrace at 6 a.m., 6.30, 7, and 7.30 a.m. respectively. There the vehicles were supplied with fuel, the judges, Messrs. Worby Beaumont, R. W. Buttemer, and Lyons Sampson, making measurements and records. Such data having been chronicled, the cars, fully loaded with Observers and passengers, were driven to the weighbridge for weighing, and thence to their allotted stations on the Parade, where they were to await the order to start at 9 a.m. One of the conditions of the test was that the fuel tanks might be re-filled while the cars were moving or at Sevenoaks, but not at Tonbridge or Westerham, nor during the "waits" at the foot of River Hill and Westerham Hill. Sealed tins of petrol were carried, only the Observers being allowed to break the seals *en route*.

The filling of the tanks was a long and wearisome process, but the weighing was quickly done under the superintendence of Mr. S. F. Edge, who despatched the cars with an alacrity that was appreciated by their passengers. Why had we been hurried from our beds at that early hour merely to act as weights? Possibly on another occasion the Club will select a few gentlemen of plump and weighty proportions who can be placed upon the

the week. While the cars were being weighed a chat with Mr. G. H. Smith, of the United Motor Industries, helped the time to pass more quickly, for he became as interesting as a weather chart. It must be explained that he had thoughtfully provided a stock of automobile accessories, spare parts, etc., and when the Monday opened with a sullen dampness there was quite a run on waterproof coats and leather caps. The plentiful provision he had made saved many a chill for those who had come unprepared for rainy weather. Then, as the week wore on, the demand for goggles increased—evidence of the rising dust with the finer weather. To one or two cars Mr. Smith had been a "boon and a blessing," supplying essential parts ere the arrival of the judges' committee, and generally acting as guide, philosopher, and friend.

Time getting on, and our old friend No. 86 drawing near, with Mr. Shrapnel Smith occupying the seat we had enjoyed on the previous day, we mounted the front seat, and with its five-passengers—no light weights—the car rushed up the incline to the Crystal Palace Parade, and went into the fourth place just in time for us to reach No. 51 ere the signal for the start was given. The way was *via* Wickham to Sevenoaks and Tonbridge, at which ancient town a fifteen minutes' stop was compulsory. Guided by our Observer, who, in turn, was misguided by the programme, we quickly took a wrong turning and thus led three other cars astray. The occupants, when they discovered they were on the wrong

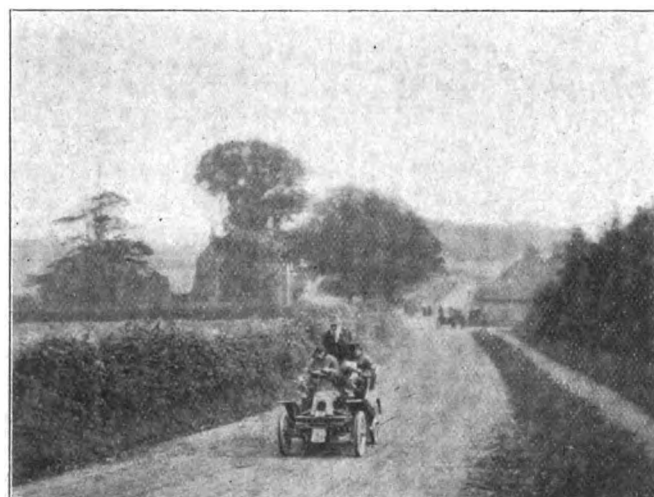
track, tried to smile blandly towards us, but their efforts were a ghastly failure. It was not wholly the fault of our Observer. Apparently the only direction he had troubled to read was the first line, which referred us to pages 23-27 of the Itinerary. We started off that way, only to discover that the reference should have been to pages 45 and 49. With the help of a friendly policeman we, however, quickly got on to the Wickham road—made familiar on Tuesday's run to Eastbourne. Just beyond the village was a nasty hill, which we descended safely, and then up a steep one, we were on Hayes Common, alive with firs and glowing with autumnal tints. Maintaining a straight course over several cross roads we encountered a cloud of dust, in which we passed a

cause regret that misfortune had proved so unkind on the run to Folkestone. In Sevenoaks several carts with furniture for the hop-pickers were met, and while in the beautiful locality with Knole Park skirting the road nearly as far as River Hill we met many such.

On River Hill brake tests had been arranged. Mr. S. F. Edge was again in command, early as ever, and warned us that four stops at white flags had to be made by means of the brakes. Wishing us good luck, Messrs. C. Johnson and J. D. Siddeley bade us farewell, and we began the descent. Professor Vernon Boys was the first to arrest our progress; Mr. F. T. Bidlake waved the second flag; Mr. Lyons Sampson the third; Mr. H. J. Swindley



THE LOCOMOBILE (No. 9).

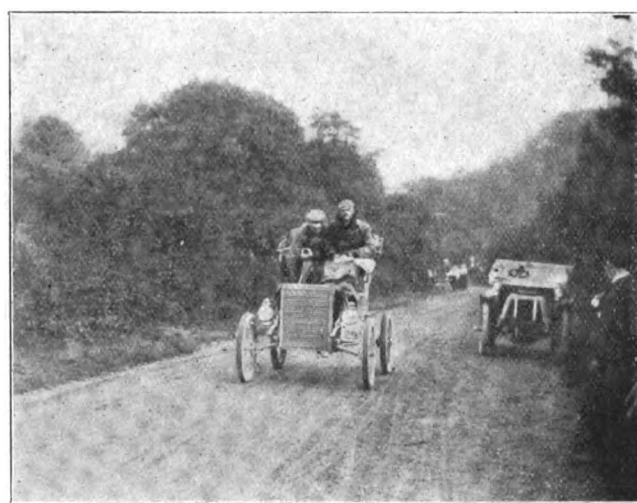


THE 10-H.P. GEORGES RICHARD (No. 31).



THE HUMBER MOTOR BICYCLE (No. 1).

Photos by]



THE WHITE STEAM CAR (No. 29).

[Mr. C. T. Batham.

THE WESTERHAM HILL CLIMB.

6 h.p. De Dion and also the 8-h.p. M.M.C. voiturette—both going along in good style, as, in fact, they did throughout the week.

Passing through Lock's Bottom at a good pace we ran through Green Street Green without sighting a single canine. The dogs that were prominent on Tuesday were absent on Friday, and it was clear that either the animals or their owners had learned wisdom. Speeding through Halsted we espied the Mors in the distance, with a Gardner Serpollet in its wake. Passing the Swift, we next saw No. 70 overhaul the 10-h.p. Wolseley, which, later in the day, was to achieve an unenviable distinction—all the more deplorable in view of the splendid record it had made during the first days of the week. Just before reaching Sevenoaks Mr. F. W. Peckham came along on his Oldsmobile in such a style as to

being the last before whom we halted. Subsequently we heard that only one car out of sixty-one failed in the brake tests. Proceeding to the pleasant hamlet of Hildenborough a crowd was noticed on the highway. It opened out as we came along, and there, on the right, was a Wolseley car with a horse that was clearly injured standing by. An old lady at a cottage near by shouted that the car had run into the horse and that we ought to be shot—although what we had to do with the matter M. Garcet did not understand. He has probably given up the conundrum ere this. But we dare not stop, for the car's reputation was at stake, and the Gladiator went forward into Tonbridge with as dusty a quartette as any that drew up in the High Street that day.

After an interval at Tonbridge the return for the hill-climbing contests was commenced. Passing the Mors we next encountered the 11 h.p. Napier on its way to the town we had left. This vehicle served a double purpose, being fitted with a set of Collier tyres and also a combined throttle and governor, entered by Mr. Edge. Then we got to the foot of River Hill, where the marshal sent the cars along at intervals. Mr. C. Jarrott went up in the good time of 2 min. 32 1-5 sec.; the Pascal cars (Nos. 83 and 84) showed a great difference, one being two minutes quicker than the other. One of the Gardner-Serpollet cars did it in 2 min. 29 3/4 sec.; the other was four seconds slower. Both the 22 h.p. Daimlers were in the first dozen cars so far as time was concerned, Mr. E. M. C. Instone going up in 3 min. 3 sec., and Mr. Bush being only 9 2-5 seconds behind him. When our turn came, No. 51 went up in 3 min. 52 1-5 sec., the two-cylindered Gladiator taking 4 min. 31 1-5 sec. At the top of the hill were Messrs. C. Johnson, Basil Joy, H. G. Burford, R. W. Buttemer, and others intently watching the performances of the various vehicles; and we almost wished we had been of the number, for on a competing car the line of vision is necessarily shortened, and even the most interesting incidents have to be only cursorily seen. From

the bank for a distance of twenty yards; otherwise no mishaps were reported. When he started on the descent in the first car Mr. Jarrott feared his Observer had mistaken the way; but it was too late. There was no turning back, and so he made haste prudently. Still, when the ordeal was over all seemed to enjoy it—or professed to have been delighted.

At the foot of Westerham Hill the cars awaited their signal from the Marshal. No. 87, the big Daimler, driven by Mr. E. M. C. Instone, was just in front and about to start when the commutator chain broke—a piece of bad luck that occasioned a stoppage of more than an hour and lost many marks. The sister car, No. 86, on which we had enjoyed the run on the previous day, went up in 2 min. 52 1-5 sec. Again Mr. Bert Yates on his 3-h.p. Humber bicycle made the fastest time; the 20-h.p. Wolseley (No. 69) took second place, ascending the hill in 2 min. 40 2-5 sec. This car did well throughout the week's run, obtaining the maximum number of marks each day. A 5 1/2-h.p. Locomobile made the third best time, others attaining distinction including a Clement, the 15-h.p. Panhard, the 6-h.p. Gardner-Serpollet, the 20-h.p. Pascal, a Germain, the White steam car, and a couple of Locomobiles. Our own mount ascended the hill in 3 min.



Photo by]

THE 12-H.P. BELSIZE (NO. 42) AND THE 8-H.P. WILSON AND PILCHER (NO. 71) CLIMBING WESTERHAM HILL.

[R. W. Thomas.

River Hill we proceeded back to Sevenoaks, where a great crowd awaited us; and forty-five minutes were allowed for lunch.

From Sevenoaks the route was through Riverhead up Polhill, at the top of which was a familiar 12-h.p. M.M.C. with Mr. and Mrs. Cordingley, Miss Pursehouse, and party. Then turning to the left for Knockholt we descended a tortuous road that knew no straightness. After a stiff decline there were a few yards of fairly flat surface followed by another descent. With brakes tightly held the cars descended the precipitous way—a way that was a surprise and a terror. In front was a Germain car that rushed headlong down, and behind was a vehicle that wobbled in a way that made us long to get out of its range—should a slip occur. In some parts grass was growing in the pathway and never a turn occurred. Between hedges on either side we went on, wondering how long the anxiety was to last, and heartily envying the quadrupeds that grazed contentedly in the field to the right. At length the tension was relieved, and we came into civilised country again. There had been a thunderstorm in the valley, and for about fifty yards the water lay three inches deep. Through the depths we splashed along, closely followed by the 20-h.p. M.M.C., which had taken River Hill in 3 min. 54 3-5 sec. Mr. Buckea was one of the passengers, and evidently pleased at the performance of his car. During a brief interval at Westerham there was opportunity to discuss the descent through which all had safely passed. Two or three brakes had fired, and one car ran along

57 3-5 sec., and would have made even better time but for the presence immediately in front of a car that laboriously forged along as though the effort was too great. To avoid trouble, we had to pass it going close to the hedge, and again—not for the first time during the run—did M. Mercy give us a taste of his skill in driving. From thence to the Palace was a replica of previous experiences, with only incidental variations. We saw Mr. Munn on his De Dion and Mr. A. C. Wright, the unknown No. 7 of earlier days, going gallantly. Fortunately, we were among the earlier arrivals, and so promptly secured admission to the grounds. Owing to the time occupied in measurement and verification, there was a long wait outside for the laggards, some of whom displayed patience for more than two hours. On the Terrace all was activity. Colonel Crompton made an inspection of many of the vehicles, and Mr. Staplee Firth came along chatting with motorists and gathering information as to police doings. The little Renault voiturette was much observed, being one of the fortunate 300's, and No. 51 well deserved the maximum marks awarded. Mr. J. Hoyle Smith brought the Belsize car through, earning the maximum, as he did every day of the week—a consistency of running that will secure him many congratulations from his colleagues of the Manchester Automobile Club. There were some tales of woe, but they were surprisingly few in view of the ordeal through which the automobiles had passed. A flaw in the steel of which the axle was made caused a breakage

of that important part of the New Orleans car, and No. 70—the *Mors*—also ended its career in the trials. Verily, Friday's test was one for reliability, and reliable did most of the cars prove.

Below we give the official times for the ascents of River Hill and Westerham, the bracketed numbers indicating the fastest times :

Official No.	River Hill. m. s.	Westerham Hill. m. s.	Official No.	River Hill. m. s.	Westerham Hill. m. s.
1	1 59 (1)	1 55 (1)	51	3 52½	3 57½
2	7 24½	16 43	52	4 48	5 7
4	4 16½	4 53½	54	4 46½	5 23
5	4 27½	4 34	57	6 58½	5 45½
7	6 28½	6 23½	59	6 46½	7 23½
9	2 46 (6)	2 44½ (3)	62	2 29½ (2)	3 3 (8)
10	3 12 (11)	3 44½ (12)	63	2 34½ (4)	3 44½
11	8 57½	—	64	3 0 (7)	4 17
19	7 53	7 36½	65	4 52½	25 1½
20	3 24½	4 1½	66	5 19	4 46½
21	3 4½ (10)	3 3 (7)	69	3 2½ (8)	2 40½ (2)
22	5 35½	6 22½	71	5 0½	13 57
23	6 14½	5 43½	74	3 23½	3 14½ (10)
24	4 12½	4 19½	75	3 21½	2 57½ (5)
26	3 41½	6 27½	76	4 18½	4 18½
29	4 5½	3 36½ (11)	81	3 54½	13 5½
30	5 40	4 57½	82	4 24½	4 33
31	5 0½	13 17½	83	2 4½ (5)	3 9½ (9)
32	5 42½	5 13½	84	4 48	3 59½
33	4 31½	7 12½	86	3 12½ (12)	2 52½ (4)
35	7 32½	6 15½	87	3 3 (9)	—
36	5 45½	9 2½	88	2 32½ (3)	2 57½ (6)
39	—	4 32	T 1	4 53½	4 44½
40	5 32½	16 19	T 2	—	6 6
41	5 5½	4 22	T 3	27 16½	—
42	6 4½	6 33	T 4	5 22½	5 9½
44	4 42½	4 46½	T 7	5 4½	5 58
47	5 2½	5 6½	T 8	6 35½	6 29
48	6 49½	19 35½	T 12	3 27½	10 57½

BEXHILL AND BACK.

THE BUREAU

IF the truth were told, we believe that the number of cars that lined up at the starting point on the Parade at the Crystal Palace for the last run of the Trials on Saturday morning was greater than had been expected. Relatively but a very few vehicles had dropped out of the trials, there being fully fifty-six in readiness for the final trip, which was made in beautiful weather. Our mount on Saturday was the 12-h.p. Daimler (No. 77), a car which, up to the end of the fourth day, had only lost four marks. On Friday, however, its career in the trials was, unfortunately, brought to an end, owing to the breakage of one of the bevel pinions in the gear box. This took place at Tonbridge early in the afternoon. Mr. E. W. Lewis, who was in charge of the car, immediately wired to Coventry for a new pinion, and, as illustrating the advantage of the manufacture of parts on the interchangeable system, a mechanic with the necessary renewal reached the Kentish town the same evening. Working with a will, Mr. Lewis and his mechanic completed the repair at 2 on Saturday morning, and, setting off in the dark, reached the Palace a couple of hours later, only, however, to learn the disappointing news that, owing to the car having occupied more than the maximum allotted time, it was disqualified and could not take part officially in Saturday's run. Notwithstanding the loss of a night's rest, however, Mr. Lewis resolved to make the run to Bexhill unofficially, and, having no controls to trouble about, a very enjoyable day was spent. An autumnal mist was hanging over the country as the competing cars left the Palace. The leader for the day was No. 26, one of the White steam cars, being followed by the 20-h.p. Wolseley (No. 69). After we had seen about half a dozen vehicles despatched, "Ex-77" commenced its journey for Bexhill, the route as far as Tonbridge being the same as that taken on the preceding Tuesday on the occasion of the run to Eastbourne. The roads were somewhat wet and greasy, and as we approached Hayes Common we had convincing evidence of the damage done to the roads by heavy traction engines and the "skids" of farmers' wagons. King Sol now began to drive away the mist, and signs of life became more evident as we reached Farnborough, where the lady postman,

with bag on her back, was busy delivering the letters. For some distance the Collier-tyred Napier (T 7) and the 20-h.p. Wolseley (No. 69) had been our companions, but, although they were going well, they were under the keen eye of Observers. We were not, and their drivers gave us a look of envy as we sped by to Halsted Riverhead, and Sevenoaks, which latter place was reached at 8.15 a.m. There seemed to be quite a procession of gipsy caravans on the road, as well as motor-cars, for we passed a number of them of all sorts and sizes down to a small coster's barrow drawn by a couple of donkeys. Although the road was somewhat sticky, the descent of River Hill was safely made. Thence onward to Tonbridge the writer's record is a blank, and we are afraid it must be admitted that he, like Mr. Merckel, the other passenger, and the mechanic, had been indulging in a quiet nod. All were very much awake, however, as we pulled up at the Rose and Crown, in the High Street, Tonbridge, at 8.40 a.m., this being the place appointed for the compulsory stop of fifteen minutes. We were the "early birds," and filled up the few minutes awaiting the arrival of the competing cars by taking a copy of one of the first summonses issued to a motorist, which is kept in a frame at the hotel. It is dated 19th August, 1896—that is before the Act abolishing the Red Flag came into operation



THE START FOR BEXHILL.

—and issued against Mr. Stephen Bartlet for that he "on the 12th August unlawfully drove a locomotive along a public highway at a greater speed than two miles per hour, to wit at five miles per hour." Ere we could ascertain the punishment meted out to this pioneer motorist for daring to scorch at such a furious rate, the competing cars began to arrive, and within a few minutes Tonbridge High Street was filled with motor-cars and people. Apparently the Observers' instructions were not quite clear as to what was the exact procedure at this point, for while some allowed their drivers to pull up at once, others insisted that the vehicles be driven right through the town and back again to the hotel. This naturally caused some commotion, and, with cars on both sides of the thoroughfare, it was not unnatural that the local horse-drivers should do anything but pleased, one man "wishing 'em in the sea, all 'em!" The arrivals at Tonbridge up to 9.15 a.m. numbered exactly fifty. Most of them were going well, but in three or four cases indications of coming trouble were somewhat disconcerting the drivers: one car having a broken governor, another a leaking radiator, and still another a mysterious "short" in the ignition circuit of one of the cylinders.

The first into Tonbridge, we took advantage of being out of the competition proper, with the result that Ex-77 was the last to leave the town. At the thirty-first milestone we left

the Eastbourne road, bearing to the left for Pembury, and were soon passing a number of the competing cars, including the 15-h.p. Panhard (No. 88) driven by Mr. C. Jarrott. Between Tonbridge and Lamberhurst wet roads gave way to dusty ones, and we rather envied Mr. E. W. Hart, comfortably ensconced in a De Dion voiturette with glass screen, the atmosphere being too thick to be enjoyable. Speeding along, we came in touch with the Century tandem (No. 4) and the Baby Peugeot (No. 5), both of which seemed to be going extremely well. We



THE CARS AT TONBRIDGE.

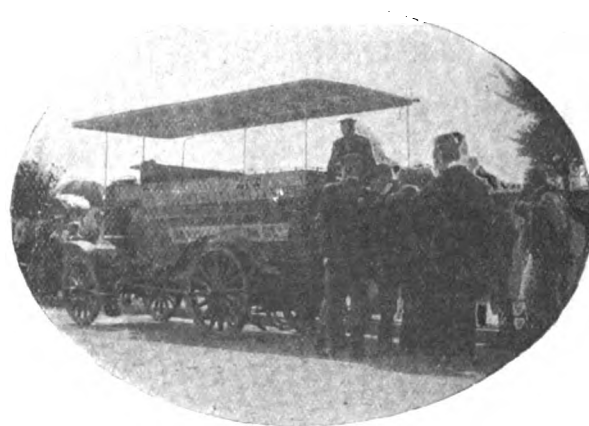
were now in the ancient iron-making district of Sussex, and making good time on the excellent roads, in the construction of which the ironstone of the district is largely used. The old village of Robertsbridge was passed through at 10.20 a.m., after which came a pleasant run of several miles along a straight undulating road towards Battle. The route did not take us through this historical old town, but over a bad piece of road towards Ashburnham. For some miles we had not seen any of the cars, but on turning a sharp bend we came across the 11-h.p. Napier (T 7) pulled up on the roadside; while a little way ahead one of the White steam cars could be discerned ploughing steadily along.

Ninfield and the Standard Hill, where William the Conqueror is said to have planted his standard before the battle of Hastings (1066), were safely passed, and as we neared our destination we overtook one of the Bexhill Motor Company's public service cars, laden, not with passengers, but with petrol and motor spirit, making its way to the sea front, and a few minutes later we drew up on the Promenade, opposite Sackville Hotel, behind Mr. Edge's Napier, ours being the second arrival. Bexhill has grown rapidly in recent years, and it was quite a large and bright crowd that foregathered to inspect the travel-stained cars which soon began to arrive in rapid succession, the line extending well down along the Marina.

The edict went forth that no cars must start on the return journey before 12.30, and promptly at that hour they began to disappear, one by one, until at two o'clock but three were left. The outcast 77 was one of the trio, a sister car, No. 76, another, tyre troubles being the cause of the delay in this case, and No. 31, with a fit of the "slows," the third. Being a free lance, as it were, we stood by No. 76 and witnessed the withdrawal of a flint, two nails, and half a heel tip from the outer cover of one of its tyres! Eventually, however, punctures were repaired, tyres re-inflated, and the two 12-h.p. Daimlers, Nos. 76 and 77, made a start for home in company at about 2.30 p.m. The former being still under the eagle eye of the Observer, no excessive speeds were indulged in, but a steady pace kept up. Between Bexhill and Ninfield the 10-h.p. Georges Richard, No. 31, was seen by the roadside, and this was the last competing car met with until East Grinstead was reached. Mr. Overton's car had done so well during the first four days, having in that time only lost eight marks, that we were somewhat surprised to see it in difficulties. Subsequent enquiries, however, show that during

the last two days the car developed a mysterious heaviness. The motor was "pulling" better than ever, yet the vehicle seemed to drag somewhat, until, on the return journey from Bexhill, it came to a stand, and, despite all efforts, refused to budge. As mentioned above, when we passed the vehicle Mr. Overton was busy attempting to diagnose the cause of the stubbornness. The motor was found in excellent order, the change-speed gear likewise, and eventually the rear live-axle was dismounted, and, after several hours' labour, the cause of the trouble discovered. It appears that a small set screw in one of the bearings on the axle, apparently not having been screwed right home, had disappeared and the bearing had gradually locked itself tighter and tighter, until the axle refused to turn. As motorists know, it often takes much longer to ascertain the cause of a stoppage than to correct the defect, once discovered, and so it was in this case.

To return, however, to the journey from Bexhill to the Palace. After leaving Ninfield the two Daimlers had a practically empty road, and in due time Lower Horsebridge, East Hoathly, Uckfield, Maresfield, Nutley, and East Grinstead were safely run through, the 10-h.p. Wolseley (No. 39) being passed near the latter town. As we left the village which bears the name of Gardiner Street it was noticeable that something had happened which was greatly tickling the fancy of the inhabitants; so much so that we were led to ascertain the cause of the laughter. One could hardly refrain from joining in it when a horse-drawn miller's wagon was discovered progressing slowly along with one of the metal plates bearing the legend "Automobile Club Reliability Trials No. 1" fastened on the rear! If Yates, who rode the Humber motor-bicycle (No. 1) is anxious for his number plate, he had better discover that miller's wagon. After leaving East Grinstead we got on familiar roads, and soon the well-known Blindley Heath came in sight. It was near this point that we had our first intimation of the fact that the police were on the warpath, two different parties of motorists kindly warning us of the "breakers" that lay ahead. Anxious to learn all the news, we pulled up at that ancient hostelry at Godstone Green—the Clayton Arms—and ascertained that earlier in the afternoon a car, not in the competition, after passing Blindley Heath, was running down a gentle slope, when at the top of an opposite slope three constables came out from a bye-road, waving their arms as a signal to stop. The motorist did stop; he even ex-



THE AUTOMOBILE FUEL DEPOT AT BEXHILL.

ceeded the injunction of the law, for he reversed his gear and ran backwards until he reached the end of a lane on the left hand, up which he turned, and left the police looking very discomfited. Of course the driver made his way back by a circuitous route, and warned the oncoming competitors. But the warning was unnecessary, for, having divined the object of his retreat, the police had evidently given up the idea of catching any motorists on that particular stretch. Between Godstone and Caterham, however, more policemen were encountered, and as far as we could gather, the names and addresses of two motorists

alleged to be exceeding the legal limit were taken. Our party too late to join in the excitement, made its way towards Caterham at a steady pace, vainly likening ourselves to soldiers marching across the veldt, not knowing from behind which rock, or rather hedge, the enemy might suddenly appear. At Caterham a motor-bicyclist gave hints of further police attention at Warlingham, but the fact has to be recorded that between Godstone and Purley not a single policeman was seen. Apparently their arduous attention to the cars that had preceded us had taxed their energies to the utmost. At Purley a 16-h.p. Ariel car passed us with two burst tyres; here we struck the tram-lines running through Croydon and Norwood, and were soon at the Palace after having had a most enjoyable day, the excommunicated 12-h.p. Daimler having given no trouble whatever. At 7.20 on Saturday night all except one of the cars which started in the morning had arrived home, the day having been singularly free from trouble of a serious character.

THE TYRE TRIALS.

WHILE the Reliability Trials were in hand the tyre trials were proceeding simultaneously. These will be continued until the vehicles upon which they are fitted have run 3,000 miles, and motorists interested in the subject are invited to apply to the Secretary of the Auto-

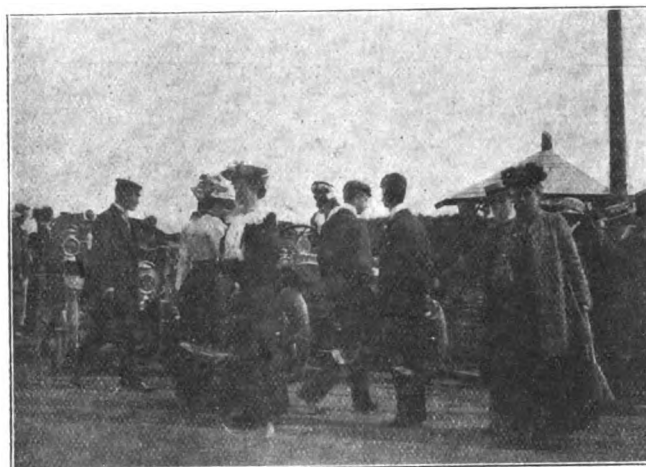


THE "EXCOMMUNICATED NO. 77."

mobile Club, at 119, Piccadilly, W., for particulars of the appointment of hon. official observers during the remaining runs. The tyres now in course of trial comprise Dunlops, Collier, Martin, Maison Talbot, Goodyear, and an experimental set entered by Mr. E. Midgley. They are fitted to Panhard, Napier, Wolseley, and other types of automobiles, and the runs average about 150 to 160 miles daily, starting from the Club House at 8 a.m. on five days weekly.

Mr. E. Midgley suggested some weeks ago that competitors should be required to drive their tyres for a certain distance over a road newly laid with new stones, but this proposal has not been entertained. Mr. Midgley now asks the Committee to grant him the privilege of submitting his tyres to a test of a much more severe nature than would be quite reasonable to make a requisite condition of the general competition. He proposes to have a patch of road, 100 yards long by 12 feet wide, laid with loose unrolled stones, say 50 yards of broken granite and 50 yards of broken flints, and over this the Committee may have two barrow loads of broken glass bottles strewn in

their presence. He will then drive his loaded car, with the same tyres he is driving in the competition, over this patch at varying speeds, as many times as the Committee may beforehand direct. There is a convenient new road on an estate at Dollis Hill, about five miles from the Club House, and if the Committee will grant him this privilege, and let him know within a few



ON THE FRONT AT BEXHILL.

days, he will instruct his contractors to have the road prepared, so that the test may take place on an off-day in the general competition.

TRIAL NOTES.

SEVERAL minor troubles occurred on the run to Worthing. One car that had a new contact breaker had an occasionally sulky humour, suggesting the undesirability of experimenting when on trial runs. Even the 15-h.p. Panhard lost a mark and the brake drum on another big car gave way.

MR. H. PROSSER, who was driving the 10-h.p. Wolseley car (No. 41), informs us that his camera fell out of the vehicle in the outskirts of Maidstone on the occasion of the run to Folkestone



THE LUNCHEON HOUR AT BEXHILL.

on the 1st inst. If anyone participating in the Trials picked up the same, Mr. Prosser will be obliged if they will communicate with him at 93, Mitchell Street, Glasgow.

REFERRING to the disqualification of cars owing to late arrival at the Palace, the Century Engineering and Motor Com-

pany, Limited, inform us that they agree entirely with Messrs. Dennis Bros. in their letter to us last week. Two Century cars arrived at 12.7, having been delayed in traffic, and were in consequence disqualified. "We consider," write the company, "that although, of course, the Committee were within their rights in adhering to their rules, such a rule is too arbitrary, and the severe and unnecessary application of it shows no consideration for manufacturers or appreciation of the immense difficulties they have to contend with. Further, when manufacturers go to very great expense over these Trials, occupy themselves for a considerable time in advance and pay heavy entrance fees, it does not seem just or right that for the sake of a few minutes unavoidably lost in getting to the Palace, their time, energy, and money should be wasted in this—as it appears to us—capricious manner. Were there any good object to serve one might understand, but a glance at what was taking place inside the precincts of the Palace one whole hour later might have shown any observant onlooker that such was not the case. Without any desire to cry out over what has taken place, we think, with all due respect to the Club Committee and those gentlemen who control these matters, that it would be to the benefit of manufacturers, and in consequence of benefit to the Club, to arrange matters differently in future, and we would suggest that if punctuality is the object of the rule, then fix say twelve o'clock to arrive, and any car arriving after three o'clock to be disqualified, those cars arriving after twelve and before three to lose say one mark for every quarter of an hour later than twelve. This would ensure all that is necessary as regards punctuality, manufacturers would not feel that they were being ridden over roughshod, and the Trials from the point of view of the public would be the greater success in proportion to the greater number of participants."

THERE was a military officer on the run to Worthing who was apparently much impressed with the possibilities of the motor car in time of war. If sixty cars could run down to Brighton comfortably in three hours, carrying an average of four passengers each, it was only feasible to suppose that the same vehicles could transport sixty machine guns to the same place in a similar time. He expressed his satisfaction that the War Office is giving special attention to the question of motors in war, and declared that a corps of them might have proved extremely serviceable in the late campaign in South Africa. In illustration of his argument, he pointed out that machine guns conveyed in automobiles might possibly have finished the great Boer war at the action of Poplar Grove.

MUCH interest was centred in the running of the Oldsmobile, and it was unfortunate that it should have broken down on the first day, owing to a flaw which caused a breakage in a lug which formed the bearing for the cam shaft operating the valves. Consequently the car was disqualified. Mr. F. W. Peckham, who was driving, at once obtained another vehicle of the same type and continued throughout the week without a mishap of any kind. The car negotiated all the hills in the test, and, apart from tightening the chain on one occasion, no adjustment was found necessary.

MESSRS. HEWETSON had entered three Benz cars for the trials, but they say they had not been informed that it was necessary for cars to be inside the workmen's entrance by twelve o'clock. They have written evidence of the gatekeeper's to show that they were at the central entrance of the Palace by that time, which they thought was all that was required in the official instructions, which read as follows: "All competing vehicles shall be at the Crystal Palace on Friday morning, August 29, at twelve noon, otherwise they shall be disqualified." They lodged a strong protest with the Committee against the disqualification, stating that the cars were at the Palace by the time stated, and that they should not have been excluded after having been sent round to the workmen's entrance, which had not been previously notified, and where they were only three minutes late, which fact has also been vouched for by the gatekeepers at this

entrance. Notwithstanding the disqualification, Messrs. Hewetson ran one of their cars on the daily runs.

ONLY one driver was disqualified throughout the week, his non-inclusion among the motorists on the last two days being owing to an accident on the Monday. The case was carefully considered by the Committee, who heard many witnesses and came to the decision to allow the car to continue the run provided a different driver was obtained.

AMONG the Club officials, in addition to Mr. C. Johnson, whose guiding hand was over all, praise should be meted out to Mr. J. Macintosh, whose urbanity and knowledge helped many a pressman, and to Mr. E. H. Lancaster, the Club's instructor, who vigorously assisted in the marshalling of vehicles as they reached the Palace. Short nights and long days were the lot of all last week, and to the many unnoticed and unmentioned helpers we offer the grateful acknowledgment of those who participated in the event.

THE majority of the cars and motorists taking part in the Reliability Trial run to Brighton on Thursday last week were taken by the Edisongraph, and pictures are being shown nightly at the Alhambra, Brighton. The first twelve cars come out very clearly.

Nos. 86 and 87 have been over Friday's route twice since Saturday, and on each occasion proved efficient hill-climbers, as well as moderate consumers of petrol. It was at the request of the Judges that Mr. Bush drove the Daimler over the course again in order to verify the fuel consumption records taken during the trial, and with No. 86 bearing him company equally good runs have since been made.

MR. ROBERT E. PHILLIPS, M.I.M.E., must be fairly familiar with the southern end of the Palace, for he acted during the week as Hon. Superintendent of the Storage Attendants—a long title signifying much and involving a steady application to duties which were neither light nor wholly pleasant at times. But he carried them through with satisfaction to all concerned with the safety of the cars and has deserved their thanks in consequence.

MR. CHARLES CORDINGLEY has this week purchased from Messrs. Mann and Overtons a 40-h.p. Mercedes-Simplex car.

A MOTOR-WAGON goods service is about to be started by the Road Carrying Company between Liverpool and Blackburn.

MESSRS. C. S. ROLLS AND Co. have secured an order for a specially-finished 10-h.p. Panhard from Sir Thos. Lipton, Bart.

THE photos of Lord Roberts and his staff on motor-cars at Hythe, reproduced in our last issue, were taken by Messrs. Lambert Weston and Son, of Sandgate Road, Folkestone.

ACCORDING to Our Dumb Friends' League the Westminster City Council has ceased to sand the streets in the neighbourhood of Trafalgar Square.

THE General Accident Assurance Corporation, Ltd., have appointed Mr. J. D. Hill, one of their agents with respect to motor-car insurance.

VISCOUNT CASTLEREAGH, Lord Aberdeen, Sir Thomas Lipton, Captain Arthur Hill, M.P., Mr. W. Palmer, M.P., and Mr. Cyril Maude are candidates for membership of the Automobile Club.

MESSRS. T. RICHES AND Co. have sent us a copy of the price list of motor accessories and spare parts they have just issued. A special feature is made of parts for Darracq, Delahaye, Panhard, and De Dion engines.

TO-DAY (Saturday) the Motor Cycle Union of Ireland will hold a hill-climbing competition at Glenamuck Hill. The hill is situated on a road running from Carrickmines Railway Station to Golden Ball. The finish of the climb will be near Kiltiernan Abbey Gate at Golend Ball.

THE RELIABILITY TRIALS—THE DAILY RECORD OF MARKS. (300 marks maximum.)

		Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
CLASS A. (Vehicles declared at a selling price of £150 or less).							
Official No.	H.P.						
1 ... 3	Humber bicycle ...	—	—	—	—	—	—
2 ... 2	Humber bicycle ...	—	—	—	—	—	—
4 ... 5	Century tandem ...	294	300	296	300	300	300
5 ... 5	Baby Peugeot ...	299	300	300	300	300	300
6 ... 1½	Werner Motocyclette ...	—	—	—	—	—	—
7 ... 1½	Ormonde bicycle ...	—	—	—	—	—	—
CLASS B. (Cars valued between £150 or £200).							
8 ... 4	Oldsmobile ...	Broke down.	—	—	—	—	—
9 ... 5½	Locomobile ...	273	262	283	277	298	293
10 ... 5½	Locomobile ...	289	293	284	291	300	295
11 ... 4½	Swift ...	299	282	295	295	Held over.	—
CLASS C. (Cars valued between £200 and £300).							
12 ... 8	Parr Light Car ...	282	Broke down.	—	—	—	—
19 ... 7	Star ...	279	297	291	294	300	263
20 ... 5½	Locomobile ...	292	270	295	296	294	272
21 ... 5½	Locomobile ...	296	295	296	300	298	299
22 ... 4½	Renault ...	267	286	295	300	Held over.	217
23 ... 8	M.M.C. Voiturette ...	281	295	295	295	300	300
24 ... 6	De Dion-Bouton ...	268	299	282	300	300	286
26 ... 6	White Steam Car ...	294	296	300	300	300	300
28 ... 10	Georges Richard ...	Disqualified.	—	—	—	—	—
29 ... 6	White Steam Car ...	300	300	300	300	300	300
CLASS D. (Cars between £300 and £400).							
30 ... 10	Decauville ...	295	297	230	300	300	300
31 ... 10	Georges Richard ...	297	293	300	300	291	Broke down.
32 ... 9	James and Browne ...	300	296	295	300	295	290
33 ... 12	Gladiator ...	300	300	300	300	289	300
35 ... 10	Brooke ...	289	300	286	299	300	300
36 ...	Light car fitted with Simms 8-h.p. motor	299	298	38	300	294	297
38 ... 10	Star ...	292	Held over.	0	Broke down.	—	—
39 ... 10	Wolseley ...	300	300	295	300	166	Held over.
40 ... 7½	Wolseley ...	300	299	300	300	289	297
41 ... 10	Wolseley ...	300	300	295	300	300	300
42 ... 12	Belsize ...	300	300	300	300	300	295
44 ... 9	New Orleans ...	295	299	300	300	300	300
47 ... 8	De Dion-Bouton ...	300	300	300	300	300	299
48 ... 8	Clément ...	248	293	293	263	300	294
CLASS E. (Cars between £400 and £500).							
51 ... 12	Gladiator ...	196	298	300	249	300	300
52 ... 10	Ariel ...	279	252	285	273	300	272
53 ... 14	New Orleans ...	299	300	299	300	Broke down.	—
54 ... 12	Century ...	273	298	6	300	298	300
56 ... 14	New Orleans ...	299	Broke down.	—	—	—	—
57 ... 10	M.M.C. ...	292	281	290	300	284	299
59 ... 7½	Germain ...	297	300	300	300	300	294
60 ... 20	Georges Richard ...	Broke down.	—	—	—	—	—
CLASS F. (Cars between £500 and £600).							
62 ... 6	Gardner-Serpollet ...	300	297	300	288	300	295
63 ... 6	Gardner-Serpollet ...	291	280	300	300	300	294
64 ... 10	Peugeot ...	299	299	300	295	300	300
65 ... 12	Brush ...	300	222	289	292	Held over.	300
CLASS G. (Cars between £600 and £700).							
66 ... 12	Humber ...	300	294	300	300	300	300
67 ... 12	Humber ...	174	Non-starter.	—	—	—	—
69 ... 20	Wolseley ...	300	300	300	300	300	300
70 ... 10	Mors ...	255	300	274	300	Broke down.	—
71 ... 8	Wilson and Pilcher ...	300	300	300	300	292	300
74 ... 15	Germain ...	300	297	300	300	300	300
75 ... 16	Clément ...	293	262	179	300	300	266
CLASS H. (Cars between £700 and £800).							
76 ... 12	Daimler ...	297	300	296	300	300	295
77 ... 12	Daimler ...	296	300	300	300	Broke down.	—
81 ... 20	M.M.C. ...	300	300	25	300	280	300
CLASS J. (Cars between £800 and £1,000).							
82 ... 20	Maudslay ...	300	298	300	300	299	300
83 ... 20	Pascal ...	276	290	265	299	295	291
84 ... 20	Pascal ...	294	286	300	300	300	300
CLASS K. (Cars between £1,000 and £1,200).							
86 ... 22	Daimler ...	300	300	300	300	295	297
87 ... 22	Daimler ...	300	300	300	300	163	300
88 ... 15	Panhard ...	300	300	299	300	300	300

NOTE.—These returns are subject to revision.

CONTINENTAL NOTES.

BY AUTOMAN.

IT may be remembered that on the subject of M. Leon Serpollet's now historic record on the "Easter Egg" at Nice in the early spring, I called attention to the all-important question of the resistance of the air. All-important because it increases in the proportion of the square of the speed, so that when the speed reaches 100 kilometres per hour the resistance becomes the governing factor to the exclusion, for practical purposes, of all other factors. As the speed exceeds 100 kilometres an hour, so the resistance of the air increases by leaps and bounds, every leap being greater than the last until, as it has been aptly put, the "air becomes solid," and the object trying to pierce its way through becomes heated by friction against the air and deformed just as a lead bullet is changed in shape when it passes through a substance which materially arrests its progress.

At the time I commented on this subject I quoted an article by M. J. Ravel in *La France Automobile*. M. Ravel has come into print again on the subject, *apropos* of the Deauville records, and points out with much force that the wonderful times achieved



AN ANTI-AUTOMOBILE CONGRESS.

[Das Schnaufferl, Munich.]

in this event are mainly, if not wholly, due to the speed and direction of the wind on that occasion, and as this is also an opinion I hold strongly, it may not be uninteresting to go into the question in a superficial manner.

In the first place, by M. Ravel's calculations, in a motor-car whose engine develops, say, 50 horse power, the power is absorbed as follows, viz.:—Overcoming resistance of the air, 29 h.p.; overcoming resistance to traction, 9 h.p.; loss in transmission, 12 h.p.; total, 50 h.p.—showing that over 75 per cent. of the effective power, and nearly 60 per cent. of the total power, is absorbed by, so to speak, forcing back the air.

It is obvious, therefore, that under these circumstances a favourable or unfavourable breeze which moves the air in one direction or the other at a speed of say, ten miles an hour, or, roughly speaking, five yards in a second, will make a difference in a record of nearly twenty miles an hour, for in the case of a contrary wind the automobile has to drive through an atmosphere coming towards it at ten miles an hour, whereas in the other case the atmosphere

is moving with it at the same rate, and as the proportion of power required to cleave the air is so great in comparison with that required for traction, the latter may almost be neglected. It is like a man swimming with or against the stream of a river. Kilometre racing records may, therefore, be expected to give most erratic results; in fact the results even on the same day cannot be considered as accurate, for the wind comes in puffs, and it is quite possible that more or less puffs of wind in half a minute will make a difference to the competitor of miles per hour.

THERE is one way, however, of getting accurate results, and I suggest it for the consideration of the powers that be. An anemometer should be affixed to each car on a projecting arm clear of the car, and in front. An observer should be on the car, whose duty it would be, by means of two attachments, electric or otherwise, to start the anemometer on crossing the starting-line and stop it on crossing the finishing point. The number of revolutions of the anemometer would then give the true speed of the car in relation to the displacement of the air.

THE meeting of Provence, which is to be held on the 14th, 15th, and 16th inst. is gaining in importance daily. It has been decided by the Salon Automobile Club to profit by the Ministerial sanction of the Criterium of Provence and run off at the same time the Lebaudy Cup and the Nice Cup, which could not be run in the spring on account of the veto which was put on the Nice races.

ALL motorists will remember the hill of "Gaillon," which for some few years past has been the scene of hill-climbing trials in the vicinity of Paris. The hill, although commonly named as above, rejoices really in the aristocratic title of "Sainte-Barbe-sous-Gaillon," and the competition was originally organised by the *Velo* in December, 1899. Last year I gave an account of the meeting which was held in November, if I rightly remember, and under the auspices of the *Auto-Velo*. This year it seems that there are to be rival days on the "Sainte-Barbe-sous-Gaillon," the one organised by the *Velo* and the other by the *Auto-Velo*. The first named organiser has fixed on October 12th for its meeting, and the latter October 5th.

THE "Circuit de l'Herault a l'Alcool," which I announced a short time ago, will be held on October 12th. It is to be a sort of reliability trial with the object of popularising the employment of alcohol for propelling motor-cars, and in addition to this will be a test of consumption of fuel, of the general efficiency of the machines, of their hill-climbing and brake powers, of their comfort and elegance, and lastly of their speed over a measured kilometre. The judging will be done in an ingenious manner.

THE car which is classed first in one particular virtue will have given to it as many marks as there are cars in the category to which it belongs, the car that is next best will receive one mark less, and so on. The same will be done for every particular virtue and then the marks in each case will be multiplied by the following coefficients:—Consumption of fuel, coefficient, 10; regularity of running, coefficient, 8; hill-climbing capabilities, coefficient, 5; comfort and elegance, coefficient, 5; speed (over the kilometre), coefficient, 2. The car that obtains the greatest total of marks will be, of course, the winner. There are many prizes to be competed for in the way of medals and bronzes.

ALTHOUGH the Shah of Persia does not practise rapid travelling himself, he certainly takes a great interest in it, and during his stay in Paris last week amongst his many occupations and amusements has been a visit to the A.C.F. His Majesty Mouzaffer-Ed-din is, however, a stickler for etiquette and does not consider that kings should appear in public on motor-cars, so he refused the proffered Serpollet car and preferred to have himself taken to the A.C.F. in a horse-drawn vehicle. He was met at the Club by a number of members of the Committee, including the Marquis

de Dion, and after duly inspecting the building from roof to basement he was driven off to the Bois de Boulogne, where a special kilometre speed contest had been arranged for his benefit. The roads were very bad, but some thirty cars turned up and did their best under adverse circumstances. Serpollet, of, course, was there, and won the day in 48 seconds. Remarkable amongst the competitors was the jockey Tod Sloan on a 70-h.p. Panhard, in which his tiny figure was almost lost. The Clement won first prize in the class reserved to motor-bicycles under 66 lbs. weight, doing the kilometre (standing start) in 1 min. 3 3-5 secs. The Shah was gratified with the exhibition, but his sad, impassive face did not express entire approval or disapproval of the speeds indulged in.

THE race meeting organised by the Frankfort Automobile Club was held on the Oberforsthaus Racecourse, Frankfort-am-Main, on the 31st ult., when some interesting events were run off. The course is just a mile. In Class 1 (motor-bicycles) there were eight entries for a three-mile race, the winner being F. Rigaux, who, on a 2½-h.p. machine, covered the distance in 4 minutes 44 seconds. Class 2 (voiturettes under 400 kilog.) brought in six entries, the winner, Herr Opel, doing the three miles on an Opel-Darracq in 5 minutes 55 seconds. Of the four-seated light cars under 650 kilog. (Class 3), in a five-mile race, F. Poge drove a 12-h.p. Opel-Darracq to victory in 9 minutes 57 seconds. A similar race for professional drivers was won by F. Kirchheim on a 20-h.p. Eisenach car in 8 minutes 16 seconds. A five mile race for members of the Frankfort Automobile Club was won by Herr Brounig, who, on an 8-h.p. Adler, covered the distance in 8 minutes 38 seconds. An eight-mile handicap for four-seated cars was won by J. Goebel on an 8-h.p. Bergmann in 11 minutes 31 seconds. For Class 7 (heavy cars) ten miles was the distance, and in this event Mr. C. G. Dinsmore, of New York, proved the winner. He drove a 40-h.p. Mercedes, his time for the ten miles being 14 minutes 6 seconds, equal to forty miles per hour.

A KILOMETRE competition was held at Varssenaere, Belgium, a few days ago under the auspices of the Automobile Club of Flanders. Class 1 (motor-cycles) was won by M. A. Joostens on a Korn tricycle (time, 51 sec.); Class 2 (cars under 400 kilog.) M. A. De Breyne on a Darracq (time, 1 min. 34 sec.); Class 3 (cars between 400 and 650 kilog.), M. A. Kervyn d'Oudt Mooreghem on a Panhard (time, 1 min. 6 sec.); and Class 4 (heavy cars), Comte J. de Hemptinne on a Gobron-Nagant (time, 58 4-5sec.).

OWING to an error in one of the chronometers of the timekeepers at Deauville, the records are all wrong and Mr. C. Jarrott still holds the world's record for the flying kilometre. It transpires that the difference of time between the timekeepers' chronometers was seven seconds, with the result that the records made at Deauville are of no value. There is a question of making a public announcement declaring the recent meeting void.

EIGHT motor-cars are to be used in connection with the Russian military manœuvres near Kursk.

MESSRS. R. BIRD CHEVERTON AND COMPANY, LIMITED, will acquire a business now carried on at Newport, Isle of Wight, and deal in motor vehicles.

THE King has visited Mr. Andrew Carnegie at Skibo Castle, proceeding thither from Dornoch on the Duke of Sutherland's motor-car.

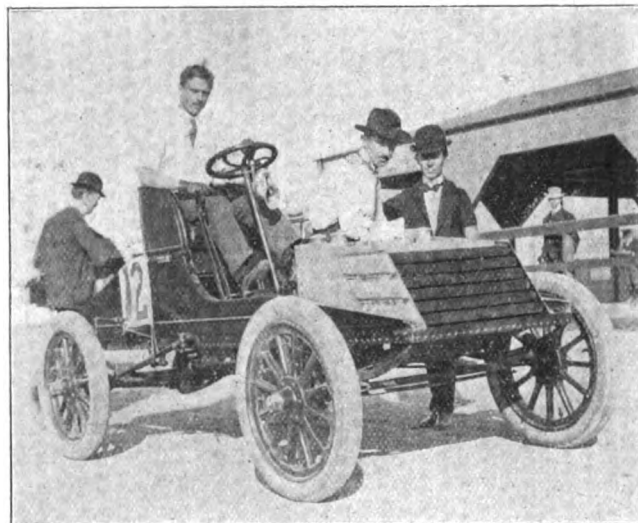
A MOTOR-CAR, dashing into the Two Bells Inn, on the road between Peterborough and Bourne, knocked in the end of the house and displaced the mantelpiece in the sitting-room.

To deal in motor-cars is one of the objects with which the firm of W. H. Green, Limited, has just been registered with a capital of £5,000 at Polesworth, near Tamworth.

AN automobile fete, extending over three days, commencing on the 20th inst., is being organised at Dusseldorf by the Rhenish-Westphalian Automobile Club.

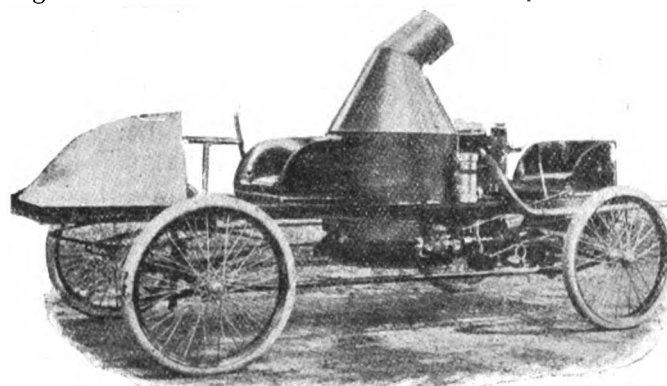
AUTOMOBILE RACES IN AMERICA.

AN automobile race meeting was held on the Brighton Beach track, near New York, on the 23rd ult., under the auspices of the Automobile Club of Long Island. Flying starts were made in all the events except the Australian pursuit race, in which the cars had to make a standing start. The first race was a one mile handicap for cars under 1,500 lbs., this being won by L. Mooers on a Peerless car (time, 1 min. 39 1-5 sec.) T. Holden, Jun., being second on a Locomobile. The next event



MR. PERCY OWEN ON THE 15-H.P. WINTON RACER.

was a five mile race for steam cars, J. W. Howard, on a Howard racer, winning in 9 min. 5 sec. A five miles race for petrol cars under 1,000 lbs. was won by J. Longuevez on a De Dion. F. A. La Roche, on a 35-h.p. Darracq, won the race for petrol cars between 1,000 and 2,000 lbs.; Percy Owen, on the Winton car illustrated herewith, being second. The next event was a ten-mile race open to all types, the winner being H. S. Harkness, who on a 40-h.p. Mercedes covered the distance in 11 min. 54 1-5 sec. Harkness also won the next event, an "unlimited pursuit race," 5½ miles being covered in 7 min. 13 sec. In this race the Howard steam-



THE CANNON NOVEL STEAM RACER.

car, a Darracq, and a Mercedes were, at starting, placed at equidistant points apart, one-third mile from each other, around the track. All three machines appeared to hold their own for the first few miles, the superior horse power of the Mercedes finally enabling it to overtake its nearer competitor, the Darracq, at 4½ miles, and soon afterwards to catch the Howard at 5½ miles. W. Murphy, on a Locomobile, won the obstacle race. One of the features of the meeting was the appearance of the curious-looking vehicle shown in the second illustration, lately built by Mr. G. C. Cannon, a student at Harvard University, New York. The

vehicle is thus described by the owner: "The machine, as a whole, is extremely light and fitted only for track use. The boiler, engine, tanks, seats, etc., rest on an angle iron framework, the angle being filled in with square oak. The boiler is twenty-four inches diameter, with 1,050 tubes. It is surrounded by one inch of asbestos, held in place by a sheet iron covering, which also extends upward to form a chimney, and downward to form an air scoop. The burner is of the ordinary type, with 450 tubes. It has three mixing tubes and a pilot light. The engine is $3\frac{1}{2}$ by 4 inches, two-cylinder simple, geared one to one with the rear wheels. This engine has been tested and is capable of running at a speed of over 1,000 revolutions per minute. Steam can be raised from cold water up to 200 lbs. pressure in a fraction under two minutes. The water is carried forward in a 20-gallon tank, while the petrol is aft. The men operating the car sit tandem fashion. The front man steers the machine and operates the throttle, while the rear one controls the fire and water. The steering is effected by means of a horizontal hand wheel." Unfortunately the car was disqualified right at the start of the afternoon's sport, a disqualification that was as unpopular with the crowd as it was distasteful to Cannon. It was based on the rule to the effect that the control must be in the hands of one man. Cannon begged to be allowed to ride under protest, to go for the mile officially, and, finally, to be allowed to do this unofficially, the last request alone being granted. On its first trial, early in the day, when the wind was strong, it covered the mile in 1 min. 8 3-5 sec. At the conclusion of the programme another attempt was made under more favourable wind but less favourable temperature conditions. This time 1 min. $7\frac{1}{2}$ sec. was attained, which is claimed to be world's track record for steam vehicles.

HERE AND THERE.

THE Scottish Chamber of Agriculture approves of the suggestion that motor-cars should be numbered.

IN addition to Capetown and Johannesburg, Bloemfontein will shortly have a public motor 'bus service.

THE *Gazetta dello Sport* of Turin proposes to organise a hill-climbing competition up the Stelvio in the Tyrolean Alps, to be held early next season.

AT Bath, on Monday, a number of scientists interested in aerial navigation celebrated the centenary of the first balloon ascent made at Bath in the year 1802 by Garneri.

THE fact that the Mexican Minister of Public Works is a motoring enthusiast is said to be the cause of the recent schemes for the development of roads in Mexico. All the highways in the Federal district of Mexico city are to be put under thorough repair, and new roads of a length of 124 miles are to be built.

THE example set by the *Midland Counties Tribune*, in adopting the motor-bicycle for the rapid conveyance of news, is being followed in America, the *Daily Mirror*, of Escanaba, Mich., having decided to purchase a Mitchell motor-bicycle to facilitate the matter of news gathering and to answer calls for advertising with despatch.

MR. ALBERT HOUSE, manager of the Bradford Motor-Car Company, last week held the first of a series of periodical auction sales. Eighty-eight lots of cars, cycles, lamps, etc., were catalogued and about twenty others were afterwards added. There was a good attendance and a fair proportion of sales was effected, they including fourteen cars and seven motor-cycles.

MR. F. STRAIGHT, the handicapper of the Automobile Club's motor-cycle race meeting at the Crystal Palace, writes stating that by desire of the Automobile Club the handicaps were framed solely according to the size of the bore and stroke, and it is to this that he attributes the fact that the ten miles handicap turned out so badly, the small engines in many cases being very much faster than motors having a considerably larger bore and stroke.

COLONEL HOLDEN, R.A., has a 10-h.p. Georges Richard car on order.

AN article on a motor-bicycle tour through Europe has appeared in the *Daily Chronicle*.

ALDERMAN KINGSBURY, of Blackpool, is endeavouring to include a motor-car race as an event in the autumn fete at that resort.

THE members of the Lincolnshire Automobile Club meet to-day (Saturday) at Castle Hill House, Lincoln, on the invitation of Mr. G. M. Lowe, M.D.

A DAILY service of motor-wagons is being carried on between Liverpool and St. Helens, goods being collected, transported and delivered within three hours.

AT an ordinary meeting of the Metropolitan Asylums Board, on Saturday, it was agreed to enter into a contract with an engineering firm for the supply of a steam motor-ambulance.

MESSRS. JONES AND Co., of Talbot House, Lichfield, are keeping a stock of motor-car accessories and Pratt's motor-spirit. They have also been appointed official repairers to the A.C.G.B.I.

HER MAJESTY THE QUEEN has been motoring in Sutherlandshire, and was driven to the landing stage at Golspie, to embark on the Royal yacht, by the Duke of Sutherland on his car.

MESSRS. HUMBER, LIMITED, have recently opened a motor garage at 27, London Road, Southampton, where cars of any make can be repaired or stored. Petrol can be obtained either on weekdays or Sundays.

MOTOR-VEHICLES are familiar enough in connection with the transport of brewery materials and products. They have just proved their utility in conveying a party of coopers from Messrs. Worthington and Company's brewery at Burton to the scene of the annual beanfeast at Ashbourne.

THE Canford Cliffs Motor Car Company, Limited, whose offices are in Yelverton Road, Bournemouth, have been running a service of cars for nearly three years, apparently with great success, judging from the difficulty experienced in finding a seat on their vehicles. The company, having a competent fitter at their depot, are able to undertake repairs of all kinds and keep a stock of petroleum spirit and spare parts.

AT a meeting of the Worcestershire County Council on Tuesday Lord Coventry urged the necessity of petitioning the Local Government Board to regulate the speed of motor-cars. He declared that an automobile recently passed through Severn Stoke at forty miles an hour, and although the police made an effort to catch the driver at Worcester and Droitwich he managed to escape.

THE Tendring (Essex) Justices have written to the County Council suggesting the advisability of providing the police with stop-watches, in order to ascertain the speed of motor-cars. It was stated that a couple of summonses against motor-car drivers, heard before the Tendring Justices, had to be dismissed because there was not sufficient evidence as to the actual pace the motor-cars were being driven. Captain G. M. Showers, Chief Constable, remarked that probably the law would be altered before the police got the watches. The letter was ordered to be laid upon the table.

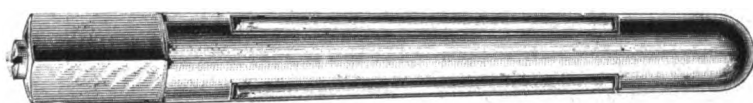
AN inquest has been held at Savernake concerning the death of a carter who died as the result of a kick from a horse which, it was alleged, had been frightened by a motor-car. The jury returned a verdict of "Accidental death," and the Coroner added that they were rather of opinion that as the driver of the motor-car was a medical man he might have taken more steps to ascertain the nature of the injuries to deceased. If he had been an ordinary individual and not a doctor he would probably have acted just in the same way as Dr. March did, but being a medical man the jury were of opinion that he might have examined more closely into the injuries deceased had received and have advised upon them.

THE recently-formed Liverpool Motor-Cycle Club will hold a run to Llangollen on Sunday next.

In motoring circles at Nice there is some talk of organising a race from Paris to Nice, to be run off next spring.

THE attention of the Chief Constables of West Hartlepool and Darlington is being called to the speed of motor-cars by their respective Town Councils.

MESSRS. BROWN BROS., LTD., are introducing a new tube expander known as the Albany, specially designed for use in connection with motor-car tubular boilers. On account of the tubes being so small, the ordinary tube-expander is of little use, the central mandril not having sufficient surface to rotate the head carrying the rollers. The Albany tube expander illustrated herewith in full size consists of a hardened steel shell with suitable slots for carrying the expanding rollers; inside the same is fitted a fourth roller free to rotate between the expanding rollers and the tube. As the shell or arbour is rotated it is impossible for the rollers to do otherwise than roll; the consequence is, the tube



is evenly expanded, while a job that usually takes many hours with a drift tube expander can be accomplished with this tool in a few hours successfully, without damaging the boiler or tube in any way. Another advantage claimed for this class of expander is that the hole in the tube is not left with a shoulder, which usually occurs when a drift or ordinary expander is used, but tapered hole results, inducing better draught and causing the boiler to steam more readily.

THE Auto-Lubrine Company, of Fairfield, Manchester, have introduced what they term G Oil for the gears, chains, and differential of motor-cars. It is claimed to give perfect lubrication, consequently increasing the life of the gears, which slide into mesh without trouble, and when in mesh decreasing noise owing to a cushion of lubricant always being on the teeth.

AN accident has occurred near Kildrummy. While a motor car, occupied by Mr. G. Cornwallis West and his wife, was descending the hill known as Den of Kildrummy, they passed a dogcart belonging to the shooting tenant of Glenkindie House. The horse shied and leaped up an embankment. Happily no one was severely injured. No blame whatever is attached to anyone, as the road is very narrow and the hill rather steep.

THE newly-formed South African Motor-Car Company, Limited, has placed orders for six steam motor delivery vans, a 25 h.p. steam motor bus to carry 48 passengers, three motor carriages to carry 12, 10, and 8 passengers respectively, also several others to carry 4 and 6 passengers. The manager of the company will shortly be in England for the purpose of making further purchases.

WRITING from 23, Cumberland Mansions, S.W., a lady who signs herself "Anti-Sneak" says:—"I have more than once exulted in baulking the skulking policeman. When car after car passes, crawling down the chosen hill, the waiting constables do not connect this with the innocent-looking lady cyclist who noted the ambush out of the 'tail of her eye' an hour before, and who has delayed her own progress to warn approaching motorists."

MESSRS. INGALL, PARSONS, CLIVE AND CO.'s three-ton Coulthard wagon left their works at Wealdstone, Middlesex, on a recent Tuesday at 3 p.m. with three tons, arriving at Leamington on the following evening; it left Leamington on the morning of the next day, picked up a return load of three tons in Birmingham, and journeyed that night to Coventry. At nine o'clock on Friday morning it left Coventry and arrived at Wealdstone at seven o'clock on Saturday morning. The total cost of the journey in water and fuel was 24s. The goods were delivered in perfect condition and in just half the time that they would have taken to have gone by rail.

It is reported that Henri Fournier will drive a Mercedes car during the 1903 season.

THE completion of the 6,000th motor-bicycle at the works of Messrs. Werner was celebrated by a banquet a few days ago.

A NEW strong man has made his appearance in the United States. Max Unger is his name, and among his feats is that of lifting and holding up a light motor-car.

TWO boys, one 15 and the other 17 years of age, recently completed a motor-car run from New York to Chicago. The actual running time was 11 days 1½ hours.

WE learn from New York that the Clarkson and Capel Steam Car Syndicate, Limited, has bought the English patent rights of an American motor-tyre known as the Bailey.

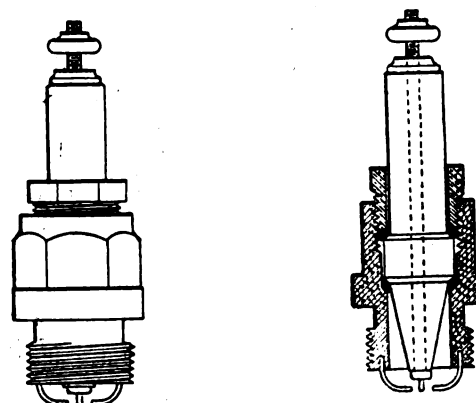
AFTER having ridden 840 miles on a motor-bicycle in 48h. 34m. 30s. in an attempt to beat the 1,000 mile record at Minneapolis, U.S.A., John Nilsson was forced by rain to stop.

MR. WOOLER, one of the gentlemen on the Darlington Town Council, at the last meeting of that illustrious body described automobilists as "bounders on boilers," while Alderman Wilkes remarked that motor-cars "were driven at fearful speeds by blithering idiots."

THE Chicago Automobile Club is organising a novel race "under sealed orders," so that the general public will not know where the race is to be held. Even the contestants will be kept in ignorance of the place of the race until they meet at the Clubhouse the day of the event, when they will be given sealed envelopes telling where the competition is to take place.

AUTOMOBILISTS passing through Bournemouth will find garage accommodation with the Birmingham and Coventry Cycle Company, Limited, whose premises are opposite the Hotel Metropole on the East Cliff. They also keep a stock of petroleum spirit, and are official repairers to the A.C.G.B.I. Mr. J. S. Norman, of The Quadrant, also undertakes repairs, stocks petrol and motor spirit and has garage accommodation.

THE sparking plug herewith illustrated has, it will be noticed, three sparking points, and is said to give ordinarily two sparks while one pair of electrodes always works. The insulation is of lava, and the diameter of the insulating core diminishes



toward the sparking point, leaving an annular space between it and the plug casing, to minimise the danger of short circuiting. The Schaum Automobile and Manufacturing Company, of Baltimore, U.S.A., are the manufacturers of the plug.

THE Chameroy patent motor tyre tread now being placed upon the market by a company with offices at 76, Little Britain, E.C., can be applied to the outer covers of any pneumatic tyres. It is secured by means of bolts placed about four inches apart, and is said not to wear the cover. In fact, it actually protects it from wear, the steel band and the segments presenting a flat bearing surface for the rubber. Among the other merits claimed for this tread by the Chameroy Company is the prevention of side-slip and punctures—two of the present-day horrors of the motorist.

CORRESPONDENCE.

A MIS-USER OF THE ROADS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—While driving my little car on the Bath road the other day, I had a very bad second or so. The roads were dusty, and I had just surmounted a hog-backed bridge to find the road swerve sharply to the right and ascend a slight hill. I had just time to tuck my car close into the side of the road when a big car, coming down the hill towards me, attempted to take the curve at the bottom at something like twenty-five miles an hour. Needless to say it wheeled round nearly broadside-on, and by the greatest good luck—for me—just missed me.

Now, Sir, I am sure I have not the slightest objection to this particular chauffeur immolating himself and his car, and there is much to be said for such a happy consummation; but I do think all fair-minded men will agree with me that he should do it decently, by himself and refrain from making a holocaust of the occasion.

The man was either mad or had not learnt the very elements of driving, and in either case the sport would be better without him. It is such folly as this that embitters road users and ties the hands of legislators who would gladly give sensible men a freer hand.—Yours truly,
CENTURY.

MOTOR-BICYCLE TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice in your issue of the 30th ult. that "Motor Bike" is asking for the experience of others riding the new type Werner motorcycle. Having one myself, which I have ridden upwards of 600 miles, and not having had the slightest trouble whatever with it, perhaps you will find space for the following remarks.

I find the brakes perfect (more especially the back hub band brake); I seldom use the front rim brake, as I find I do not need it. With regard to the dirt on the gauze-covered inlet, I find this does not require any more cleaning than other parts of the machine, which, of course, gets dirty or dusty with use. I never get any oil on the trembler blade, and think your correspondent must over-lubricate the engine, hence the fouling of the plug, and not bad combustion, as he states. The latter is easily prevented by giving more air at the back inlet. I am perfectly satisfied with the machine, and may add that I am using D oil for lubricating, which is very good. Werners Motors, Limited, supply "Wernoil," which I intend trying, as I have been recommended to do so by one who prefers it.—Yours truly,

N. VOICE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The flooding of the carburettor in the Werner motorcycle complained of by your correspondent, "Motor Bike," may be due to any of the following causes: (1) The needle valve admitting petrol may fit badly and need regrinding; (2) The float may be faulty or damaged; (3) The spring controlling needle valve may be too weak and fail to close valve properly when sufficient petrol to lift the float has run into the carburettor. This spring should be depressed by a weight of twenty-five grammes. Should none of the above faults be apparent, your correspondent has only to regulate the flow of petrol from tank to carburettor by turning the petrol tap from half to fully open, so that the level of petrol in the tank sinks. If the tap be fully open when the tank is full, the carburettor will of course flood when the machine is ridden over rough roads. In some patterns of the 1902 Werner the tap on the petrol pipe is replaced by a needle valve and scale, giving a finer adjustment, but this is superfluous and more likely to get out of order. As regards the clogging of air inlet, the latest pattern carburettors have in front of the gauze covering an additional protection in the shape of a perforated metal plate, which is not so liable to foul and more easily cleaned. I have had a non-stop run which should have ended in London, starting from Daventry, brought to an end at Barnet (just 100 kilometres) through dust clogging the air inlet. A few minutes' work with a pin sufficed to get me going again, and I can hardly complain of a motor-bicycle which carries me 100 kilometres without a stop. I find that with careful adjustment the rear-wheel band-brake alone will pull up the machine in little more than its own length at any speed, and hold it on all hills. Naturally the brakes and all other parts of a motor-bicycle need attention from time to time if they are to be made efficient. The Werner carburettor is exceedingly reliable and needs little attention (witness Arnott's recent ride of 212 miles without altering the mixture), and it is inadvisable to touch it often once the correct mixture is found.

Here in Germany, where proper motor spirit is often unobtainable, I often use benzine of any specific gravity obtainable, and find it answer equally well. I have also been compelled to use ordinary "water-cooled motor" lubricating oil, and ran the motor some thirty miles on this before I could obtain proper "air-cooled" oil. This, I think, speaks well for the robustness of the engine. In England I use "Wells-Lucas" "air-cooled" lubricating oil, but any brand supplied by a firm of repute is suitable.—Yours faithfully,
Homburg.

PETROLIO.

DE DION TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I consider the thanks of all users of De Dion cars are due to Mr. Guest for his letter which appeared in a recent issue of your Journal.

I am at present running a De Dion voiturette with a 6-h.p. engine, and my only trouble has been occasional fits of misfiring, the cause of which I could not fathom. I have blamed the plug; I have cursed the trembler. In fact, I fully believe that had I not found relief this faulty ignition would have ultimately been the cause of my spiritual downfall. However, after reading Mr. Guest's remarks I saw he had diagnosed my case exactly, and I proceeded to apply his remedy. I cut the connection of one of my 4-volt accumulators in two, and then connected one cell to another 4-volt accumulator, and coupled up to my car connections in the usual way. After which I drove with my wife and luggage a 300-mile tour, and during the whole of that time I never had a misfire, and moreover than that my engine started at the first turn of the handle. Hitherto I had been in the habit of religiously cleaning my plug and trembler after every long run, but this time I never touched either. Once more I say, many thanks to Mr. Guest.—Yours faithfully,

W. B. JEVONS.

A RUN ON A SMALL CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having just returned from a most enjoyable tour through some of the Midland and Eastern counties on a 34-h.p. Progress voiturette, some account of the run may be of interest. On leaving Bristol the roads were heavy from recent rain, but as the weather cleared up I got comfortably to Bridgnorth in good time, (staying in that district a few days, and having a run to the Shrewsbury Agricultural Show, where I had a first taste of aerial navigation. From thence the journey was continued to Wolverhampton, where interesting visits were paid to the Exhibition and to the Miesse Steam Motor-Car Works. Going to Derby I made a start for Nottingham, Lincoln, and Scunthorpe; but by the time I arrived at Nottingham the clouds seemed to be gradually closing and rain began to fall. Approaching Lincoln rain came down in torrents, and continued, which, through my own negligence, gave me ignition troubles. To this point I had not any cover over my contact breaker, with the result it was completely caked up with mud, and wet constantly got between the contact points and stopped the engine. I saw no way of permanently getting over this electrical difficulty in the extreme wet, so made for a barn in the near distance, where I thoroughly cleaned contact breaker and discovered I had a cover, but was minus screws. I, however, bound it on the best way I could and made a fresh start, everything now working perfectly, though at this time the roads were more like rivers than public highways. All went well, and I soon arrived at my destination. After a few days' running in that neighbourhood (between Barton and Grimsby), I made my return via Lincoln, Newark, Leicester, and Coventry. I spent the morning looking round Coventry, and immediately after lunch made a start for Bristol, which was reached in splendid time. The distance in all amounted to about 650 miles, and the average mileage on 2 gallons of petrol was 70 miles. Another point also I think worthy of note, seeing that most motorists have accumulator troubles. I was asked to try a set of Paris hermetically-sealed cells, and although I had to fix them to the footboard on account of there not being much battery space, I decided to put up with this inconvenience in order to give them a good test. I examined the inside on my return, and could hardly trace the slightest internal wear.—Yours truly,

ARTHUR E. JOHNSON.

STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should be much obliged if any of your readers who own a Miesse steam-car could tell me if it is entirely satisfactory; it appears to be a silent running car, but I should be glad to know if it stands rough roads, and whether the water gives as much trouble as in the American type of steam-car; also if the 6½-h.p. car is capable of taking four persons at a fair pace—say, twenty miles on the level.—Yours truly,

STEAM-CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should be glad to hear from any of your readers their experience of tubular and flash boilers. I have had endless trouble with mine owing to the tubular pipes blocking, although I have blown out the boiler after every other run. At last I had a "scorch," entirely through the glass showing two-thirds full of water and none in the boiler owing to the pipes being blocked. The tubes now do not appear to stand, although I have had a new set fixed and a Klinger gauge. I should like to hear of the result of flash boilers fitted to these cars from users, as the trouble I have had spoils the pleasure in motoring. I have used the car well and taken every precaution, using clear river water—sometimes soft.—Yours truly,

ANXIOUS.

THE HORSE-POWER OF PETROL MOTORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I venture to write you on a subject which has long been on my mind, viz., the tendency to over-rate the horse-power of petrol motors. While the mechanical horse-power is a perfectly definite entity, the unit of power adopted by manufacturers of petrol motors and motor-cars does not always possess this characteristic, the only thing definite about it being that it is always smaller than the horse-power fixed by James Watt. This practice of over-rating motors is an injustice to the purchaser. The trouble

is that manufacturers as a rule do not go by the power a motor will deliver continuously or under any conditions, but by the maximum that can be attained. Now, while it is often stated that petrol engines will develop their maximum power continuously, this is only true under certain reservations, and, does not apply to air-cooled motors, which under the conditions calling for maximum power—in climbing hills—always develop less power than when running under normal conditions. On hills, the power of such motors is reduced, on the one hand, by the speed being pulled down, but the power at the speed the motor runs is also lower than when it is reduced to that speed momentarily, on account of the heating of the cylinder due to the continuous slow speed. It seems to me that these considerations indicate that it would be wise to rate petrol motors for motor-cycles and cars on a conservative basis. Watt based his horse-power standard upon the average power a horse could develop for ten hours a day. I would therefore suggest that it is not too much to expect a petrol motor to develop the brake horse-power at which it is rated during a similar period.—Yours truly,

MERICO.

POLICE ESTIMATION OF SPEED.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—To those who may have the misfortune to be summoned for furious driving in the neighbourhood of Godstone, Surrey, the following information may be of use to them in defending the charge. On the 11th ultimo I was summoned to appear at Oxted police-court to answer to a charge of driving over twelve miles per hour, and being unable to attend I instructed my solicitor to appear for me. Knowing the utter uselessness of disputing the statements of the police, I told the solicitor to plead guilty of just exceeding the legal limit. As a matter of fact the speed, as endorsed by my friend who was with me at the time, did not exceed 10 to 11 m.p.h., but as the police had stop-watches, I, like Mr. Robey, "bowed to superior knowledge."

To my astonishment I hear the police stated they timed me to do 20 m.p.h., which clearly shows that the watches used by the police are inaccurate or else that they are grossly ignorant of the way of using them. I am quite prepared to swear to this, as is also my companion, if it should be of use to any motorist who may be prosecuted.—Yours faithfully,

OSWALD COLLS.

A WORD FOR THE WOLSELEY.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reading recent letters in the *Journal* I have been much struck by the fact that your correspondents describe exactly the troubles I had with a 4½-h.p. car. If I made an appointment to take a friend for a run the engine just as certainly hung up, and I have spent many an hour in adjusting trembler and sparking plug. I have been for a run and put the car away in apparently perfect condition, but never knew, when I wanted to go out again, whether she would start or not. I sold that car at a loss of nearly £100 and in November last bought a Wolseley.

From that moment my troubles ceased. There is no trembler to adjust, and never once has the engine failed me. One turn of the handle, and, without a single exception, the engine has started. "T. B. H." concludes his letter by saying *all* motors (the italics are his) are tricky at times. Nine months' experience with the Wolseley has convinced me that this is not so; in fact, I have so much confidence in the engine that I would place absolute reliance in it for use by a fire brigade. Its immediate readiness to start would make it much superior to horses for the conveyance of a fire escape and small pump to fires.—Yours truly,

J. P.

J. D. B. writes:—"I am sure it would be interesting to many of your readers, as well as instructive, if Mr. C. H. Guest would more fully explain the reason that many De Dions cannot be started with the aluminum cover on the trembler."

REVEREND A CORRESPONDENT signing himself "Disgusted" writes:—"I should be glad if some reader could tell me how to get parts within a reasonable time, say seven or eight days. I have a 8-h.p. car which only ran seven weeks when the gear was completely worn out although flooded with oil. I immediately sent the gear to the London agent for replacing and have written and wired times without number, but have no definite promise as to delivery. It is now eight weeks since the car was laid up, the best part of the season has gone and it does not look like getting to work this year."

A RUN of 118 miles on one charge of the battery is reported to have just been made by one of the vehicles of the National Vehicle Company, Indianapolis, Ind. The asphalt streets of Indianapolis were chosen for the trial, the start being late at night. The run was continued until early morning and resumed the next day, the total mileage recorded when the vehicle came to a stop being 118 miles. The vehicle was equipped with a 40-cell battery.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Maidenhead ...	E. Violon	30 m. p. h.	£4 and costs.
" ...	C. Seabert	22 m. p. h.	£4 and 8s. 6d. costs.
" ...	W. Hight, Maidenhead	28 m. p. h.	£4 and 7s. 6d. costs.
Tadcaster	S. Dillon, Battersea	Above legal limit.	Adjourned
Wilmslow	M. Ashworth, Alderley Edge	20 m. p. h.	£5 and costs.
St. Neots.....	G. Hughes, Worksop	29 m. p. h.	£6.
"	B. Tatham, Twickenham	20 m. p. h.	£6.
Dingwall	A. Gentelh	Above legal limit.	Warrant issued
Faversham	G. Dumond	" "	£2 2s. and £1 7s. 10d. costs.
*Bedale	W. Johnson, Knaresborough	" "	Ordered to pay 22s. costs.
Worcester	W. J. Bladder, Worcester	" "	Ordered to pay costs.
Hastings	C. Cruttenden	" "	Dismissed.
Doncaster	P. Fairhurst, Mold	20 m. p. h.	20s. and costs.
Smallborough...	A. Fields, Horsey	Above legal limit.	£5 and costs.
Arundel	M. Camous, Pulborough	12 m. p. h.	£5 and 25s. costs.
Combe Martin, Devon	Captain A. Campbell	21 m. p. h.	£1 and costs.
*Lancaster ...	G. Sharpe, Halton Hall	Above legal limit.	40s. and costs.
Bakewell	R. Dennis	" "	£5 and £3 7s. costs.
Bexhill.....	W. Kirk, Bexhill	" "	£3 and costs.
Otley	T. Stevenson, London	25 m. p. h.	£2 and costs.
Towcester	E. Watson, Duncote	Above legal limit	£1 including costs.
*Brentwood ...	G. A. Cracknal, Ilford	" "	£1 and costs.
Maidenhead ...	A. Brooks	" "	£5 and costs.
"	"	Not giving name and address.	£10 and costs.
Shoreham	W. G. King, Honiton	Above legal limit.	£5 and costs.

* Motor-cycle cases.

THE Smallborough (Norfolk) magistrates last week fined Alfred Fields, of Horsey, £5 and costs for furiously driving a motor-car. A policeman said the speed of the vehicle was between 18 and 20 miles an hour, and a witness said it was "too fast for anything; in fact, faster than our train."

AT Doncaster West Riding Police-court, Peter Fairhurst, motor-car driver, of Mold, was summoned for driving a motor-car at a speed of over twelve miles per hour, at Norton, on August 21st. Defendant submitted that the police-sergeant's watch, not being a stop-watch, was not a competent one to take time by. He would swear he was not going at above twelve miles an hour, as he was running on the third speed with his machine. A fine of 20s. and costs was imposed.

PRINCE HATZFELDT'S motor-car driver, Robert Dennis, was fined £5 and £3 7s. costs at Bakewell petty sessions for driving along the Buxton-road near Haddon Hall at an excessive speed. A constable with the aid of an ordinary watch had calculated the speed at over thirty miles per hour, but the Prince, who was the principal witness for the defence, gave sworn testimony that his 12-horse power car was unequal to such a speed, and was moreover geared specially low for hill-climbing in the Peak. Dr. Carter corroborated the Prince's evidence, but the Bench, in convicting, reminded the Prince that less wealthy and influential people had an equal right to the safe usage of the roads, and they looked to motorists in his position to set a better example.

WILLIAM KIRK was summoned for driving a motor-car in Buckhurst Place, Bexhill, at an unreasonable pace, considering traffic. Mr. F. Lewis prosecuted, and pointed out that though the defendant was not travelling at a pace exceeding twelve miles an hour, he was travelling at a pace which was unreasonable considering the traffic upon the thoroughfare. Owen Townsend, of Dalston, London, said he was

crossing the Town Hall Square, Bexhill, on the evening of July 20th, when a motor-car came round the corner and knocked him down. Henry Harris said no horn was sounded, and it was impossible for Townsend to have got out of the way. After other evidence had been called the Bench inflicted a fine of £3 and costs, and allowed witnesses' costs.

MR. EDMUND DAVIS, of Cliff Grange, Kessingland, Suffolk, feeling that he was unjustly convicted on a charge of alleged furious driving in Southwold recently, has written to the Mayor of the town asking him to express an opinion with regard to the pace of a motor-car on three separate occasions. If the speeds he mentions are within two miles per hour of the actual rate, Mr. Davis will give him £100 for distribution among the poor of Southwold. Should the Mayor be wrong, Mr. Davis will present £50 for the same purpose.

NO LIGHT.

BENJAMIN LAMB, of St. Paul's Road, Portsmouth, has been fined £3 for driving a motor-car in Palmerston Road, on the night of August 17th, and not having a light exhibited on the front of the car. The defendant said the lamp was alight when the car turned into Palmerston Road from the Parade, and the strong wind must have blown it out.

MOTOR-CYCLE RACING.

UNDER the auspices of the Cheltenham Wheelers and Cycling Club the first motor-bicycle race has been held in that town. The distance was five miles, and the result as follows:—First heat: G. F. Heath, Onward machine (scratch), 1; E. Tordet, Clement-Garrard, 99 sec. start, 2; E. Garrard, Clement-Garrard, 98 sec., 3. Time, 12 min. 5 sec. Second heat: J. L. Norton, Norton-Energette, 95 sec. 1; C. R. Garrard, Clement-Garrard, 99 sec., 2; W. E. Boile, Humber, 12 sec., 3. Time, 12 min. 30 sec. In the Final, G. F. Heath won easily in 12 min. 47 sec.

OBSTRUCTING TRAM CARS.

AT Croydon, on Saturday last, Francis Edmunds, of Thornton Heath, was summoned by the British Electric Traction Company (lessees of the Croydon Tramways) for wilfully causing an obstruction with a motor-car. Defendant denied the charge. Richard Hayden, driver of an electric tramcar, said that on August 23 he was driving from Purley to Norbury, and at the corner of Oakfield Road, West Croydon, came upon the defendant's motor-car. Witness pulled up, and the defendant went round on the off side and stopped so close to the metals that he could not proceed without colliding with him. Defendant said, "You are a fool; you can't drive." Edmunds could have gone on if he had chosen. Witness asked him to get out of the way, but he pulled across the tram-lines, and delayed the car for three minutes. He then went on for a couple of yards, and pulled up so sharply that there was nearly an accident. The defendant then remarked, "If you want me to get off you must knock me off." When witness demanded his name and address the defendant, after pushing and striking at him, started his car, and the crowd prevented him from getting away. George Read, a passenger, corroborated. The defendant, on being sworn, said that the tramcar suddenly stopped and caused him to run one of his wheels on to the pavement. That annoyed him, and when he asked the driver for his number Hayden replied, "What the — do you mean?" Witness retorted that he did not require any impudence, only his number, adding that he should delay the car until he got it. He accordingly did so. The traffic inspector then came up and took his name and address. Fined 40s. and 10s. 6d. costs.

FATAL USE OF PETROL.

AT Marylebone Coroner's Court, on Tuesday, Dr. G. Danford Thomas held an inquest on the body of John Wallis, aged 20, who was employed at the works of the Ormonde Motor and Cycle Company, Wells Street, W., in the basement of which premises he was fatally burned on Friday evening last week. The evidence showed that prior to leaving on Friday it was the duty of the deceased to clean a gas-engine. He was noticed by a shopmate named Dorritt to be cleaning the engine with cotton waste, while at the same time he was smoking a cigarette, although smoking on the premises was "strictly prohibited," and notices to that effect were posted about. Dorritt turned away from Wallis to attend to his work, when presently he heard a scream, and then looking round he saw the deceased enveloped in flames. There was fire all round him, which burnt fiercely and quickly until it burnt itself out within two minutes. Aid was speedily rendered to the deceased, who was conveyed to the Middlesex Hospital, where he died shortly after admission from burns. Before he died he told a nurse that nobody was to blame for the occurrence but himself. The opinion of Mr. Arthur Goodwin, manager of the works, was that, instead of using paraffin with which to clean the engine, the deceased had used petrol. The use of petrol

for this purpose was contrary to rule, as was smoking on the premises. His conjecture was that the fire originated with the contact of the lighted end of the deceased's cigarette with the vapour exhaled by the vapour in the can the deceased was using, and which he probably dropped when the ignition occurred. The jury, in returning a verdict of "Accidental death," suggested that the greatest care and caution should be exercised by employers and employed alike in the use of petrol and similarly inflammable and dangerous spirits.

AN UNLICENSED CAR.

AT Rotherham West Riding Police Court, Reginald Evans, of Branley, was summoned at the instance of the Rawmarsh Urban District Council, for driving an unlicensed carriage between Rawmarsh and Parkgate. Mr. Gichard, who prosecuted, in opening the case, said the defendant was charged that on the 16th of August, at Parkgate, he was unlawfully found driving a certain hackney carriage, for which a licence had not previously been obtained. The proceedings were taken under Section 45 of the Police Clauses Act. On the date in question the defendant was driving a motor-car within the urban district of Rawmarsh. The car was one belonging to the firm of S. W. Stringer, Limited, and was licensed by the Rotherham Corporation, so far as their district was concerned. The offence complained of was that between four and five o'clock the defendant, in driving from Rawmarsh to Rotherham picked up two passengers in Parkgate. The Rawmarsh Council felt perfectly justified in bringing that case before the court. After hearing the evidence the Bench dismissed the case.

THE Wisconsin Wheel Works, of Racine, Wis., have sent us a copy of the "Motor-Cycle Primer" which they have recently issued, and in which the Mitchell motor-bicycle is well described. The book contains many illustrations of the parts of the machine, and a number of pages are devoted to instructions in handling petrol motors, giving their usual troubles and remedies for them.

THE President of the United States visited Hartford on Friday, the 22nd ult., and was driven about the city in an electric Victoria furnished for the occasion by the Electric Vehicle Company. The entire route of seven miles was covered without a hitch or trouble of any kind, and the President expressed himself as delighted with the ride.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

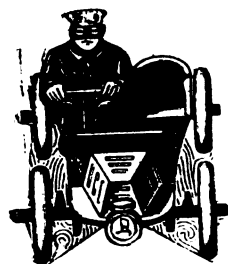
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COMMENTS.



THE date of the Anniversary Run having been fixed for Saturday, November 8th, it now only remains for the Automobile Club to decide upon the venue. The town of Portsmouth must surely be out of the question in consequence of the disgraceful state of the road between Waterloo and Cosham. The road is "up" most of the way—in strips of about fifty feet, at least six feet wide and about eighteen inches deep, with only indistinguishable light posts and ropes between the path and the openings. These openings are not in the centre of the road, but run in a diagonal direction from left to right. As the contractors are of an economical turn of mind, the strict letter of the law is followed by lighting up only at the legal hour, viz., half an hour after sunset. The consequence is, that with the grey soil, a grey sky, and a thin rope across the road, the stranger finds himself in the opening before he is aware there is any obstruction. Many of those motorists who journeyed to Portsmouth for the illumination of the fleet are not likely to forget their experiences, and that there were not serious accidents was owing more to Providence than any skill on the part of the drivers. One car with four occupants went right through the ropes, and the two side wheels dropped into the opening, but fortunately, the wheel-base being very wide, the car did not turn over, although it went perilously near doing so. We have never before seen roads in such a condition, and in reply to remonstrances a policeman on duty stated that accidents were frequent. The local papers regularly contained letters on the subject, but the authorities were deaf to all appeals. Now, if only a compromise could be arrived at with the Surrey Police, the ideal town for the run is Brighton; and perhaps if a conference could be held a more healthy state of feeling between motorists and the police might be engendered. The General Council of the Club, aided by the Committee, consists of a most representative body of gentlemen, and a meeting between them and the Police Committee of the County Council of Surrey might result in such an understanding as would be to the benefit of all parties concerned.

America Wants the Gordon Bennett Cup.

THE Gordon Bennett Cup should come to America next year, remarks *Automobile Topics*, which considers that how to get it is not such a terribly difficult matter as might be supposed. "The same energy and grit, combined with shrewdness and ingenuity, which has placed the United States in the very front rank of the financial, industrial, and inventive spheres, is all that is required to secure the palm of supremacy in the automobiling field. While it is true that France, England, and even Germany, have already a big start over the United States in the manufacture of automobiles, still that is only the more reason for a greater effort on the part of American automobile manufacturers to prove to the world their right to the title of American. That some concern will seriously consider the question of building a car for the contest ought not to be a matter of doubt. There should not be the least difficulty in disposing of the cars built

for such a purpose, even though in the preliminary trial for the selection of the actual contestants they failed to win first honours. There are plenty of American buyers who pay fancy prices for foreign machines who would snap them up. Half the race, if not even a greater proportion, is undoubtedly owing to the nerve and skill of the man at the wheel. Already the United States has shown the ability of its *chauffeurs* to be second to none. Without making invidious distinction, the names of Vanderbilt, Bostwick, Winton, Harkness, Bishop, and Foxhall Keene suggest themselves, any three of whom ought, with a good car under them, to bring the trophy to America. The Gordon Bennett prize will have to come, and the sooner the better."

Passing Trams.

CORRESPONDENTS have lately drawn our attention to an interesting problem associated with the passing of the trams which now run out from London in all directions. These rarely crawl along the streets; their speeds are always in advance of the legal limit ordained for automobiles, and generally up to twenty or more miles per hour. The motor-car that is behind is in an anomalous position if it is desired to get ahead. Must it attempt to pass, and in doing so exceed the limits of the law, or is it to maintain a rearward position when the passengers are anxious to get out into the country? The distance between the tramlines and the kerbstone is often so narrow that there is little room for passing vehicles, and the problem is so complicated and is becoming so universal that the opinions of readers will be welcomed.

Lincolnshire Automobile Club.

AN interesting gathering took place at Lincoln on Saturday afternoon last, when Dr. G. M. Lowe, of Castle Hill House, entertained the members of the Lincolnshire Automobile Club and a number of friends. By the consent of the County Committee the motor-cars were placed in the Castle grounds, and as the weather was fine, a large number of persons gathered together to survey them. Sir Hickman Bacon, Bart., the president, wrote explaining his inability to attend owing to his absence in Ireland. During the afternoon a large company took tea in Dr. Lowe's garden, adjoining the Castle grounds. The various features of historic interest in the latter were viewed, and a party was conducted over the cathedral.

Automobiles for Coroners.

DESPITE the dismal prophecies of newspaper correspondents as to the value of the automobile in finding work for coroners, there has, happily, been a lack of activity on that account. But the motor-car is proving its utility in conveying coroners to and from the places where inquests are held, Dr. Dow, the deputy coroner for East Sussex, being among those who find a motor-car extremely useful for such a purpose. Commercial travellers, county surveyors and coroners will all find the automobile a great boon, and we would suggest its adoption by Chief Constables who may wish to inspect the bands of constables stationed on the roadside or behind hedges for the leisurely detection of those who delight in speeds of 20 miles an hour—a speed which the Chief Constable of Huntingdon regards as eminently satisfactory.

Dangers on Roads.

AN accident which occurred at Woking, resulting in a motor-car causing a broken leg to a little girl, has led a local paper to "call attention once more to the extreme danger of having so narrow a road at this very busy spot. This, of course," continues our contemporary, "is no fault of the Urban Council, who, previous to constructing a concrete pavement in front of the Albion Hotel, did everything in their power to induce the directors of the brewery company to part with a portion of their spare ground for widening purposes." There is no doubt that the narrow roads and sharp turnings which occur so freely in small towns and villages are dangerous. High hedges are another danger, and form one of the topics which might well be considered by county surveyors.

Liverpool's Test Hill.

In the London district, Netherall Gardens, Hampstead, appear to have earned a reputation as a stiff test for motor-cars, and hardly a week passes in which an automobile is not put through its paces up the steep grade. Mr. Wm. Johnson, of the British and Foreign Motor-car Co., Ltd., sends us the photograph reproduced herewith showing Liverpool's testing ground—St. George's Hill. This ascent is the steepest in the district open for traffic, but is practically disused, owing to its



gradient—about 1 in 6—and badly-cobbled surface. The photograph shows Mr. Elgin, of the Eclipse Machine Company, Oldham trying his latest purchase—a Rochet voiturette.

Automobile Volunteers.

MR. MARK MAYHEW, who is lieutenant in the Middlesex Imperial Yeomanry, as well as Vice-Chairman of the Automobile Club, is securing much support for his permanent corps of automobile volunteers, references to which have been freely made in these columns of late. We recently gave particulars of the scheme, and we now add that those who enrol themselves as members of the corps will be required to drive or provide a skilled person to do so, and to serve during manoeuvres of not more than

one fortnight's duration in one year, and in one term of inspection of not more than five days in any one year. Should the automobile volunteer desire to retire from the corps, he will be expected to give one calendar month's notice to the War Office. Should cars be damaged or destroyed while their owners are serving with the forces for the defence of the United Kingdom the question of compensation will be dealt with by the authorities when the scheme is more fully in shape. The operations of the new body will be confined strictly to the United Kingdom, and the duties will consist chiefly of taking part in manoeuvres, staff rides, etc., and driving inspecting officers on their tours of inspection over periods of a few days. Motor-cycles of all descriptions will be welcomed for despatch work. Every owner who joins will do so as a simple member of the corps, but officers now holding commissions in the service will retain their rank, and do duty in their own uniforms. Among the military men who have already expressed their willingness to become associated with the new corps are:—Captain Arthur du Cros, 2nd V.B. Royal Warwick Regt.; Captain George du Cros, 2nd V.B. Royal Warwick Regt.; Captain S. W. G. Tamplin, 1st V.B. Royal Sussex Regt.; Lieut.-Colonel Forbes Eden, 3rd V.B. Norfolk Regt.; Mr. G. St. M. Willoughby, 1st V.B. Hants Regt.; Mr. George Goulbee, 2nd London Imperial Yeomanry; and Captain T. T. Vernon, 4th V.B. King's Liverpool Regt.

Telephones for the Police.

FROM our list of cases of alleged furious driving, on another page, it will be seen that one batch of cases at St. Neots has produced £43 for the county, in which, during the past quarter thirteen drivers of motor cars have been convicted and fines imposed amounting to £59 9s. We see that the Chief Constable of the county, at the last meeting of the Standing Joint Committee of the Hunts County Council, recommended that telephonic communication be established between one police-station and another in the county. He had obtained an estimate, which did not include Ramsey, as that was too expensive, and the cost would be an annual payment of £100. It would save telegraphing. The system was used in Hertfordshire, Northamptonshire, and other counties with the best results. He considered that no police force was efficient without a telephonic communication in the county.

Twenty Miles per Hour.

ON the subject of the speed of motor-cars, the Chief Constable said he found that drivers would not stop when asked; they gave false names, went at great speed, and in some cases tried to bribe the constables. Some owners gave £2,000 for their cars, which cost £200 a year to keep up, and such men did not mind paying a fine of £5; it was no more to them than a bicyclist being fined 2s. 6d. He went into details of the various accidents that had occurred in the county through cars being furiously driven. In some cases offenders got right away and could not be traced. The Chairman of the Committee said that the speed of cars would have to be regulated, and the Chief Constable concluded the discussion by observing that he thought twenty miles an hour was not too fast.

Anti-Experimental Road.

ALTHOUGH publicity has already been given in these columns to the promised improvement in roads by Mr. E. P. Hooley, the County Surveyor of Nottingham, the importance of the subject warrants a return to the matter. Elsewhere we set forth Mr. Hooley's own views on the subject, as taken from his annual report just presented to his County Council, and would urge that body to allow him to make an experiment. He has placed his proposals so clearly before the Council that they should be readily adopted and acted upon.

A Larger Platform Area Wanted.

THE judges appointed by the Mid-Kent Agricultural Association, to consider the relative merits of motor-lorries suitable for dealing with fruit traffic, desire to point out that the present legal restrictions as to width of vehicles prohibit a platform area sufficiently large to take full advantage of the haulage capacity of a steam wagon with a motor of 30-h.p. This would otherwise be capable of taking a load of four tons of fruit, so that the incidence of cost of wages per ton-mile is unnecessarily increased by the restriction to a maximum width of 6 feet 6 inches.

Carriage and Motor Car Building.

IN anticipation of the growing industry of motor-car construction, and its relation to carriage building, the Polytechnic of Regent Street, which has done a good deal for technical education in the past, is giving during the coming winter session a special course of instruction on the technology of carriage and motor-car building and drawing. Facilities will be offered so that students may gain an insight into the mechanical properties and the various means of transmitting the power to the road wheels. The workshop construction will include making drawings and working through them, the students in the day school connected with the Polytechnic being now engaged in the con-

anxious to respect traffic, others made it their lobby to rush through the country heedless of all other people. It was ultimately agreed to invite the co-operation of the rural and urban district councils of Cumberland and Westmorland in order to secure better regulations for the registration, use, and speed of automobiles.

Guarantees.

ABOUT three months ago the Executive Committee of the American National Association of Automobile Manufacturers took up the question of standard guarantee. In the interval the forms used in other countries and in other lines of business, so far as it is possible to apply them to the new industry, have been given proper consideration, and as a result the following has been adopted:—"We warrant all goods furnished by us for sixty days following the date of their shipment, based upon the date of invoice covering the goods, this warranty being limited to the replacement in our factory of all parts giving out under normal service in consequence of defect of material or of workmanship. If the circumstances do not permit that the work shall be executed in our factory, this guarantee is limited to the shipment, without charge, of the parts intended to replace those acknowledged to be defective. It is, however, understood that



[Photo by]

THE TYRE TRIALS—STARTING FROM THE AUTOMOBILE CLUB FOR THE DAY'S RUN.

[Argent Archer.]

struction of the body of a four-seated motor-car, whilst we understand that the Polytechnic School of Engineering have nearly completed a steam motor for the carriage-building school. The evening classes will commence on Monday, the 29th inst., and the syllabus of work is of an extremely practical kind. The fact that the Polytechnic is thus interesting itself with technical education in connection with a rising British industry is a matter of great interest to the trade.

Joint Action in the Lake District.

AT this week's meeting of the Penrith Rural Council, there was an animated debate on the offences of motor-car drivers, as witnessed at many places in East and Mid-Cumberland. The chairman, Mr. J. C. Loppin, urged the necessity of taking strong action in order to put a stop to the reckless driving which had now become an everyday occurrence. He had seen cars go through Skelton at thirty miles an hour, and on the road between Carlisle and Penrith they had been timed between one milestone and another at the rate of over fifty miles an hour! That was not only a breach of the law, but was a terror to pedestrians and a great danger to people with horses. Mr. E. T. Bell and Mr. Heskett, Plumpton Hall, narrated local instances of accidents through the furious driving of automobiles. The latter gentleman said that while some motorists were most

we make no warranty whatever regarding pneumatic tyres or the batteries. We cannot accept any responsibility in connection with any of our motor-cars when they have been altered or repaired outside our factory. We are not responsible to the purchaser of our goods for any undertakings and warranties made by our agents beyond those expressed above. We wish it distinctly understood that we make no warranty of our goods except as stated above, but desire and expect that customers shall make a thorough examination of our goods before purchasing."

Bells for Motor-cars.

EVERYONE who is in the habit of writing to the newspapers on automobile matters seems to be making suggestions, often of an absurd, frequently of an original, and seldom of a wise character. An adjutant-general, who certainly ought to know better, has been writing to the *Times* suggesting that every automobile should carry an automatic bell, to be set ringing whenever the machine is in motion. The proposal to number cars was bad enough, but the number would probably have been placed at the rear of the vehicle and out of sight of the passengers. Here is a suggestion which should have the effect of annoying and irritating those on the car as it went along, and, should a foolish legislature ever be silly enough to adopt the idea, the

language that would be hurled at the head of the adjutant-general would probably be as fearful as some of the prejudice evinced against motorists on the part of certain magistrates who now sit on the bench.

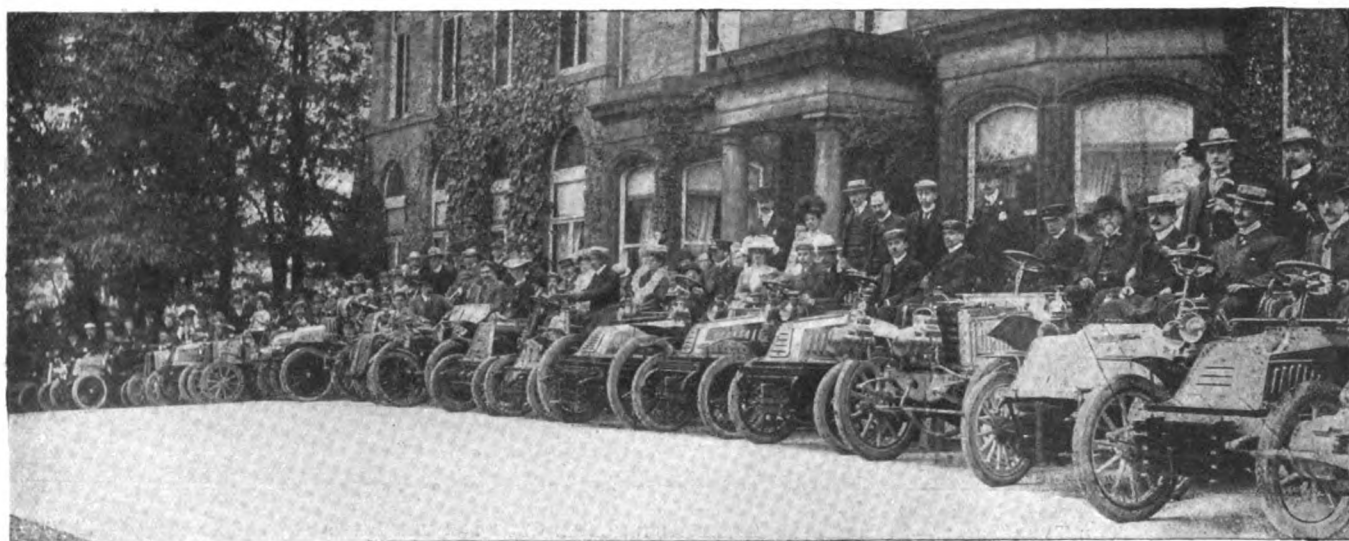
The Sanitation of Streets.

MR. E. G. MAWBEY, M.I.C.E., prepared a paper on "The Sanitation of Road Traffic" for the Sanitary Congress at Manchester. He pointed out the menace to health arising from the fouling of the surfaces of the streets, which was combatted by scavenging and watering at considerable cost to the community, and advocated the extension of the various kinds of hard and practically impermeable paving in thickly-populated towns in place of the existing defective stone paving and ordinary macadam. The practice adopted in some places of using the dirty and polluted scrapings off macadamised roads in towns for binding material for the re-coating of such roads instead of clean, new, or washed material, was to be most strongly deprecated. He urged that there should be an extension of the system of thoroughly washing street pavements, and the carrying out of street sweepings during the night time, preceded by efficient watering. All cab-ranks should be daily washed and disinfected. The replacing of horses by electric traction, motor-cars, and self-

evidence, corroborated by more than half a dozen persons, was entitled to carry weight against the testimony of four, three of whom did not pretend to say that they knew the defendant at all well. It is, however, intended to take every possible measure for clearing up this matter, and the Town Clerk, who is in London, has been communicated with, with the object of seeing the Home Secretary or taking such other action as the law and the circumstances permit.

A Proposal for Local By-Laws.

"EVERY incline and every crossing is allowed for by an expert driver," says the *Daily News*, "and an unskilful automobilist may incur more damages while achieving fifteen miles in the hour than a man of alertness would incur at a speed greater by 50 per cent." Such a confession in the course of an article by no means too leniently disposed towards automobilism is significant, especially as the writer goes on to say, "We would like to see the twelve mile limit abolished in favour of rational by-laws drawn up by each district." This latter suggestion needs careful consideration; otherwise, the chaos that now exists with reference to traction engine licensing and regulations would be perpetuated with regard to automobiles. And that would



THE MEET OF THE YORKSHIRE AUTOMOBILE CLUB AT CASTLE GROVE, HEADINGLEY.

propelled vehicles for heavy haulage would effect a very substantial improvement in the road and street sanitation of towns.

A Remarkable Case.

THE case against the tramways manager of the Bradford City Tramways, mentioned on another page, is sufficiently remarkable to warrant further notice. Mr. Spencer was charged with driving a motor-car above the legal limit, and some workmen gave evidence as to the speed at which it was driven. Mr. Albert Farnell, a well-known Bradford motorist, who drove a Daimler car in the Reliability Trials, said he was the driver, a fact which was corroborated by several witnesses. In such a case the proper course would have been to dismiss the case and take out a summons, if such were necessary, against Mr. Farnell. But the Bradford magistrates proved as tolerant of police evidence as though they were in Surrey, and Mr. Spencer was fined £5 and costs. The case has excited considerable local feeling, and, as one of the local journals observes, on the weight of evidence alone, apart from his established character, Mr. Spencer was surely entitled to an acquittal. If the police wanted an example there was Mr. Farnell prepared to take all the responsibility. Surely this

simply add to the confusion and uncertainty of the present situation.

"The Motor Problem."

WHY does the *Daily Mail* maintain the heading of "The Motor Problem" in every issue, as though the future of the automobile were in doubt, or its present waywardness a danger to society? Such persistent publication of mishaps and the foolish conjectures of those who amuse themselves by writing to the papers can only do harm to the industry, and we are surprised that a paper which has hitherto displayed a reasonable attitude towards automobilism should have latterly gone so widely astray.

45. a Day for Storing Cars.

A WELL-KNOWN motorist who has been in Scotland sends us a letter descriptive of routine in a hydro in those northern regions, which makes us wonder if this is a free country. The rules and regulations of this particular establishment were so arbitrary as to make life—at all events, in the said hydro—not worth living. The discomforts arising therefrom were intensified by the fact that the rules were not printed, but were

only brought to the victim's notice by reason of involuntary infractions. From an automobilist's point of view, however, the place is one to be studiously avoided on account of the excessive charge made for storing cars, viz., 4s. a day.

Professor Bell's Flying Machine.

We learn from an American correspondent that Professor Alexander Graham Bell, the inventor of the telephone, is diligently at work on a new flying machine at his summer residence on the island of Cape Breton. Professor Bell has had the idea of inventing a machine capable of navigating the air for some time. It is to be presumed that the machine, if ever successfully completed, will operate on the lines of a kite, as Professor Bell has devoted a large amount of time experimenting with kites, carefully tabulating the varying angles of elevation for the different shapes.

Motor-Bicycles in Australia.

It behoves motor-bicycle manufacturers, if they desire to establish a reputation and business in motor-cycles in Australia, to send only those machines that are capable of standing heavy riding on our rough roads and tracks, writes a correspondent of the *Australian Cyclist*. Motors placed on ordinary cycle frames are absolutely useless for Australian conditions. Intending purchasers of motor-cycles will need to exercise the greatest care in purchasing machines at this stage of motor-cycling, otherwise they will be buying a considerable amount of danger and trouble. Of course there are exceptions, in fact, the writer has a colonial-made machine that can be taken over the roughest roads without any risk, but the whole machine weighs about 120 lbs., as against some imported machines that scale only 75 lbs. Many Australian cycle assemblers are now turning their attention to motor-bicycle building, and are importing foreign-made motors, to be built up locally into bicycles.

A Needed Development.

At a recent meeting of the Engineers' Society of Western Pennsylvania, at Pittsburgh, Mr. H. P. Maxim, engineer of the motor-vehicle department of the Westinghouse Electric and Manufacturing Company, read the principal paper of the evening on the subject of "Automobiles." It was a complete and scientific history of the motor-car from its inception to its present perfection, and in conclusion the author remarked that the mechanically-propelled vehicle, independent of fixed tracks, is a development resulting from the need of better transportation rather than because of any fad. Our cities have already spread to areas which make the irregular transportation of passengers and merchandise over them more difficult, and the continued development of the prime cause of it all—the electric tramway—is daily increasing the difficulties. The automobile comes as a successor to a part of the work of the horse, just as the electric tramway came as a partial successor. From the very nature of our civilisation it becomes an absolute necessity. The mechanically-propelled street vehicle is as inevitable as was the mechanically-propelled boat, railroad train, and tramcar, and we might as well include such institutions among our fads as to include the automobile. When it comes to their manufacture, where one will be constructed for pleasure or sport a hundred will be built for serious work.

Traffic on Hampshire Roads.

THROUGH the erection of lamps at Woolmer Forest and at Longmoor, in the county of Hampshire, by the Government, the roads, especially in the Petersfield and Alton districts, have been subjected to an extraordinary amount of traffic. The haulage is mainly done by traction engines, which in a very short time completely destroyed the portions of the roads over which they travelled. Heavy claims have been lodged

with the War Office authorities by the Hants County Council and the Rural District Councils of Petersfield and Alton. Both the latter councils have recently paid £1,000 each on account, but these amounts do not nearly cover the damage done. New foundations have had to be laid on miles of road. The problem of traction engine traffic is an important one—not to be confounded with the slight wear and tear occasioned by automobiles.

In the Fens.

BOSTON—the Lincolnshire town is the one we mean—is becoming an important centre for automobilism, and a local medical man, Dr. Reckitt, has just obtained a Baby Peugeot. Mr. A. O. Scrivener, Mr. E. White, and Mr. Holland have also vehicles of the same type, which is also the car favoured by some other gentlemen in the villages round about, including Mr. F. Richardson, of Sibsey, who was the first gentleman in the immediate district of Boston to drive a motor-car, and Dr. Crompton, of Benington. Mr. E. White is preparing to go fully into the automobile business, and, altogether, the future of the movement—thanks largely to the fostering care of the county Club—is a roseate one in the Fen country.

Irish Hill-Climbing Competition.

On Saturday last the Motor Cycling Union of Ireland held a hill-climbing handicap at Glenamuck Hill. The competitors were allowed to pedal during the ascent, but suffered a penalty of one second for each complete revolution of the pedals. First and second places were obtained by Messrs. R. W. Stevens and F. A. Wallen, their speeds being at the rate of more than twenty-six miles an hour. The result was as follows:—

Competitor.	Machine.	h.p.	Actual Time.		Handicap Time.	
			min.	sec.	min.	sec.
R. W. Stevens	Excelsior...	1½	2	5½	1	57½
F. A. Wallen	Excelsior...	1½	1	57½	1	57½
W. B. Crawford	Singer (Tric.)	2	1	49½	2	6½
G. J. Ball	F. N.	1	2	29½	2	15
M. R. Wheeler	Quadrant	1½	2	19½	2	16½
C. W. Dowd	Quadrant	1½	2	31½	2	18
J. J. Cahill	Mitchell	2½	2	11½	2	22½
E. F. Walker	Excelsior...	1½	2	37½	2	36½
W. G. Wilkinson	Progress	1½	2	31½	2	38½
H. A. Evans	Singer	1½	2	23½	2	41
G. S. Dowd	Quadrant	1½	2	45	2	45
F. Russell	Quadrant	1½	3	5½	3	7½
Harry B. Hill	Kelecom	1½	3	9	3	9½
H. S. Huet	James	1½	Did not finish.			
Albert Wayte	Progress	1½				
R. A. Morrow	Quadrant	1½				

At Canning Town, on Saturday last, J. Van Hooydonk made an attack on the 10 miles motor-bicycle record. He covered the first mile in 1 min. 38 sec., but then fell and retired.

THE next automobile show in Paris, to be held in December, promises to be a greater success than any of its predecessors. So far the number of applications for space is double that to the same period of last year.

CHEERFUL service was rendered during the Reliability Trials by Mr. J. Sturt Mallam, the hon. secretary for records, who received the Ovs rvers after their daily trips. Mr. J. Macintosh acted as assistant secretary for records.

THE first oil motor launch completely built on the Clyde has just been launched. This is the property of Mr. John Hunter, of Ardentinn, who placed his order for the engines, of 12-b.p.h., with the Mo-Car Syndicate (Limited), Paisley, who have supplied the Arrol-Johnston balanced oil motor, running at 700 revolutions per minute, weighing less than 3 cwt. complete, and occupying altogether a space of 2 ft. 6 in. square. The centre of the boat affords ample accommodation for ten or twelve passengers. The hull was built by the Clyde Shipbuilding and Engineering Company, of Port-Glasgow. It is probable that launch-building as an industry may become an important one in the Clyde shipbuilding yards, and already a number of orders have been booked, one being for Mr. William Beardmore, of Parkhead Forge.

MAIN ROADS.

BY E. PURNELL HOOLEY.

(County Surveyor for Nottinghamshire.)

THE writer cannot help pointing out the great and incessant damage that has been, and is being done to the main roads of Nottinghamshire by the ever-increasing steam traction traffic. Seven years ago the total number of licensed engines for Nottinghamshire was only eleven; some of these had to pay a full yearly licence for possibly only one or two journeys, and only about six were regularly working in the county, whereas this year there are eighteen fully-licensed and regular workers. To this must be added 164 daily licences that have been granted for engines either passing through or travelling into this county from outside. In addition to these regular travellers over the roads, there are no less than 167 engines registered as being used for agricultural purposes only, and con-

by reason of being carried by traction engine. It is not only the carriage of such merchandise as that mentioned that causes damage, but the carriage of bricks is becoming a very serious matter to deal with. Only this spring, miles of Nottinghamshire roads have been seriously and most expensively damaged by steam traction engines conveying bricks from a somewhat isolated neighbourhood to, it is believed, speculative builders in another part of the district, who, by this carriage, save themselves possibly three shillings per thousand on the bricks, and it would be easy to prove do five pounds (£5) per thousand damage to the roads when travelling over the same during unsuitable periods of weather. This class of traffic is legal and specially legislated for, and seeing the roads of the county have to carry another, and what is becoming more and more important traffic each year, viz., motor traffic, it is now necessary to find out some reliable and more resisting system of road-making than that now adopted.

I have always advocated that roads should be repaired according to their traffic and life. Roads such as the main roads at



A FRENCH TOURING CAR—A 30-H.P. DE DIETRICH BERLINE.

[Le Chauffeur.]

equently not licensed. Of course these latter are used for all sorts of haulage in connection with agriculture, and often do as much damage to the roads through being taken from farm to farm in bad weather, when the only place available for travelling seems on the highway, as a continued course of ordinary traction engine traffic. It certainly is disheartening, to say the least, after having used every endeavour to place a road in first-rate condition, such as the road between Nottingham and Mansfield, to find after rain and a night's frost the surface is so damaged and broken that the only remedy is to reface a long length of the road, and enter upon an expenditure that may mean doubling the ordinary cost of maintenance. With this cost in view, it is hard to appreciate the only repayment for the damage done is a £10 licence, or perhaps 2s. 6d. for a daily licence, which too often seems to imbue the traction-engine proprietor with an idea that he has, by paying for the licence, bought the right of doing as much damage as possible, and insisting on all roads being made at any expense to carry his engine for his benefit. The writer has never yet been able to ascertain that ordinary commodities, such as flour or beer, have ever been sold any cheaper to the purchaser

West Bridgford, with their very heavy 'bus and Nottingham traffic, require coating for the greater part each year, and such roads as the Worksop and Kelham, or Bawtry and Tinsley Roads only require coating once in ten or twelve years, whilst some roads require coating even less than these. It will be therefore easily understood that with this traction engine traffic, which the most unlikely and least prepared roads are liable to have to sustain and without notice, there is no safeguard that a road costing £50 per mile one season shall not cost £250 or more the following, because it has become practically necessary to remake the road owing to the damage done in less than a month, say during such a month as December or February, by traction engines travelling over four times a day each way, and leaving the road not only unsafe for motor traffic, but unsafe for any kind of traffic whatever, not even excluding the traffic of the damagers.

The present system of road repairing is:—The road is disintegrated or "opened" at the outsides to receive the covering (unless this is done the new patch is never secure); in some districts the road is scarified, and thus further disintegrated, the new material is then placed on the surface, and if a roller is

available the whole is then well rolled, and when smooth, the process of making the material bind or stick has to be carried out. This is generally done by thoroughly watering the surface, binding the same with sharp road scrapings, and forming a thick sticky mass, which is swept into every crevice, and the whole rolled until it is consolidated. It will thus be seen that water and dirt form a very large and important part in road making, and however well one may try to get a perfectly consolidated road, this water and dirt cannot form a wear-resisting surface, it cannot keep the wet out of the road, and it cannot stand so as to defend itself from the weather and atmospheric influences.

With this course of procedure carried out, it is only necessary to imagine a few days' traction engine or any other kind of traffic that will "lick up" the surface, and the result will be easily understood, for unless the road is waterproof, the material underneath becomes saturated, and is always subject to wet soaking in after every shower, or, worse still, after every continued spell of wet weather. When followed by frost, the result is almost too fatal to imagine, and certainly disastrous from a financial point of view to deal with.

As to the remedy, very many efforts have been made to find a material strong enough to bear heavy traffic, not to be more slippery than possible, and to be capable of being made into a road that would present a weatherproof face, and obviate the use of the water and dirt compound, now used as "bind." The use of tarred material has been the idea that many surveyors have worked on, but the results have only too often been most disheartening. It has been found next to useless to tar granite or syenite, because the material itself would not absorb the tar; the result has been that after forming the road well to start with, exposure has caused the tar to melt, wear, or disappear, and after a short while the road has become not only rough through disintegration, but, from a surveyor's point of view, a hopeless failure. Many sorts of material have been tried for tarring, but they have almost always been found either too soft to stand traffic, though they would absorb tar, or too hard to absorb tar, whilst hard enough to stand traffic. The writer after repeated trials has found that the most satisfactory material yet produced is furnace slag of the very best hand-picked quality, but unless this is well warmed and perfectly dried before being used, it has too often been only a failure. The cost of drying the material is very great, and the process is such, that if the work is to be relied on, special floors must be constructed, and all the material has to be turned and turned again by hand labour at least five times so that each portion shall receive its proper quantity of tar. It will easily be understood that the area required for this drying process places it out of the question for any extended use of the material.

With this explanation the writer thinks it will at once be seen that tarred roads, according to present methods, must be expensive, slow in manufacture, and too often unreliable, but when once properly made, certainly answer admirably, and fulfil all that seems required. When the tarred material is made the saving in the construction of the road is great, for no sweeping dirt or watering is necessary, dust and mud is reduced to a minimum, loose stones are unknown, and the damage to the face by traction engines is not appreciable, whilst for ordinary traffic or motoring the road is ideal.

The writer is pleased to turn to the result of some patient hard work, and to be able to state that he has, he hopes, overcome the question of expense and floor space in the manufacture of tarred materials. He has found out how the whole of the expense of drying slag as well as the making by hand labour can be saved, viz., by having the material tarred just as quickly as it is broken, and the whole made reliable by being regulated in its manufacture by machinery, instead of being left entirely to the discretion, or want of discretion, of the mixer. The financial result will be easily appreciated when the writer can confidently state he can make perfectly tarred slag roads, at the present cost of an equal quantity of ordinary granite, or syenite material untarred, that the cost of consolidation will be about one-half the present cost, and that the life of the road will be at least five if not ten times as

great as the present road, whilst from the general public point of view the great reduction, if not the total abolition of dust, mud, the prevention of the irritation that is caused by constantly repairing roads, and the improved sanitary condition of the roads themselves, will be almost inestimable.

TRIAL NOTES.

EVEN the Surrey newspapers are beginning to realise the folly of the police persecution of motorists that has taken place in the county. Referring to the action of the police during the week of the trials the *Surrey Leader* says: "If there was any ground for such a suspicion, and if it be a fact that the police were massed at certain points for such a purpose, one energetic constable being considerably chaffed as he sat up a tree with a big note book, it is a matter for regret. We have always defended the action of our local police against scorchers, but it was well known that a primary condition of the



MR. A. C. WRIGHT ON THE ORMONDE MOTOR-BICYCLE.
NO. 7 IN THE RELIABILITY TRIALS.

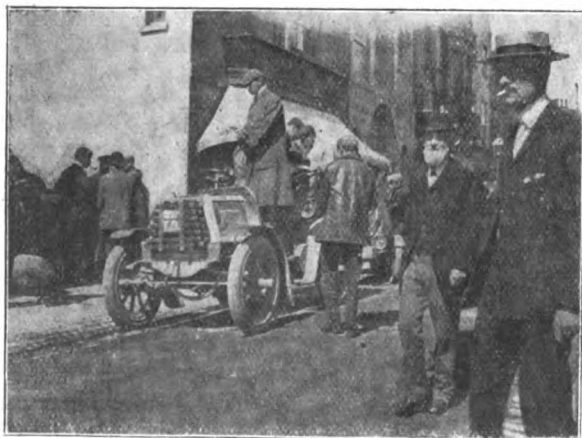
trial was that no machine should travel beyond the regulation rate of speed, and it will be a pity if any unwise attempt to get a conviction spoils what otherwise is a most proper care of the road for the safe use of all His Majesty's subjects. The passing of the cars through the district excited great interest, so varied were they in their make, shape, and value. The result is, we understand, highly satisfactory, very few of the cars breaking down, and even then only through some trifling defect, which took but a few minutes to repair, and in ordinary times would have been unnoticed."

SOME idea of the monetary value of the automobile industry may be gleaned from the fact that the total value of the motor-vehicles entered in the recent Reliability Trials was £40,374. Their individual prices ranged from £42 to £1,150, the average being £458.

THE Rev. F. M. Gibson, rector of Charlwood, seems to be much upset by the fact that the Reliability Trials of last week were so successful. Writing as a member of the local Highway Authority, and the last chairman of the old Highway Board in his district, the reverend gentleman estimates the damage done

to the highways of Surrey, Sussex, and Kent during the weeks' trial at £1,056 5s. He apparently takes this at 6d. per mile per motor, and estimates it at the average of 65 vehicles per day. Having performed that remarkable mathematical feat, he goes on to say, "I do believe that this sum of £1,056 5s. is about half the actual damage to roads." Such being the case, why did not the reverend gentleman take the initial damage at one shilling per mile per motor and so arrive at accuracy in the shortest possible way? But unfortunately the Rev. Mr. Gibson will find himself at variance with facts, for the damage done was by no means to be compared with that which would have taken place had a similar number of horse-drawn vehicles traversed the roads for the six successive days. This is a point which is recognised by county surveyors and others, who, although not "experts" and members of highway authorities, have at least some practical acquaintance with the subject.

FROM Weston Motors we have received an explanation as to why the Weston steam vehicles were absent from the Reliability Trials. They inquired of the Automobile Club whether provision would be made for the non-deduction of marks for the time required in taking up water, as the public would otherwise infer that the car had lost marks through some accident. It was also asked whether the competing carriages would have to be identical with the standard models. "In reply to these questions," write Weston Motors, "we were informed that one mark would be deducted for every minute's unauthorised stop throughout the journeys, whether for taking in water or anything else, and that the carriages had to be identical in every respect to those offered to the public, and without any special alterations or contrivances for the Reliability Trials. We need scarcely remind you, of course, that a steam carriage unprovided with a means of re-condensing its water (which system, for obvious reasons which are well known to engineers, we have persistently refused to adopt, based on very exhaustive experiments) cannot accomplish a non-stop run of anything like the distance that a petrol carriage can; nevertheless we have found by experience that, considering the enormous advantages which the steamer possesses over the internal-combustion engine for many purposes, a large section of the public is quite willing to allow a couple of minutes now and again for replenishing the supply of water, which is available everywhere, and, moreover, it has been found that very few people ever run more than thirty or forty miles without a stop. Under these conditions we declined to enter any of our carriages, as a standard machine selling at between £150 and £200 cannot



THE TYRE TRIALS—THE MARTIN-TYRED M.M.C.

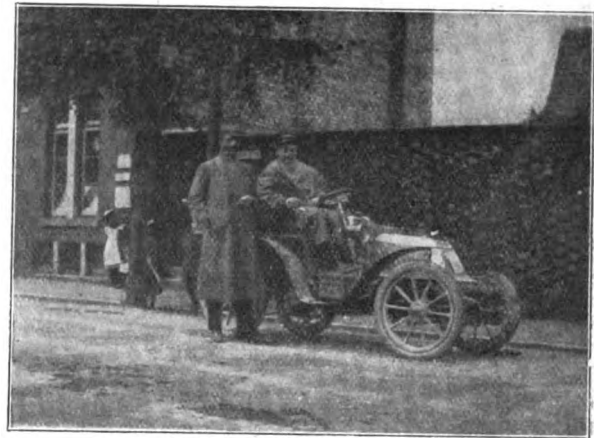
Photo by]

[Mr. E. M. C. Instone.

be made to run more than about thirty miles on a standard tank of water.

"We ask leave to add," continue our correspondents, "that in the great 500 Miles Endurance Tests from Boston to New York, in a similar event from New York to Buffalo, in the

Nelson Hill Climb, and the Consumption Trials, we came out in every instance as blue-ribbon winners, and as American roads are very different to the highways of this country, you will see that with such a record behind us we had no cause to be afraid of putting the Weston to the test in Great Britain, had we only known that special arrangements might be made for this purpose."



MESSRS. MERCY AND GARCET ON THE 12-H.P. GLADIATOR (No. 51), AT SEVENOAKS.

THE position taken up by the Hozier Engineering Company, Limited, is that they demonstrated at the trials held in connection with the Glasgow Exhibition last year that their expert could drive an Argyll car without losing a single mark the whole distance. Unfortunately, they were too late for the competition this year, but they have published several letters from clients who have driven Argyll cars from their Glasgow works home (in one case a distance of 900 miles) without a breakdown. This they declare to be of more importance to the public than an experts' competition, and goes to prove that novices can drive the Argyll long distances without serious breakdowns.

DURING the hill-climbing tests the 20-h.p. M.M.C. car was handicapped by the fact that three tremblers on the coil were out of adjustment. On the return from Eastbourne at the early part of the week it had done remarkably well in the climb up Westerham Hill, although carrying six persons instead of the allotted four. With regard to the Motor Manufacturing Company's voiturette, the only trouble during the week was with the tyres on the first two days, and no stop was made throughout the Trial on any other account.

MR. C. T. STEAD, who drove one of the Pascal cars in the Trials, returned to Paris by motor-car, and will shortly proceed to Nice, where racing is to take place. Mr. Stead is a native of Leeds, where the firm of tanners now known as Stead and Simpson was founded by his grandfather, and is of opinion that touring at very moderate speeds is all that can be done on the narrow English roads such as those met with in Kent and other southern counties. Mr. Stead's view is that it would be better for the cause of automobilism in England if a scheme of compulsory examination of motor-car drivers were adopted here. With regard to the future Mr. Stead is reported as having said, that next year will see the advent in France of a 120-h.p. car weighing less than one ton.

THE tyre trials are still in progress, and general interest will probably increase as the end draws near. We hear that on Monday last the Martin tyre was withdrawn; otherwise there is little to mention since our last reference to the subject. Mr. C. Johnson and Mr. H. Carmen (who is acting as assistant secretary to the Judges' Committee and who was busily engaged at the Crystal Palace during the Reliability Trials), are still actively at work in connection with these useful tests.

NEW SCOTTISH-BUILT MOTOR-CARS.

WE are this week able to illustrate two new Scottish-built petrol cars. Fig. 1 shows the 10-h.p. "Argyll" car, just completed by the Hozier Engineering Company, of Bridgeton. It is fitted with a Clement two-cylinder engine, dimensions of which are 85 mm.

gear is on the Govan system, in which a direct drive is obtained on the top speed, the gear wheels being always in mesh, and the changes obtained by means of square-jaw hardened steel clutches, which are slightly dovetailed into each other, thus taking away all chance of end thrust and all strains off the striking fork. The back axle is $1\frac{1}{4}$ in. diameter, running on hardened steel roller bearings, and is thus of ample strength. A patent double-acting

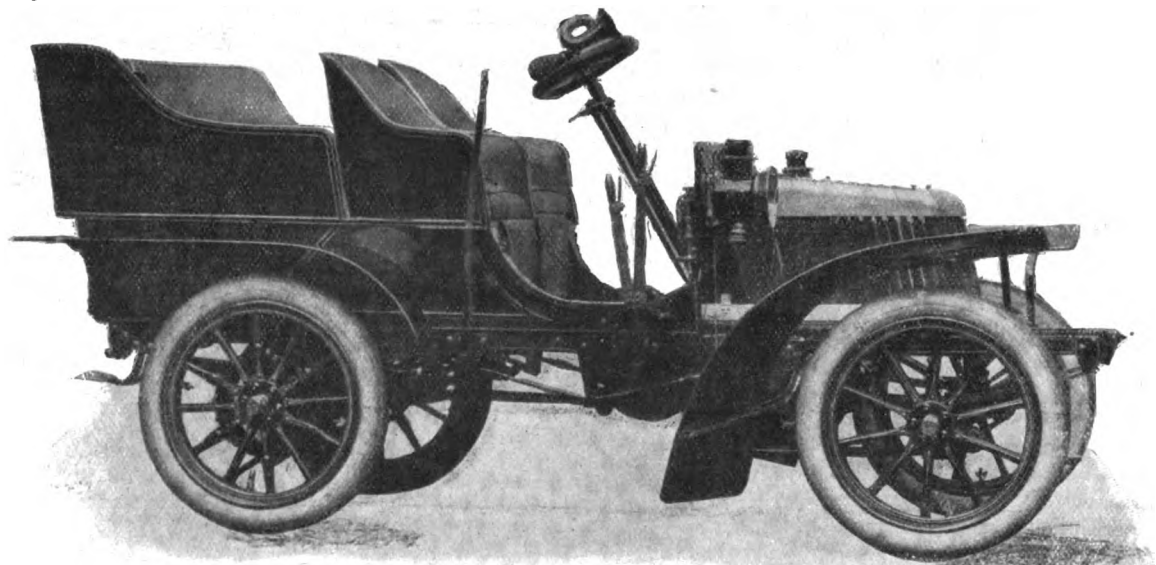


FIG. 1.—THE NEW "ARGYLL" 10-H.P. CAR.

bore by 110 mm. stroke. It will be observed that the bonnet has been made very large, and as there is only a single row of tubes round it, the lid on the top is almost the whole width of the front of the car, so that when it is opened the engine is

compensating brake is fitted, particulars of which we hope to publish at an early date. The frame is made from ash, with fish-plate, and every bracket bolted to the frame is made from sheet steel, bent to shape, thus insuring the maximum strength with

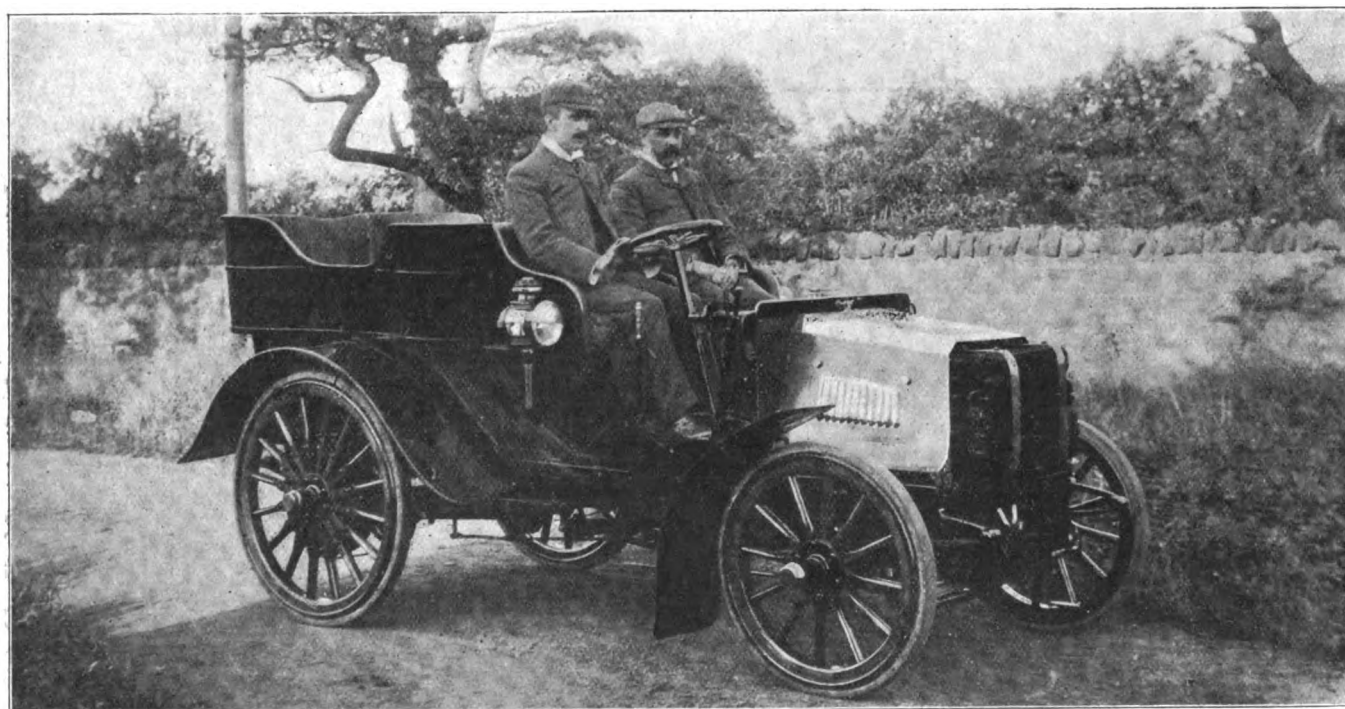


FIG. 2.—THE "STIRLING" 12-H.P. DOUBLE-TONNEAU TOURING CAR.

accessible from all points. Three forward speeds are provided, giving approximately eight, sixteen, and twenty-five miles per hour, with the engine running at 1,100 revolutions per minute. By accelerating the motor a speed of thirty miles per hour can be obtained. A separate lever is fitted for the reverse. The change

the minimum weight. The car, which was one of those intended for the Reliability Trials, but which was not completed in time, is fitted with equal-sized road wheels 30 in. in diameter. As regards the body, a roomy tonneau is provided, while the two front seats are, it will be noticed, of the arm-chair kind.

Fig. 2 shows the new 12-h.p. double tonneau touring car, seating six persons, which has lately been turned out from the Granton Harbour Works of Stirling's Motor-Carriages, Limited. Mr. Stirling, who is seen at the wheel in the illustration, Mr. A. J. Drake, the designer of the vehicle, being at his side, has for some time felt that manufacturers were almost without exception devoting their attention to cars with seating accommodation for four persons, and usually for high speeds on pneumatic tyres. While a car of this description suits a large number, from his experience of the buying public he considers that there is a large demand for a car to seat at least six in all, and in which comfort and reliability are the first considerations, a moderate speed only being desired. The new Stirling car has been designed to meet this demand. It is fitted with a Stirling standard two-cylinder 12-h.p. motor, running at a normal speed of 750 revolutions per minute—the diameter and stroke of the cylinders being 4 in. and 5½ in. respectively. The motor is fitted with both tube and electric ignition. The commutator is on the dash-board, while the governor acts on the admission pipe. The car is gear-driven on the same system as the Stirling public service cars, the first one of which was given a lengthy trial in the Edinburgh district, and which, it will be remembered, was shown at the exhibition at the Agricultural Hall in May last. Three speeds, are available—six, twelve, and eighteen miles per hour—and, having ample power, the car is a good hill-climber. A single side lever effects the speed changes and reverse. The brakes have received particular attention. The pedal brake is water-cooled, while exceedingly powerful hand-operated lever brakes, which expand inside the sprocket or toothed rings on the road wheels, are also available. The wheel base is 7 ft. 6 in. and the track 4 ft. 9 in. The body is a double tonneau, a feature being that the middle seats are reversible, so that all the passengers may face forward or occupy corner seats in a sociable fashion at will. The road wheels are shod with 3-in. solid rubber tyres. The car illustrated has been built for Mr. John Fraser, of Farnham, Surrey, who is now touring in Perthshire.

M. PIERRE DE CRAWHEZ, the well-known Belgian *chauffeur*, is organising a motor tour in Algeria, to take place in the first half of January, 1903.

THE Kenilworth Urban District Council has resolved to call the attention of the local police to the pace at which motor-cycles are driven in that district.

MR. JAMES GORDON BENNETT, the proprietor of the *New York Herald*, who was present at the recent hill-climbing competition near Vienna, is reported to have placed a contract for a 60-h.p. 1903-model Mercedes.

M. AMEDÉE BOLLÉE is reported to be engaged on the construction of a new type of high-class car, to be put on the market at £1,200. Mr. Vanderbilt, the well-known American *chauffeur*, is reported to be financially interested in the undertaking.

THE Cleveland Automobile Club held a series of informal races at the Rockport race track at Cleveland, U.S.A., on the 23rd ult. Alexander Winton, with his "Bullet," covered five miles in 7 min. 25½ secs., making the last mile in 1 min. 26½ secs., which is said to be a record for a half-mile track. In a five-mile race between Alexander Winton and Charles B. Shanks on Winton touring cars Shanks won in 9 min. 26 secs. James Moore and R. Owen had a mile race on Oldsmobiles. It was very close, Moore winning by three feet in 2 min. 24 secs.

MR. JAMES RANDLE, of Wood Street, Kettering, has sent us a sample of a useful belt punch he has lately introduced for the use of motor-cyclists. The little tool is very compact, and can easily be carried in the vest pocket. Motor-cyclists have found by experience that it is much better to punch a hole in a belt than to endeavour to make one by means of a penknife or scissors. To punch a hole in a round belt it is much better to cut a V in a piece of wood to hold the belt firmly and centrally. The punch, which is sold at a popular price, should prove an indispensable addition to the motor-cyclist's tool-bag.

BALANCED MOTORS.

ON the subject of balancing motors a few thoughts worthy of mention seem to have been overlooked by many writers considering the subject, remarks Mr. C. E. Duryea in the course of a recent article. The real gist of the problem does not seem to have been grasped, and on this account useless work has been done, producing unsatisfactory results. Further, motors with multiple pistons may be perfectly balanced as machines, and yet not run steadily as motors. Thus two pistons connected to 180-deg. cranks may be driven at any speed without vibration if their weights and travels balance, if their axial lines coincide, and if the driving power be applied to the crank shaft. If the axial lines do not coincide there will be a tendency to oscillate in a plane passing through the said axes. Because of this, multiple cylinders should be set tandem or very close together. When such a balanced machine is used as a motor, vibration cannot arise from the piston movement, for, in the first place, the pistons are balanced, and in the second, their weight is not large. Even were the motor a single-cylinder one, the piston vibration is not a large factor. Suppose a 10-lb. piston making a 6-in. stroke in a motor of a 1,000-lb. vehicle. The piston starts at a standstill, accelerates for 3 in., and then retards for 3 in. It then repeats the process in a reverse direction, so that the total effect is one retardation plus one reverse acceleration in a travel of 6 in.

A simpler and equivalent statement is that the piston, weighing 10 lbs., moves 6 in. in the time required for a half revolution of the crank shaft, and does work amounting to 60 inch-pounds. Action being equal to reaction, the carriage will in the same time be moved such a number of inches as, multiplied by 1,000, will equal 60 inch-pounds, or 6-100 in. It is such a small item that any good upholstering would completely absorb it. This fact, however, is no argument against balanced motors or light pistons. They are valuable features for other reasons.

The great cause of vibration is unbalanced torque. At each full explosion the fly-wheel receives energy for half a revolution. The amount of this energy varies, but it is usually sufficient to drive the wheel several revolutions from a standstill. This fly-wheel may reasonably be supposed to weigh ten times the weight of a piston, or 100 lbs. in a 1,000-lb. carriage, and have a radius equal to the stroke, in which case its mass, times the distance moved, would represent an effort thirty times that required to move the piston; and its effect on the vehicle would be very pronounced as compared with any unbalanced piston effect. Of course it will be readily seen that this torque reaction tends to move the vehicle around the crank shaft instead of in a direct line, as does the piston movement; but it is none the less present, although perhaps more easily resisted.

Having recognised it as the source of trouble, we may now rationally look for a remedy, and this is at once seen to be constant, instead of intermittent, effort. With the explosion motor as commonly used effort is expended but about one-fourth of the time, so that at least four cylinders are required for constant effort. It is evident that two cylinders halve the size of the efforts, and double their number, so that the vibration is but one-fourth as much as with a single cylinder of like power; while three cylinders reduce it to one-ninth, and four eliminate it theoretically. In practice more than four cylinders would probably show favourable results, but each builder must decide for himself whether the increased complication would not over-balance the gain. The writer's experience indicates that the triple cylinder is most practical, all things considered.

MR. A. E. TURNER, of 3, Pancras Lane, E.C., is introducing a metal resilient tyre for heavy motor vehicles. It is a spring tyre, rubber being entirely eliminated.

THE Peerless Company, of Cleveland, U.S.A., are the first to declare their intention to take part in next year's Gordon Bennett contest. Already three machines are reported to be in hand for this event, two 40 h.p. and one 25 h.p.

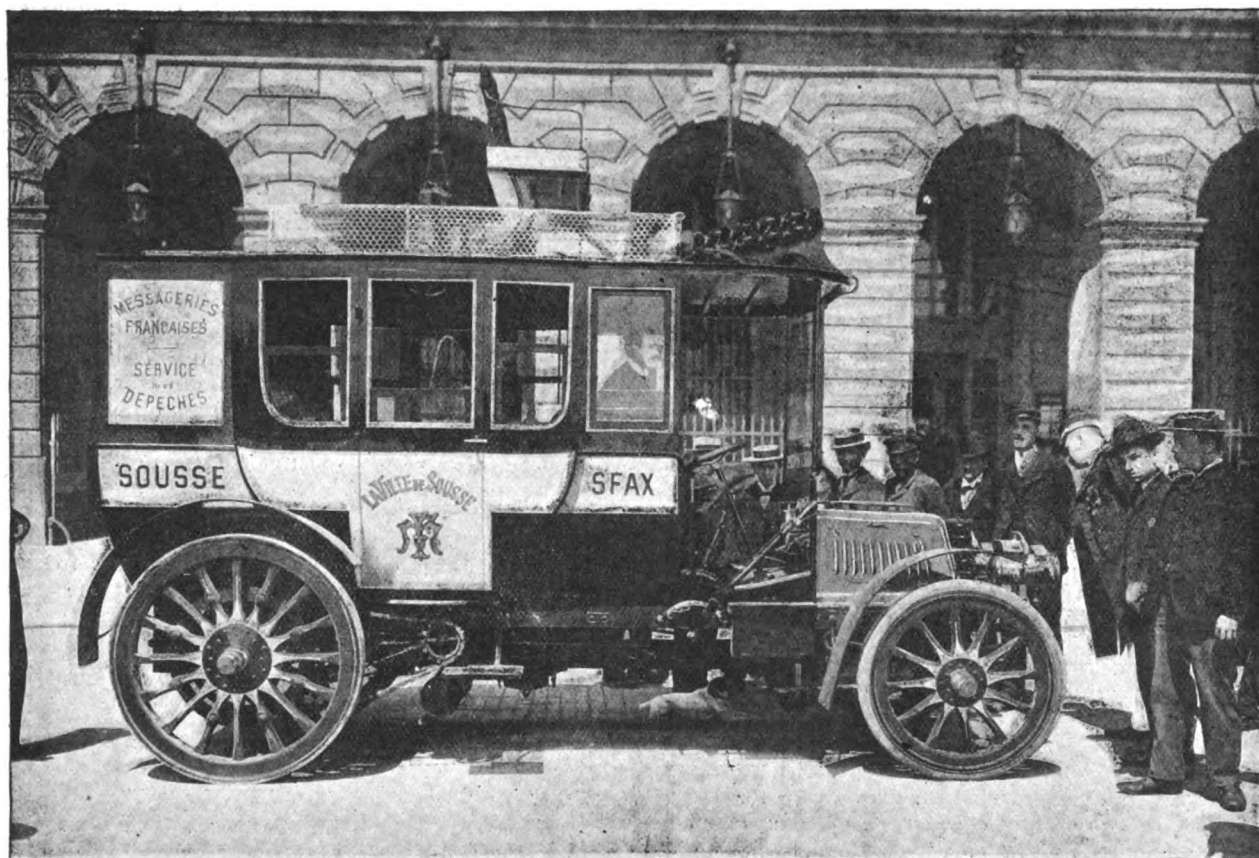
CONTINENTAL NOTES.

BY AUTOMAN.

THE Austrian Automobile Club's hill-climbing competition took place at the Semmering on Sunday, the 7th inst., under most favourable atmospheric conditions. The Semmering is a mountain which rises to a height of 3,000 feet above the level of the sea, and is situated about two hours' journey from Vienna. On the summit a fine hotel has been built, called the Hotel Erzherzog Johann, opposite the entrance of which is the little obelisk which marks the boundary between the provinces of Austria and Styria. The Semmering seems to have become the classical hill climb for Austria, and the start of the competition takes place at Schottwein, the distance being ten kilometres. Although there were comparatively few competitors, a great many spectators witnessed the race. The categories of

incident, which is disturbing the serenity of automobilists on this side of the Channel:

A CERTAIN Maitre Seligman, at the Paris Bar, and notably barrister to the A.C.F., was travelling towards Fontainebleau on the 24th May last in his automobile, when he chanced to pass a certain General Burnez, commander of the 7th cavalry division of the French army, and accompanied by his aide-de-camp, Captain Descoins. The General's horse, which no doubt is carefully trained to act with indifference during the thunder of artillery fire, took fright at the tooting of Maitre Seligman's warning horn, and this necessitated a little buck-jumping, and consequent loss of dignity on the part of the brave general, who, in spite of the shaking up which his timid charger caused him, had the presence of mind to note the number of the automobile, No. 721 Y. Six weeks after Maitre Seligman was surprised to receive a summons



ONE OF THE 16-H.P. PANHARD PUBLIC SERVICE AND MAIL CARRYING VEHICLES RUNNING BETWEEN SOUSSA AND SFAX, TUNIS.

[La France Automobile.]

the heavy cars and the motor-bicycles were the only two to bring out many entries, there being seven starters in the first category and six in the second.

THE winner of the heavy cars was a 40-h.p. Mercedes Simplex, belonging to Mr. Gray Dinsmore, and driven by Werner; the second was also a Mercedes, belonging to Dr. Stern; the third was a Serpollet, driven by Le Blon, who was 3-5 of a second behind Dr. Stern. Werner won in 10 min. 37 1-5 sec., or 9 2-5 sec. before Dr. Stern, and beating the record of last year by two minutes. Amongst the motor-bicycles, Derny won on a Clement in 14 min. 24 2-5 sec., beating Meixner on a Puch by 35 4-5 sec. The road was in excellent condition, and the weather fine.

To those who are recommending the numbering of motor-cars in England, I would suggest a careful study of the following

to appear before the magistrates of Melun, on the complaint of Captain Descoins, made at the instance of General Burnez.

ONE day last week Maitre Seligman journeyed all the way from Normandy to attend the court at Melun, to defend himself but in the meantime the general had sent word that he had an engagement at one o'clock, and requested the Court to put off the case till four. The general's request was granted, and as it did not suit Maitre Seligman to remain until four, he was condemned by default and appealed, and the matter will be judged in another court. If readers will apply this little story to a country district in England with a few motorphobe magistrates, they will be easily able to forecast what the result will be, viz., a wholesale list of the numbers of passing motor-cars given to the police, and a £10 fine for each.

THE question of speed in motor-cars is little understood by the average automobilist, and not at all by the public. The size of the car and the noise it makes give a false idea of speed, and errors are always made on the side of exaggeration. The average motorist is nearly always travelling from five to ten miles slower than he estimates, and the maximum speed of his car rarely ever attains the figure that he will confidently assure you it can easily do. In driving a 40-h.p. Mercedes lately I have been studying the effect produced on the mind of the pedestrian by the appearance on the horizon and the passing by of the big car.

COMING along at any easy pace, say twenty miles an hour, with the car well in hand and the road quite dry, so that in five or six yards the brakes will bring me to a safe standstill, people fifty yards away fly as for their lives, although there is no more danger to them than if there were no car at all. A child wanders into the middle of the road, and you shut off the gas, and begin to apply the brakes, reducing the speed to ten or eight miles an hour, with ample room to come to a dead standstill before you get within twenty yards of the child.

A MOTHER rushes out and scoops up the child, and then, instead of thanking you for being so careful and for slowing down, she shakes her fist at you as you pass. Poor woman! She imagines her child has had a narrow escape, and proceeds to tell the neighbours and raise their anger against motor-cars.

AND this occurs in France and in Paris, where there are 10,000 motor-cars. How much more so will it occur in England, where there are relatively so few cars. The lesson to be learned from this is the necessity of a better understanding of speed amongst automobilists, and the education of the magistrates and police authorities, who have just as much common sense as other people, and only lack the opportunities of judging.

ON the 22nd inst., at 9 a.m., a hill-climbing trial will take place at Spa, on the road to Malchamps. It is being organised by the A.C.B., and there will be the usual categories, with the exception of a change in the weight of light cars, for instead of 650 kilos., the limit will be 700 kilos. Entries will be received by the A.C.B. until midnight on the 20th inst.

FROM an article in the *Auto-Velo*—inspired, I should judge—and from certain other indications, I should not be surprised to see the limit of 650 kilos. for light cars raised shortly by the A.C.F.

THE German Automobile Club has chosen the Mercedes to represent Germany for the Gordon Bennett Cup for 1903, and three 60-h.p. cars are being constructed at Cannstatt for this event. It is rumoured that they are to be piloted by Fournier, Baron Pierre de Crawhez, and Count Zborowski. It seems peculiar that the Germans should choose a Frenchman, a Belgian, and an Englishman to drive the cars, and it is, I think, an omission from the rules of the Cup that the driver as well as the vehicle should be a national product.

THERE are twenty-four motor-cars following the German manoeuvres, and they are all the property of the War Office, who disdain to borrow cars from enthusiasts, but go in for the much more practical way of purchasing them for the State. The Emperor is following the manoeuvres personally in a motor-car.

THE German Agricultural Society is organising a prize competition for heavy motor-vehicles, using alcohol as fuel. In addition to the prize donated by the German Emperor, cash prizes aggregating £300 will be awarded to the successful competitors. The competition will be divided into two classes: Class 1, motor-wagons for the transportation of large loads; Class 2, motor-wagons for delivery service and for use as milk

wagons. The chief difference between the two classes is that in Class 1 may be entered vehicles which are intended to transport loads on trailer vehicles and in which the full weight and carrying capacity of the traction vehicle can therefore be utilised for the motor equipment. Such tractors are thought to be specially suitable for the transportation of such agricultural products as sugar beets, potatoes, alcohol, grain, coal, etc. It is proposed to use as trailers the regular farm wagons. There are in Germany a considerable number of large estates on which such tractors could be used all the year round.

IN Class 2 vehicles will be entered intended for the transportation of small parcels, and especially for milk. It is hoped that through the use of comparatively fast vehicles many farmers will be enabled to deliver their milk direct from the farms to the customers and avoid railway transportation. It is further to be expected that on account of the higher speed of motor-wagons the milk will be delivered with greater dispatch than is now possible. The trials will take place in the spring of 1903. Complete details may be obtained from the headquarters of the German Agricultural Society, 73, Kochstrasse, Berlin, S.W.

THE Provence meeting commenced on Sunday last under very unfavourable climatic conditions, for the mistral was blowing with full force, and, what with the dust which it raised and the *dos-d'anes* on this road, high speeds were not obtainable. That is to say, high speeds relatively speaking, for with a clear, calm day on this open stretch an average of 100 kilometres an hour might have been expected.

THERE were few competitors, the time of the year and the distance from Paris militating against a great number of entries. In the heavy car class, Chauchard on his 70-h.p. Panhard was an easy winner, doing the ninety miles in 1 hr. 35 min. 13 sec., at an average speed of fifty-six miles an hour. Hemery, on a Darracq, won the light car class in 13 min. 4 sec. more, and Oury, on a Clement, won the voiturette class in 8 min. 21 sec. more. Labitte, on a Werner 2½-h.p. motor-bicycle, won his class.

It is worth noting that there is more and more a tendency for the speed of the different categories of cars to approach the same figures, all of which goes to prove that the great problem in automobilism is the reduction of weight.

THE following are the results of the day's meeting:—

HEAVY CARS (145 Kilometres).				hr.	min.	sec.
1. Chauchard	...	Panhard	...	1	35	13
2. Mery	...	Turcat-Mery	...	1	57	49
3. A. Richard	...	A. Richard	...	3	23	16½
LIGHT CARS.						
1. Hemery	...	Darracq	...	1	48	17½
2. Goudoin	...	Panhard	...	1	48	43½
3. Mouren	...	Darracq	...	2	2	1
4. Testa	...	Testa	...	3	16	32
VOITURETTES.						
1. Oury	...	Clement	...	1	56	38½
2. Hanriot	...	Passy-Thellier	...	2	1	47½
3. Volatum	...	Clement	...	2	6	14½
4. Vilain	...	Prunel	...	2	17	2½
MOTOR-CYCLES. (120 Kilometres).						
Collin	...	De Dion Bouton	...	2	12	0
MOTOR-BICYCLES.						
1. Labitte	...	Werner	...	1	50	0½
2. Dery	...	Clement	...	2	8	8
3. Muller	...	Clement	...	2	29	8

MISS ANITA LEA, of Sefton Park, Liverpool, contributes a useful letter on a lady's experiences of motoring, to the discussion now going on in some of the newspapers with regard to frightened horses, and, we would add, nervous drivers. She gives an instance of how a horse she was riding shied one day at a small piece of paper fluttering on a lonely Welsh road. The truth is that horses will shy at anything unusual, whether it is a motor-car, a travelling circus, or, as we mentioned in our report of the run to Brighton last week, a harmless flock of sheep.

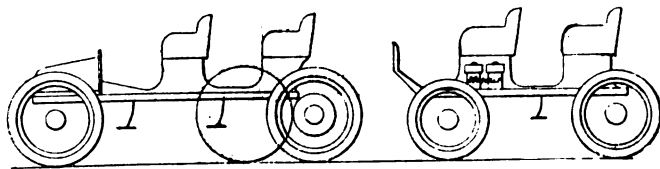
CARRIAGE BODIES FOR TOURING CARS.*

By LEON AUSCHER.

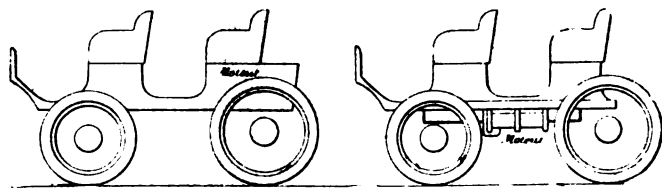
(Continued from page 518.)

THE chassis thus prepared, the problem is to provide it with a comfortable body. The choice is a difficult one, because several solutions are possible, for while in the case of the chassis the strength required and the use to which it is to be put determine all the arrangements, the personal taste and preferences of the individual for this or that form have to be counted with more directly in matters relating to the body. Nevertheless by following certain general principles we shall be able to specify an average type, which may serve as a model, and which can be copied by tourists as nearly as desired.

First of all, car bodies, as we have seen, belong to one or the other of two types: The *tonneau* (with rear entrance) and the double phaeton with entrance from the front. A third type would be desirable—an intermediate type with side entrance. Unfortunately ninety-nine out of every hundred chassis have their rear wheel where the entrance would come (Fig. 8). And in order to secure facility of entrance the chassis would have to be lengthened, or again the front seat would have to be placed over the motor (Fig. 9), which is open to many objections. For the sake of completeness only, the possibility of arranging the motor in the rear (Fig. 10) or below the body (Fig. 11) may be mentioned. The majority of manufacturers for good reasons have adopted the front position of the motor, where it is independent of the body, readily accessible and covered by some kind of bonnet. We shall, therefore, only consider this latter arrangement and adapt our body to it.



FIGS. 8 AND 9.



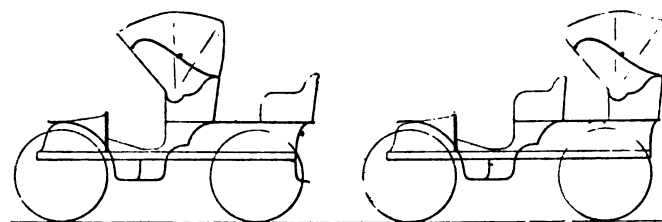
FIGS. 10 AND 11.

This settled we have to deal only with vehicles with rear entrance and with front entrance, and we still retain the supposition that seats are required for five persons facing forward, two in front and three in the rear. Whether *tonneaux* or double phaetons, the bodies may again be divided into three classes: (1) Open bodies; (2) covered bodies; (3) closed bodies.

Open Bodies.—We will leave aside for touring bodies completely open. One must be an extreme devotee of the sport to refuse himself and his guests protection against rain, dust, and wind, those three enemies of the automobilist, and, I believe, no one will again make a trip with no other protection than a goat skin against the cold and a leather suit against the rain, as was done in the enthusiasm of the pioneer days. And as regards dust, no one then bothered himself about that. It is true that we went slower then, and that our poor little "6-h.p.'s" did not stir up much behind them.

Covered Vehicles.—Covered vehicles carry either a hood or

a canopy. The top may cover either one or both seats. In the first case it may be placed either over the front seat (Fig. 12) or over the rear one (Fig. 13), or alternately over one and over the other by making the two seats of the same width and shape. The advantages of the hood are the following: It is light, easy to handle, and may be made easily detachable; when placed over the rear seat it is a dust protector of the first order. Its disadvantages are, unfortunately, very important. In the first place,

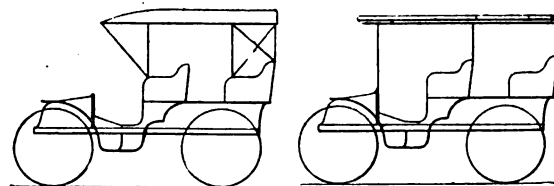


FIGS. 12 AND 13.

it does not admit of carrying baggage on the roof, as does the canopy top; moreover it protects but little against rain. In fact, the faster the vehicle is driven the more rain is drawn into the hood by the opening of the same. This may partly be remedied by mounting a glass window with portable frame over the dashboard. But that makes an additional part to attach or detach, and to carry in the vehicle, and the protection is not even then perfect. The ordinary hood seems, therefore, better suited to city and pleasure driving vehicles than to touring vehicles.

As to the double top (Fig. 14), it covers, when extended, the whole vehicle. But it is very heavy, very complicated to handle, interferes with easy ingress to the front and rear seat, protects poorly the front seat, and does not permit carrying baggage on its roof. The canopy top (Fig. 15) forms at the present the best and most practical means of protection. Although the objection is raised against it that it renders the vehicle heavier and increases the air resistance, it offers many advantages. It may be provided with a window in front, another in the middle, and a fixed panel serving as dust guard in the rear. It is constructed so that outer covers of tyres and travelling cases may be carried on the top of the canopy, and it may be fitted all around with impermeable curtains, which are buttoned to the edges of the body, and, finally, in the case of a *tonneau* or a double phaeton it never interferes with free ingress to both front and rear seat.

Closed Vehicles.—Closed vehicles with seats for five persons facing forward are of two types: The limousine of the *tonneau* variety with rear entrance, and the limousine of the double phaeton variety with front entrance. In both cases the profile of the vehicle remains the same, and only its plan varies. The limousine is one of the most popular styles of automobile bodies. The front seat of such a body is covered, while the rear seat is entirely enclosed. The rear part comprises generally a double glass frame or window on either side. This frame is completely detachable if desired, but if one simply desires to be at his ease within the vehicle, the inner half frame may be turned down around the



FIGS. 14 AND 15.

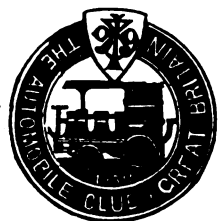
hinges of the outer half frame. The window, which separates the front seat from the interior of the enclosed space, may be slid up and down (in case of a rear entrance), or may be arranged to turn double on hinges (in case of a front entrance). As to the rear panel, it is generally provided with a small window or spy-

* Abstract of Paper read before the Automobile Congress at Dijon.

glass. The seat back occupies a considerable portion of its height, and when the entrance is in the rear the back seat is made in two parts, one of which is fixed and the other one movable, either around hinges or springs. The top of the limousine is provided with a luggage carrier, the same as the canopy top. The front is protected by a window, which can be raised to the ceiling, and by lateral curtains. In conclusion, the limousine is arranged like a tonneau or a double phaeton, with canopy top. When the canopy is considered fixed, and the space between the four columns at the rear is closed by glass panels, instead of curtains, a limousine is obtained.

(To be continued.)

BRITISH AUTOMOBILE CLUB BADGES.



The Automobile Club of Great Britain and Ireland.



The Scottish Automobile Club.



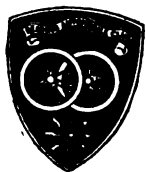
The Irish Automobile Club.



The Liverpool Self-Propelled Traffic Association.



The Lincolnshire Automobile Club.



The Reading Automobile Club.



The Manchester Automobile Club.



The Yorkshire Automobile Club.

TO-DAY (Saturday) the Irish Automobile Club will hold a run from Dublin to Skerries and Balbriggan.

THE Western Section of the Scottish Automobile Club will hold a run to Aberfoyle to-day (Saturday).

A TRADES exhibition was held at Hexham the other day, when the bulk of the exhibits of the Co-operative Wholesale Society were taken from the branch at Newcastle-on-Tyne by three Thornycroft motor-lorries.

THE Manchester Motor Supply Company, 20, Oxford Street, Manchester, are making a speciality of repairing motor-tyres, having put down a special plant for the purpose. They also hold a large stock of petrol as well as spare parts and accessories.

THE Mytholm Steam Wagon Company, of Hebden Bridge, Yorkshire, have taken up the construction of heavy steam vehicles under the Herschmann patents, for which they are the sole licencees in this country. The first five-ton wagon is expected to be on the road in a few days.

SIDE SLIP.

THE question of side-slip in mechanically-propelled vehicles is now very prominently before the public, so perhaps a few remarks upon the subject may not be out of place. There appears to be an idea that side-slip is unavoidable, and also that when it occurs one is absolutely helpless to meet the emergency, and must abide by the result. Now this is by no means the case, and it is a great pity that such ideas should be allowed to go uncontradicted, since they are calculated to give a very erroneous impression as regards the safety of the automobile.

Side-slips may roughly be divided into two classes. (1) The side-slip which occurs when one is going fast over a treacherous and greasy road. (2) The side-slip which occurs when one is going slowly. In the former case it is safe to say that no one but the driver of the vehicle is to blame, as to travel at a high rate of speed over a greasy surface is the height of folly, and one usually finds that the driver in this case has absolutely no notion of how to treat a slip when it does occur: in all probability he will apply his brake, the result being that the vehicle will turn completely round and crash into anything or anybody in close proximity. If a driver is going to be foolish enough to travel fast over a greasy road let him at least treat the slip in the best possible way. He should withdraw the clutch, so that the vehicle is only running by its own impetus, and then do his best with the steering.

In the second case, when a vehicle is proceeding at a slow rate of speed, a side-slip is only likely to occur in the presence of sloppy tram-lines, or in the event of the vehicle being a badly-designed one. In the first case, owing to the slow speed at which one is travelling, no harm is likely to result, seeing that the slip can easily be righted; in the second case, viz., with a badly-designed vehicle, a slip may take place on almost any occasion if the road is at all greasy, and especial attention may here be drawn to the designs of different automobiles. If a car is to be free from side-slip, it should have its wheel-base proportionate to its power and speed, and (what is most important) its body should not overhang the back wheels—that is, the body should not project out beyond the rear wheels. There is no danger to be feared from side-slip if a properly-designed vehicle is used, which is also driven with proper care and consideration. The sudden application of the brake on a greasy road is always liable to swing the back of the vehicle round.

R. A. C.

THE Manchester Automobile Club will to-day (Saturday) hold a run to Nantwich.

THE Liverpool Motor Cycle Club will hold a run to Macclesfield on Sunday next.

THE Steam Van and Motor-Car Manufacturing Company, Ltd., has been registered with a capital of £2,000. The office is at 134, Southwark Street, S.E.

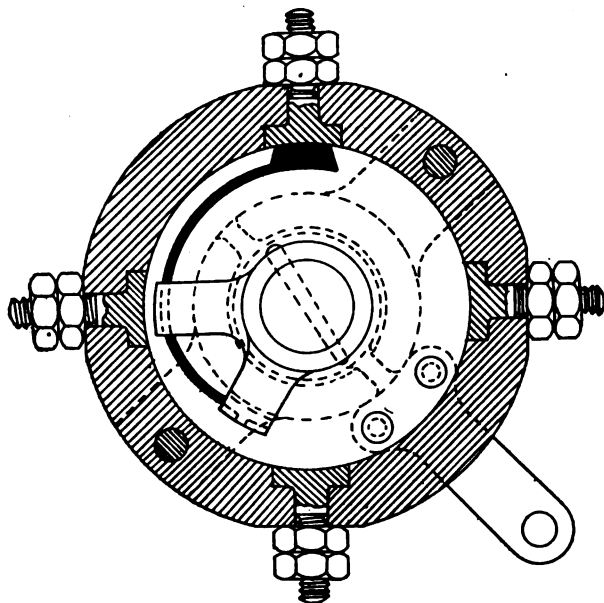
MR. W. WINDHAM, of Tomintoul, Daviot, near Inverness, advises the more frequent use of the horn by motorists when turning corners.

OWING to the refusal of a brake to act, a motor-car lately rushed across the railway cutting at Wolferton and was wrecked. Although badly shaken the occupants were not much injured.

AT the invitation of the President of the Sanitary Institute Congress, Earl Egerton of Tatton, and the Duchess of Buckingham and Chandos, a number of the delegates to the Congress have attended a garden party in Tatton Park, Knutsford. The Manchester Automobile Club had placed their motor-cars at the disposal of the guests. The cars assembled in Albert Square, where a goodly crowd quickly formed. The motorists, however, suffered no inconvenience, owing to the forethought of the Chief Constable (Mr. R. Peacock), who had provided an adequate staff of police to form a line. A start was made about 2.15 with the Lord Mayor of York in the first car heading the procession. Tatton Park was reached about three o'clock, where the delegates were received by their hosts.

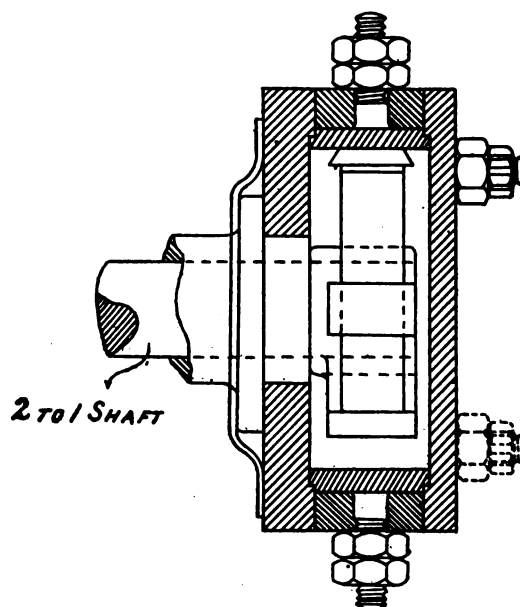
THE WILSON AND PILCHER COMMUTATOR.

IN describing the Wilson and Pilcher car in our report of this year's Exhibition at the Agricultural Hall, we referred to several detail improvements that had been effected. One of these is a new form of commutator in connection with the ignition, of which we are now able to give illustrations, Fig. 1 showing a sectional elevation and Fig. 2 a transverse section. The commutator is mounted around the half-speed shaft,



AUTOMOBILISM IN GERMANY.

AUTOMOBILISM as a means of locomotion, sport, or recreation is still in the development stage in Germany. Notwithstanding all the energy, ingenuity, and enterprise of various German builders, their sales have been in many cases slow and discouraging, and the number of motor-carriages in actual use for travel and sporting purposes is relatively small. The Deutscher Automobil Verband, which lent its aid to the recent exhibition in Berlin, comprises sixteen clubs, which have an aggregate membership of about 900 persons, and collectively



FIGS. 1 AND 2.—SECTIONAL ELEVATIONS OF WILSON AND PILCHER COMMUTATOR.

which carries on its end a two-armed support 2 (Fig. 3) for the spring wiper, shown separately at 3 (Fig. 3). The box of the commutator is made of vulcanised fibre; at equal distance it is provided with terminal contact studs, the inner faces of which are flush with the inner periphery of the case. The spring wiper is held in position without the use of any screws—in fact, by the special arrangement of the two supporting arms,

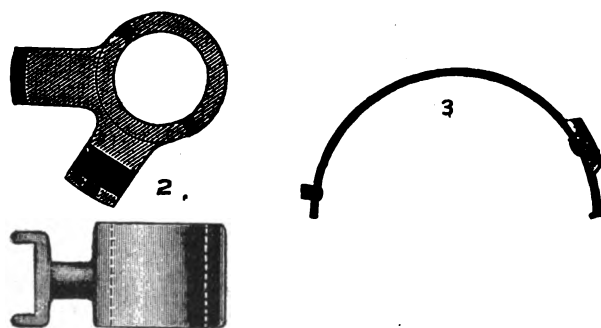


FIG. 3.

the wiper, when once put in place, holds itself together securely in position. As the half-speed shaft rotates it carries with it the wiper, which consequently makes contact at the desired intervals with the terminal studs. The contact springs are all made exactly alike, so that the timing can not be disturbed when a new one is fitted. A projecting arm is provided to the commutator case by means of which the sparking can be advanced or retarded in the usual manner. The device gives perfectly regular firing irrespective of wear, whilst amongst its other advantages it may be mentioned that it is completely boxed in, and so preserved from dirt, and that there is nothing to shake loose.

include the automobile public of Germany. The clubs are in general well organised and efficiently managed; but there has been thus far in Germany no such popular interest in automobilism as has been seen in France, England, and the United States. This is apparently the result of a combination of causes, among which may be cited the very strict and rigidly-enforced police regulations to which all motor-carriages are subject throughout Germany, and the fact that during the past two years the independent and leisure classes of people have suffered losses through the depression of business, and have therefore been slow to invest in the luxury of an automobile. There has never been any such surrender of the public streets, parks, and country roads to motor-carriages as has been seen in France, or even in Italy and Austria. Throughout Prussia the rate of speed permitted within municipal limits is limited to 12 kilometres (7.45 miles) an hour, and if this rate is exceeded there is inevitably a policeman in sight to halt the offender and bring him to justice. The result of the Paris-Berlin race of last year was to deepen and confirm the conviction of German municipalities that the motor-car is an intruder to be handled with firmness and discretion.

THE Whitley Motor and Engineering Company, Limited, has been registered to deal in motor-cars, etc.

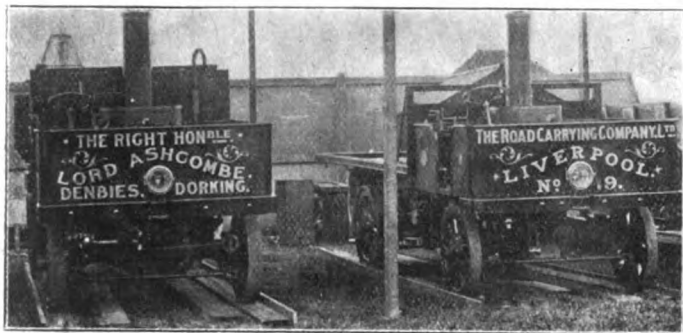
A CINEMATOGRAPH film was taken on the occasion of the Yorkshire Automobile Club's garden party, at Castle Grove, Headingley, the residence of Mr. H. R. Kirk, on Saturday, the 6th inst., the picture being shown to a large audience at the Tivoli, Leeds, on Tuesday evening last.

MANY people are enquiring what has become of *La Passe-Partout*, which started with a flourish of trumpets for a tour round the world in May last. When the vehicle was last heard of—at the end of August—it was standing quietly in the works of the Kuhlstein Company, at Charlottenburg, Berlin.

HERE AND THERE.

A MOTOR-CAR exhibition is to be held in Amsterdam next spring under the auspices of the Dutch Automobile Club.

THE accompanying illustration shows the two steam vehicles exhibited by Messrs. T. Coulthard and Company, Limited, at the Royal Lancashire Agricultural Society's recent show at Preston. Each of the vehicles secured the society's medal. In the case of the lorry for Lord Ashcombe, this was awarded on account of the novel feature of the boiler thereon, which is con-



structed without a fire-door, thus doing away with unequal expansion. The vehicle (class C. type) for the Road Carrying Company, Limited, was awarded the medal for the special design of gearing.

THE Italian Minister of Posts and Telegraphs has decided to introduce motor-cars into the postal service. A start will be made at Milan.

THE judges in the Reliability Trials met on Monday and Thursday last; the announcement of the awards cannot be made before Thursday next at the earliest.

AT Bournemouth the other day a motor-car wedding took place, and the newly-married pair subsequently set off for a honeymoon automobile tour through the south of England.

LAST week's *Sketch* contained a creditable photograph of Lord Llangattock's seat, The Hendre, Monmouthshire, and a strange inaccuracy in telling of the automobile fame of the Hon. John Rolls.

THE firm of Bassée and Michel, of Paris, the well-known makers of induction coils, sparking plugs, &c., for motor-cars, has been converted into a company with a capital of £40,000 and the title La Société d'Electricité Nilmeior.

FROM the Brecht Automobile Company of St. Louis, U.S.A., we have received a copy of their latest catalogue, which gives clear illustrated descriptions of the motor-cars (electrical and steam), frames, and parts of which they are making a speciality.

BURGER JOOSTE, of Klerksdorp, and Burger T. H. Rood, of Ermelo, accompanied by Captain Kirkpatrick, of the South African Constabulary, have been to Biggleswade to inspect several farms in that neighbourhood, and also to examine the new agricultural motor.

THE Panhard repair works in this country are at Kimberley Road, Edgware Road, W., where is a competent staff of English and French mechanics. A large stock of Panhard accessories, spare parts, etc., is also kept there, and owing to increase of work further ground has been taken for extending the buildings, when repairs to other carriages, as well as Panhards, will be undertaken.

MR. H. PROSSER, who drove a 10-h.p. Wolseley car in the Reliability Trials, left the Palace on the evening following their conclusion with Mr. J. Todd—the writer of a recent article in our columns on a John o' Groat's to Land's End Trip. Travelling via Coventry, Leeds, and Carlisle, he reached Glasgow without a stop of any kind, except for food and sleep, the actual driving time being 27 hours, and no adjustments being necessary during the whole of the run.

PORTSMOUTH is to have a new motor fire engine.

AN automobile fête was held a few days ago at Scheveningen, the popular Dutch seaside resort.

EDISON, it is said, will enter a car in the American Automobile Club's reliability trials to demonstrate the qualities of his batteries.

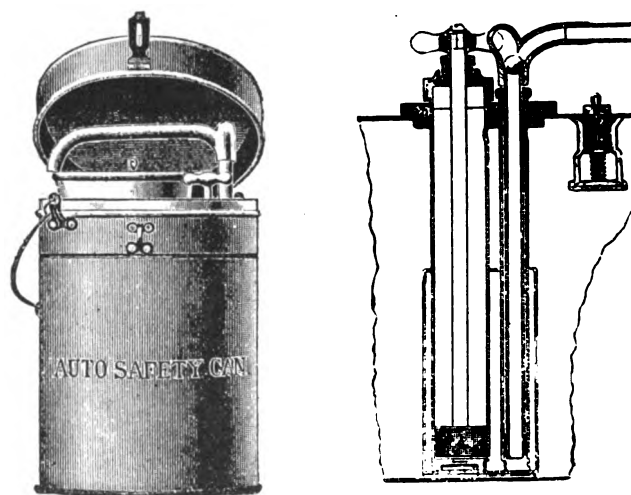
THE London Motor Omnibus Syndicate, Limited, has been registered with a capital of £3,020, to carry on business as motor and motor-car and cycle builders, with registered offices at White House, Telegraph Street, E.C.

THE authorities of the Universal Exhibition at St. Louis, U.S.A., to be held next year, have sent us a copy of the rules and regulations with regard to the "Aeronautic Competition" which is being organised in connection therewith, and for which prizes of an aggregate value of £30,000 are being offered.

THE Daimler Motoren Gesellschaft, of Canstatt, has not only acquired the factory and plant of the Marienfelde Company, Berlin, but has also bought the works of the sister company at Neustadt, Vienna. The two freshly-acquired establishments will, it is reported, be devoted to the production of heavy petrol vehicles, and steam cars of the Serpollet type, the Daimler Company having purchased the Serpollet patents for Germany and Austria.

MR. ARCHIBALD FORD, of Liverpool, has arranged to give a course of lessons during the coming months in motor-car driving for the benefit of ladies and gentlemen who are interested in motoring, or who contemplate purchasing a motor-car sooner or later. They will be taught (1) how to drive a car; (2) how to drive a car properly, reducing all noise to the necessary minimum; and (3) how to cope with emergencies, such as when passing a restive horse, travelling backwards downhill in the event of both brakes failing to act, forward or backward.

HEREWITH we illustrate in general view and section a safety storage can for transporting petrol, which is being placed on the market by the Hall Mfg. Company, of 40, Cortlandt Street, New York. The pumping apparatus is included in the can, which is absolutely vapour tight. The parts are few in number and easily accessible for inspection or cleaning. An ingenious funnel is supplied for filling the tank, and it is so placed that it does not in any way project so as to take up additional space. The joint



between the funnel and tank is also vapour tight, so that leakage is made impossible. The funnel saves the loss of liquid, which usually occurs from filling a tank without some appliance of this kind. The tanks are made in any shape or any size to order, independent of the standard sizes of three, five, and ten gallons capacity. The can has been approved as satisfactory by the New York Board of Fire Underwriters, who are not any too kindly disposed to the extended use of inflammable oils brought about by the popularity of the motor-car.

A PARTY of American tourists, including Mr. and Mrs. Corey, of Newton, Mass., are at present touring in Europe on a Winton car.

THE Garrard Manufacturing Company, Ltd., have sent us a copy of the second edition of the little booklet which deals exhaustively with the Clement-Garrard motor and motor-bicycle.

MR. J. ARMSTRONG, of Shipley, is anxious to find the driver of a motor-car which knocked down a friend at the Manningham Lane end of Queen's Road, Bradford, on Monday of last week.

BARON KNOOP has just received delivery of a handsome Oppermann electrical landaulette. The battery of 40 ABC accumulators has a capacity sufficient to run the vehicle a distance of fifty miles on one charge.

MR. H. F. JOEL is, we learn, busily engaged on the construction of a new type of electrical motor-car.

ARTHUR STONE, an engineer, of Grosvenor Square, W., has been fined 40s. and costs for being drunk while in charge of a motor-car, and doing serious damage to a milk barrow in Regent Street, W.

THE Hamilton Motor Company, Limited, has been registered with a capital of £2,000, and registered offices at Dale Street, Coventry, to carry on business as millwrights, makers and repairers of motors, motor-cycles, etc.

THE monthly meeting of the Aeronautical Institute and Club was held on Friday week, Dr. T. A. Barton in the chair. Mr. Carter detailed some very interesting experiments which were being conducted at Batheaston, explaining and demonstrating much by means of some of the actual apparatus in use, and Mr. L. S. Anderson produced a model of his proposed twin balloon airship.

THE illustration on page 581 depicts one of the 16-h.p. Panhard cars lately completed for the conveyance of passengers and mails between Soussa and Sfax, Tunis, a distance of fifty miles. The car, which has accommodation for twelve passengers, makes the journey in six hours as against fourteen hours occupied by the horse-drawn diligences.

MESSRS. BELL, SLATTER AND PENNEMAN have opened a motor-car repair department and garage, under the style of the Motor-Car Supply Company, at 46, Station Road, Anerley, S.E. The garage has accommodation for about a score of motor-cars, and the location of the department is such as to lead to its ultimate success.

AN ingenious combination of historical research and advertising parlance is brought within the covers of a little work on Canvey Island, published by Mr. Henry Drane. Canvey Island is a low-lying portion of Essex about thirty miles from London, the nearest railway station being Benfleet. As yet unspoiled by the tripper or the estate divider, it preserves many of its primitive features, which are described in the book referred to.

WE hear that the first of a fleet of Stirling omnibuses for the London streets will be delivered during the present month.

THE Sheffield and District Automobile Club will hold a meeting at the Wharnccliffe Hotel, Sheffield, on Thursday next, and the attendance of local automobilists will be welcomed.

THE police authorities at Stalybridge have been urged by the local Council to watch the speed of motor-cars passing through that town.

QUITE a score of motor-cars were seen on Saturday afternoon by a pedestrian reader who tramped through the Snaresbrook portion of Epping Forest. Unfortunately, the roads to the Forest are uninviting, otherwise it would be a most popular locality for motorists.

THE Lincolnshire Motor Cycle Club, which has its headquarters at the Albion Hotel, Lincoln, has decided to offer its collective support to the Volunteer Automobilists' Corps.

To meet the demand for a powerful engine for use on motor-bicycles intended to be used in hilly districts or to draw trailers, the Begbie Manufacturing Company are now importing specially-built $2\frac{3}{4}$ h.p. Aster air-cooled motors.

UNDER discouraging circumstances as regards arrangements, A. A. Hansen started at 2.40 p.m. on Friday, the 24th ult., on a 24-hour motor-bicycle ride on the Garfield Park track, Chicago, and when he finished a distance of 634 $\frac{1}{2}$ miles was to his credit. He used a 2-h.p. Mitchell motor-bicycle.

A NEW trailer for use with motor-bicycles has just been introduced by the Encore Cycle Company, of 34, East Dulwich Road, S.E. The feature of the trailer is the design of the frame. In place of the ordinary axle, forks are provided for the wheels to run in, all cross strains in the bearings being, it is claimed, obviated, while making the trailer more easy

running. The method of construction is said to add greatly to the strength and security, and, owing to the absence of the heavy axle, the trailer is extremely light. The hauling tubes are double all the way, and at the weak spot under the body there are supporting tubes.

THE members of the Lincolnshire, Sheffield, and Yorkshire Clubs will hold a joint run to Bawtry to-day (Saturday).

WITH a capital of £5 in one shilling shares the Motor Hire Purchase, Hire and Agency Company, Limited, has been registered by Mr. W. Yarnold, of 27, Lakewood Road, Balham, S.W., to deal in motors, motor-bicycles, etc.

BETWEEN the pleasant village of Bramber and the curious little town of Shoreham motorists had better be careful—so we are informed by a visitor to Brighton, who has just had another instance of police exaggeration where the speeds of motor-cars are concerned.



MOTERING IN ALGERIA.—ON THE TOUGOURT ROAD.
(La Belgique Automobile.)

CORRESPONDENCE.

A TRIP THROUGH THE LAKE DISTRICT.

TO THE EDITOR OF *The Motor-Car Journal*.

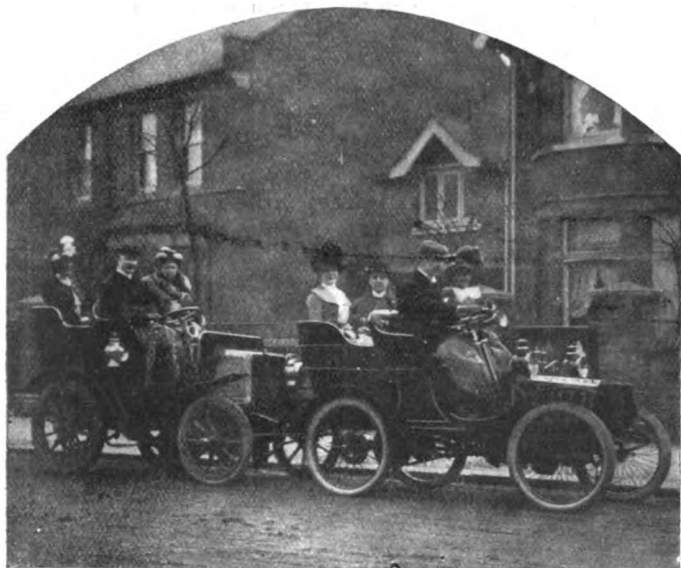
SIR,—I have thought that a delightful run through the Lake District I had a few days ago on my 4½-h.p. "Swift" voiturette might interest some readers of the *Journal*. My wife and I left Carlisle at 11 a.m. and ran through to Ullswater Hotel, via Penrith and along the lake, where we lunched. Leaving the hotel at 3.30, we essayed the precipitous Kirkstone Pass, 1 in 7-8; this was surmounted without the least sign of lacking power. We descended to Ambleside by the steepest side of the Pass, chiefly 1 in 6, and on through Grasmere, over Dunmail Raise to Wytheburn Inn, where we made our first stop from Ullswater. We left Wytheburn at 6.20, ran through Keswick and arrived at Carlisle at 9.5 p.m., without a stop. The whole distance covered was about 100 miles. I think the hill-climbing and descending capabilities of the car fully justify my conclusion that the machine is in every sense reliable. I have run it now 1,000 miles without trouble of any kind.—Yours truly,

CHAS. W. GRAHAM.

THE PURCHASE OF SECOND-HAND CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—That experience may be either acquired or bought is a well-known axiom; but for the benefit of your readers I should like to caution the inexperienced against buying it at the same price as I have done. I desired to possess a car, and looked through the list of advertisements for a second-hand one in the pages of your *Journal*, and eventually went to inspect (by appointment) a Dechamps Victoria, guaranteed in perfect order



OFF FOR A RUN.

Photo by

[Mr. T. B. Percy.]

by a dealer in Liverpool. This broke down hopelessly within half a mile of start on trial trip, and so sent me to dealer No. 2, also at Liverpool.

I purchased there a 4½-h.p. Panhard (second-hand) for £115. This was guaranteed to take myself and a friend (who could drive) to Taunton. On reaching the first hill, however, outside Shrewsbury the engines stopped, and the next morning repeated the performance at a slight bank met on another route. I was obliged to return home by rail, and sent back the car (which my friend could not get further than Whitchurch), and asked for my money back. This was refused, under a clause inserted on bill that it would be exchanged for any car in stock within seven days. My friend therefore had to take the only one near that price, viz., a 3½-h.p. two-speed International Benz. For this old-pattern, small-axle, solid-tired car I paid £105 (since valued by two experts as worth from £60 to £80). After seeing and trying it here in Taunton, I wrote saying it would not suit me, and being informed by a local engineer that the Panhard would not have stopped "if her engines had been sent out in proper order," I wrote asking to be allowed to revert to original purchase, offering £5 for short use of Benz car, and also to return same carriage paid by rail, or pay them £5 extra to drive down Panhard and take back the other. This offer was flatly refused.

I have next written asking them to name a price at which they will take the car back; but notwithstanding personal letters to the owner and to the manager, I can get no reply to the query.

I think, Sir, if incidents such as these are fully reported in your excellent paper, we may manage to stamp out a rapidly growing opinion that buying a motor is as bad as buying a horse. It used to be a plan in certain yards to sell a fine, showy horse at a price, and then, when known faults

developed, to exchange for another with increased fee; and it will be a great blow to the motor industry if such a system obtains in the sale of second-hand cars.—Yours truly,

MONTAGUE COOPER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As we understand that a recent purchaser of a motor-car from us has written to you complaining of the treatment he has received from us, in the event of your inserting his letter, kindly publish the following statement of facts.

This gentleman came to Liverpool, and saw a car which he thought would suit him, if it would climb the hills in his vicinity. We told him that we could not recommend the car as a hill-climber in its then condition, but if he were to fit smaller sprockets, we thought he would have little difficulty in getting up most of his hills on the lowest speed.

Before purchasing the car, he tried it up a hill here in the vicinity, which is exceptionally steep, and thereupon he purchased the car, and with his friend and one of our drivers proceeded on his way south. Our engineer drove him all the way to Shrewsbury without a hitch of any kind, from Liverpool.

We had previously informed him that if for any reason he did not think the car would satisfy him, he might return the car within seven days from date of purchase for any other car in the place. In the light of this suggestion he examined the International car, in exceptionally good order, upholstered in leather, and with many improvements, which he said would be suitable, and he was also advised to this by his friend (an expert) should the other car not satisfy him. The next day he declared that he could not get his first purchase up the hills *en route*, although our man had taken it all the way to Shrewsbury without a hitch. He accordingly appointed his expert friend to deal with us (himself returning home) regarding the exchange, and he, after a most exhaustive test, satisfied himself that the International was in splendid order, and on behalf of Mr. Cooper completed the exchange and drove off, two of our men going with him a long distance on the way.

These are the plain facts of the case, and the only reason for him having any dissatisfaction lies in the changeableness of the mind of Mr. Cooper. If he had adhered to his first purchase, there is no doubt that he would have been absolutely satisfied; but he changed his mind and purchased the International car, and then two or three weeks afterwards suggested changing back again; but of course during that period we had made other arrangements concerning the car he first purchased.—Yours faithfully,

FOR WILLIAM LEA, THE MOTOR-CAR DEPOT,
ARCHIBALD FORD, General Manager.

[The foregoing letters present both sides of the case, and that having been stated, this correspondence is now closed.—Ed. M.-C.J.]

A TYRE QUERY.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have a 16-h.p. Panhard car, Centaure motor, fitted with a light aluminium body, tonneau shape (this body I propose to replace for a Roi de Belge). The size of the frame is 8 ft. 4 in. by 2 ft. 9 in.; the front wheels are fitted with pneumatic tyres 870 × 90, and the back wheels with 1010 × 90. The sprockets on the counter shaft have twenty-one teeth, and those on the driving wheels thirty-eight teeth. I shall be much obliged if any of your readers will kindly tell me if it is possible to put wheels fitted with solid tyres, taking into consideration that I am prepared to spend any reasonable sum to alter springs, etc., and that I have no desire to travel fast, say a maximum twenty-five miles per hour—at present I can do nearly forty-two miles per hour. Would the solids be injurious to the motor and its fixings, and would it be possible to have this change effected without a great difference in the smoothness of running? The roads near where I am staying are very rough and hilly.—Yours faithfully,

NARRAWAY.

STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to your correspondent "Anxious," I would strongly advise him to adhere to the fire-tube type of boiler for his steam-car. They give absolutely no trouble if properly treated. The sole cause of his trouble is that no independent shut-off valves are fitted on the pipe connections leading to the water-gauge.

When no valves are fitted it is almost impossible to avoid the lower pipe communicating with bottom of boiler being free from obstruction. The upper pipe, leading to steam space, will not choke, and when the drain cock of gauge-glass is opened steam only rushes out. If a valve is fitted on the upper pipe it can be closed for the purpose of clearing the lower connection, as then the whole pressure is brought to bear upon it, effectually clearing out any obstruction. More harm than good is done by blowing down the boiler too frequently. Once a week is sufficient, even if car is used daily; and then care should be taken that steam pressure does not exceed 30 or 40 lbs. If the new tubes do not stand, it is due to careless expanding, or owing to the lower tube-plate being covered with a thick deposit, in which case expanding the tubes will not cure the mischief.—Yours truly,

MARINE ENGINEER.

MR. J. HOYLE SMITH, of Messrs. Marshall and Company, writes us as follows:—It may be of interest to your readers to know that in driving home the 12-h.p. Belsize" car from the Reliability Trials on the 8th inst., we selected a road which, to us at any rate, was entirely new, although we have many times driven to and from London. It was a pleasure to us to find a road in such good condition, almost entirely free from traffic and without any gradient to speak of. The chief matter of interest to motorists will no doubt be that the police are evidently of a more sporting disposition than their confreres in the South, as we were not spoken to at all, although we covered the full distance of approximately 200 miles in ten hours. We started from the Marble Arch at 7.30 in the morning, taking refreshments on board with us, and we had a non-stop run through via Barnet, St. Albans, Dunstable, Woburn, Newport Pagnell, Northampton, Market Harboro, Leicester, Loughborough, Derby, Uttoxeter, Newcastle, thence through Arclid to Holmes Chapel, Knutsford and Manchester, where we arrived at Belsize Works exactly at 5.30 p.m. without having had to replenish either the water or the petrol tanks; and, although we were very dirty and disreputable looking, we had thoroughly enjoyed the run home. We should certainly advise your readers to make a note of the above-mentioned route, which will be found a very good one for motoring.

In answer to "Doctor of Medicine," Mr. C. H. Guest writes:—"It is well to point out that the two batteries coupled giving an E.M.F. of eight volts is too much for the coil, six volts being the maximum allowed. If one happens to leave the trembler in contact with the screw for only a minute or two it will be certain to burn the coil out."

REFUSING TO STOP.

THE first motor-car prosecution which has taken place in the Wigan district has just been heard at the County Police Court. The defendant was William Cunningham, who was summoned for not stopping his motor-car at Ashton-in-Makerfield when requested to. Mr. Walmsley defended, and said his defence primarily was that the defendant never saw anyone put up his hand, nor did he hear a whistle. He, however, contended that no offence had been proved. There were two offences with which a motor-car driver could be charged. One provided that in the event of a horse being restless, the driver of a light locomotive should stop on a constable putting up his hand, but they were charged with not stopping when requested to do so, and he submitted that under the circumstances the offence was not proved. The magistrates over-ruled the objection. Defendant, who is a cycle and motor dealer, was fined £5 and costs. Mr. Walmsley asked the Bench to state a case. The Chairman said he did not think there was any necessity for them to do so.

MR. WALMSLEY, of Blackburn, made a good defence of Mr. Cunningham at the Wigan County Police Court, but that did not prevent him being fined heavily. In comparison with this case it is interesting to note that that immediately preceding was one in which a miner was summoned for having disregarded certain pit regulations, not only endangering his own life, but also the lives of his fellow-workmen. In this case the magistrates considered the case proved, and fined the defendant 5s. and costs. In the one case inflicting a fine twenty times as great as the other, although there was no suggestion in the one case of there being any person in danger, whilst in the other there was a direct accusation that the defendant's conduct had caused such danger.

At the Retford City Police Court, before General Ruck-Keene (in the chair) and Mr. W. Chapman, on Saturday, Joseph Roux motor-car driver in the employ of Major Laycock, of Wiseton Hall, was summoned under the Light Locomotives Act, 1896, for failing to stop a motor-car which he was driving at Clayworth, on September 2nd, in response to a signal made by Captain Thomas, who was in charge of a restive horse, and put up his hand when he saw the car approaching. Defendant, who did not appear, was represented by Mr. A. P. Williamson, who said he was instructed by Major Laycock to express sincere regret that the occurrence had taken place. There was no charge of furious driving, and the car was going properly along the road. Defendant was fined £5 and costs.

ON THE WRONG SIDE.

ALEXANDER DUNCAN, motor-car driver, Sawmill, Finzean, in the employment of the Banchory and Strachan Car Company, pleaded not guilty at Stonehaven to having, on 21st August, on the road between Banchory and Kirkton of Strachan, driven a motor-car on the wrong side of the road. From the evidence it appeared that the motor-car was dangerously near a number of students on cycles. A fine of £5 was imposed, with the alternative of twenty days' imprisonment.

WARNING OF APPROACH WANTED.

At Arundel, A. J. T. Hornsey, of Southsea, has been summoned for failing to give sufficient and audible warning of approach while riding a motor-bicycle. Superintendent White said he was driving in the county cart with Police-constable Ayling and Police-constable Grender on September 3rd, when defendant suddenly passed him on the off side. In the course of his cross-examination defendant said if he had witnesses he would have summoned the Superintendent for wilfully obstructing him, as he had no room to pass the cart. Sir Henry Fletcher said the Arundel county magistrates were determined that the public should be protected. In the present case defendant was liable to a penalty of £2, and the Bench had decided to impose a fine of 20s. and 13s. costs.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Reigate	H. Hughes, Reigate	Above legal limit.	£2 etc.
"	F. C. Selbach, Bloomsbury, W.C.	" "	"
"	C. Maudslay, Coventry.	" "	"
"	J. Marroda, Long Acre, W.C.	" "	"
"	H. Soden, Highgate, N.	" "	"
"	C. Langstone, Birmingham.	" "	"
"	J. H. Fellows, Winchester Street, E.C.	" "	"
"	A. M. Demuth, Croydon	" "	"
"	Frank F. Wellington, Regent's Park, N.W.	" "	"
Coventry	C. Hamilton, Coventry	" "	40s. and costs.
Leicester	A. Oliver, Leicester	" "	£3 etc.
Wetherby	J. McKillop, Leeds	20 m. p. h.	"
"	W. Wharam, Leeds	Above legal limit	"
"	T. S. Watney, Halifax	" "	"
York	F. Baldwin, St. Pancras	30 m. p. h.	£5 and costs.
"	H. Chevier, Liverpool	24 m. p. h.	£7 etc.
"	D. Macintosh, York	20 m. p. h.	£5 etc.
"	J. Little, York	20 m. p. h.	£5 etc.
St. Neots	F. Mills	Above legal limit.	New summons issued.
"	T. G. Payne, Anson Road, London	24 m. p. h.	£5.
"	W. S. Foster, Lincoln	Above legal limit.	£5.
"	R. H. Lawrence, Guildford	30 m. p. h.	£7.
"	W. Whiteley, jun., Hyde Park, W.	19 m. p. h.	£7.
"	F. C. Hayles, Perthshire	Above legal limit.	£7.
"	H. Rees, Mellbon Road, N.W.	" "	£6.
"	L. J. Wiedemann, Shepherd's Bush.	" "	£6.
Scarborough ...	F. Moore, Bradford.	" "	£5 etc.
"	F. Cosse, Scarborough	" "	"
"	S. Russell, Huddersfield.	" "	"
"	H. T. Edwards, Whitehall Court, W.	" "	"
"	L. Gray, Malton	" "	"
Stonehaven	J. Heath, Laurence-kirk	" "	Dismissed.
Wingham (Kent)	W. G. Bell	" "	£1 etc.
Stow-on-the-Wold.	A. Williams, Oxford	" "	Dismissed.
*Hull	F. W. Birks, Hornsea	" "	10s. etc.
Knarborough	A. W. Roslington, Leeds	20 m. p. h.	"
Weybridge	J. Whitaker, Weybridge	21 m. p. h.	£3
Steyning	H. P. Smith, Hove	Above legal limit.	£5 etc.
Blofield	A. Henson, Yarmouth	" "	£1.
Bradford	C. J. Spencer, Bradford	" "	£5 and costs.
Burton-on-Trent	H. Austin, Birmingham	Above legal limit.	£2 and £2 3s. 4d. costs.
"	S. Girling, Birmingham	" "	£2 and £1 19s. 4d. costs.
"	A. Remington, Birmingham	" "	"
"	H. Smith, Birmingham	" "	"
Altrincham ...	S. Blinkhorn, Manchester.	18 m. h. p.	£5 etc.
"	J. Hall, Stockport.	above legal limit	"

* Motor-cycle cases.

MEASURED distances are being observed by the police on the Henley road.

THE magistrates of the North Riding Division of Hallikeld have instructed the police to take action with regard to the speed of motor-cars on Leeming Lane, the great Yorkshire highway, north and south. Colonel l'Anson, at the monthly sessions at Wath, said it was scarcely safe for persons living along Leeming Lane to come out of their doors. Eventually the matter was left in the hands of Inspector Shield, who said the police would do their best towards effecting a remedy.

At the Arundel Borough Bench, Marcel Camous, of Stopham House, near Pulborough, pleaded not guilty to driving a motor-car in Queen Street, Arundel, on Sunday, August 24th, at a greater speed than twelve miles an hour. Police-constable Pygall said he, with other constables, was on special duty on the day in question when the car driven by defendant came along. By means of stop-watches it was ascertained that the car went a third of a mile in 1 minute 6 seconds, or at the rate of over 18 miles an hour. The defendant, giving evidence on his own behalf, said he had been a driver for four years, and this was the first time he had been stopped by the police. The car was out of order; only one cylinder was good, and he had not the necessary appliances to repair it. They had to push the car up the hills between Littlehampton and Arundel. In his opinion he was only travelling between 10 and 11 miles an hour. Thomas Burnham, the owner of the car, said they were told at Littlehampton that the police were pacing cars at Arundel, and he told his driver to be very cautious. He did not think they were travelling beyond 11 miles an hour. The Mayor said that, notwithstanding the notices requesting motorists to drive slowly through the streets of the town, the bad practice was still continued. Defendant would be fined £5 and costs, £1 5s.

At Combe Martin, Captain Campbell, 4th V.B.D.R., was charged with driving a motor-car at too great speed down Combe Martin Hill on July 31st. Police-constable Martin spoke to having received complaints with regard to defendant and his motor-car. He and Police-constable Leach set their watches together on the day in question and placed themselves to watch Captain Campbell down the hill, one constable being at a point near the top and the other near the bottom. The car passed Police-constable Martin at the top at 7.32 p.m., and Police-constable Leach at the bottom at 7.39. The distance between them was 2 miles 37 chains, the pace thus working out at over 21 miles an hour. Defendant stated that he was not exceeding the legal limit. He used his car for Government work, his movements were advertised, and seeing that he wore uniform the police could lay traps on any down grade, and if he travelled 12 miles an hour there was all this vexation. Rather than submit to this persecution he should have to give his motor-car up. Defendant was fined £1 and costs.

At the Dingwall Burgh Police Court on Monday, before Bailie Frew, Alban Gentilh, staying at Craighellachie House, Strathpeffer, was charged with driving a car along the streets of Dingwall at a furious pace, much beyond the limit. About a dozen witnesses for the prosecution turned out, but the accused failed to put in an appearance. It was found that Gentilh, who is a Frenchman, had taken his departure for Paris two nights before, unknown to the authorities. The Bench granted a warrant for his apprehension.

We hear that twenty cases against motor-car drivers are pending at St. Neots.

In Stonehaven Sheriff Court, before Sheriff Henderson Begg, John Keith, motor-car driver, Laurencekirk, was charged with driving a motor-car on the public road between Fettercairn and Laurencekirk at a greater speed than twelve miles an hour. The sheriff was of opinion that the limit was fifteen miles an hour, on hearing which the prosecutor deserted the diet.

In the case at Bradford the defendant, Mr. C. J. Spencer, is the general manager of the Bradford City Tramways, and Police-constable Beachey said while he was on duty on the Leeds and Bradford road he observed a motor-car was being driven furiously, and he accordingly pulled out his watch and timed the car from Peckover Lodge to the Four Lane Ends, a distance of 400 yards, which was covered in 20 sec. As the motor-car approached the Four Lane Ends, he stepped into the road and shouted to the driver, "Stop." The latter, however, took no notice and made no attempt to stop. The driver was the defendant, whom he knew very well. Four workmen gave evidence as to the speed of the car. Mr. Watson, for the defence, said that Mr. Spencer was not the man who drove the car, and it was evidently a case of mistaken identity. The defendant said he had never tried to drive a motor-car in his life. At no time in the journey did he either drive the car or sit in the driver's seat. Mr. Albert Farnell said he occupied the driver's seat throughout the whole of the journey. For two expert motor-drivers to attempt to change seats when going at forty miles an hour would be suicidal. Horace Reece, Walsall, employed by the Walsall Corporation, corroborated. John Wilkinson, car driver, John William House, a motor-car driver, and Mrs. Spencer and Mrs. Reece also gave evidence in support of the defendant's case. The chairman said the Bench were quite satisfied that the case had been proved, and defendant would be fined £5 and costs.

THE magistrates of St. Neots (Hunts.) had before them on Thursday week nine summonses against motorists for furious driving on the North Road, and they imposed fines amounting to £43. Frederick Mills,

driver to Mr. A. J. Balfour, M.P., was called, but he did not appear, and as no declaration of the service of the summons was forthcoming, the case was dropped and a new summons issued.

IN the Scarborough cases two policemen with stop watches had marked off a quarter-mile of road; one stopped his watch as a car entered on the section and the other stopped his as it passed out. The difference was noted, and by a simple calculation the mileage per hour was obtained. On this evidence the five defendants, who included Francois Cosse, driver to the Earl of Lonsborough, were fined £5 each and costs.

MR. JUSTICE SWINFEN EADY has made an order nisi for a writ of certiorari against the justices of the City of York to show cause why a conviction by them against an automobilist, Mr. De Wilton, a member of the Motor Union, should not be quashed. The case is in the hands of Mr. Staplee Firth.

THE Coventry magistrates intimated, in hearing a case on Saturday, they were not going to wait until somebody was killed before calling attention to the danger of driving motor-cycles furiously.

ARTHUR OLIVER was fined £3 and costs at Leicester for furiously driving a motor-car. He had never been out previously without an engineer. The magistrate said it took two or three years' experience to drive properly.

ALFRED WILLIAMS, whose case was dismissed at Stow-on-the-Wold, is a driver in the employ of the Oxford Automobile and Cycle Agency. The charge was laid at the instance of Colonel Arnold, J.P., who, in cross-examination by the solicitor for the defence, admitted that he had referred to motor-cars as beastly things, and that they were a nuisance. He estimated the speed at which the car was going at fifteen miles an hour. But for all that the case was dismissed.

AT Burton-on-Trent County Police Court on Tuesday, summonses against Birmingham motorists were dealt with. Superintendent Huklin prosecuted, and Mr. Cochrane defended, and Messrs. Herbert Austin, Sydney Girling, Arnold Remington and Horace Smith, all of the Wolseley Motor Works, Birmingham, were charged with furiously driving motor-cars on Lichfield road on August 21st. For the defence it was alleged that the cars were only travelling very slowly indeed. It was also stated that the cars were not out for racing purposes, but merely to test the reliability. Mr. Austin was fined £2 and £2 3s. 4d. costs, and the other three were each fined £2 and £1 19s. 4d. costs, or one month's hard labour.

MOST of the offences before the Reigate Court were committed on the day that the Reliability Trials of the Automobile Club took place to Brighton and back. Last week we told how the police had laid a trap from which the majority escaped. Apparently some were caught.

IN the case against Mr. Wellington, at Reigate, Mr. W. G. Llewellyn Davies, of Greenwich, who appeared for the defendant, stated that Mr. Wellington was one of the pioneers of the motor-car business, and although he had driven a motor-car for years, never before had a complaint been made against him. He was a most careful driver, and at the time of the alleged offence defendant assured him that he could not possibly have been travelling more than thirteen miles an hour. Yet it was stated that he was driving at the rate of twenty-four miles per hour.

NO LIGHT.

JOHN ADAMS, motor-car driver, Phesdo House, Fordoun, pleaded guilty at Stonehaven to driving a motor-car, after nine o'clock on 12th August, on the road between Laurencekirk and Fettercairn, without having a light. He was fined £3, with the alternative of ten days' imprisonment.

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THE Motor-Car Journal.

VOL. IV.]

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COMMENTS.



ONLY the rain seems able to settle the dust problem, and then it is more of a transformation than a solution of the matter. For instead of clouds of finely powdered road material ascending into the air, mud is squirted violently against pedestrians by the passing automobiles. Some hoped that the offer of a prize of £100 by the Automobile Club would result in a practical idea being fashioned to dispel the dust that is now thrown into the eyes of the public. But although twenty-five schemes were submitted, none have proved sufficiently useful to secure the award, and Professor Vernon Boys and Mr. W. Worby Beaumont have reported to the Executive Committee that none of them "justify a recommendation for their trial." And there the matter rests—but the dust continues to be blown about.

The Protection of Pedestrians.

A NEW society has come into existence, and has been well paragraphed in the papers this week. The objects and operations of the Pedestrians' Protection League, briefly summarised, are:—(1) The establishment of a parent society in London and some fifteen branch societies in provincial centres; (2) to oppose any alteration in the existing law relating to motor-cars which might be prejudicial to the interests of the general public; (3) the registration and numbering of cars and licensing of drivers, and the endorsement or forfeiture of licence on conviction of breach of regulations; (4) to employ inspectors on the main roads to watch delinquents and report facts to the society. The League will also give free advice to its members in cases of accident or negligence, and assist non-members of the poorer class in obtaining compensation if justified.

Delivery Van Trials.

EVEN before the results of the Reliability Trials have been studied by those who took part therein, the Automobile Club is engaged with the trial of delivery vans which it is proposed to organise next year. A conference of representatives of leading commercial firms will be held at the Club in November, and a Trials Fund is being started from which expenses will be defrayed. By means of this fund independent and trustworthy observers will be engaged, who may travel on the cars in their daily journeys throughout the period. When not on service, cars will be kept under lock and key, so that reliable records of the cost of fuel, repairs, time spent on repairs and adjustment, etc., may be obtained. Evidently some useful experiences were gained during the recent trials, which will lead to innovations in forthcoming events of the kind.

The Gordon Bennett Race of 1903.

ACROSS the Border Mr. Norman D. Macdonald is making a good newspaper fight against the anti-automobilists who exist in the "land of the heather and the flood." He makes a special plea on behalf of the next Gordon Pennett Cup race. "I do not want to see," says this enthusiastic motorist,

"road racing here, unless once in a way under Government sanction. The International Cup was won this year by an Englishman by sheer pluck and a grand machine of home make. By the rules it should be competed for next time on British soil. We have some fairly good roads, and those who have the interests of the country at heart, and feel we should exercise international courtesy as well, would like to see the challengers asked across, and the race run on the Holyhead or York road, for instance. In a land where the parochial spirit still seems to haunt us, one is almost afraid to breathe such suggestions; but in so doing I do not want to arouse people to attack, or to attack them, but only to try to make them think all round a subject and ahead, rather than dwell on the trifles and troubles of a transient present."

En Route for Brighton.

DESIROUS of motoring to Brighton last Saturday afternoon, and not being anxious for the attention of the gentlemen in blue (who, apparently, spend their week-ends "bagging" motorists), we decided on a roundabout route. As a matter of fact on clear country roads we, like all other motorists, travel at more than the regulation twelve miles an hour, and therefore, had we gone the direct route, we should for a certainty have been captured. The weather was delightful, and the longer and prettier way was much appreciated. From Bloomsbury we made for Putney, Wimbledon, Morden, then just short of Ewell turned off for Sutton, went over Banstead Downs to Reigate, at Woodhatch crossed the Common for Horley, then continued straight on until a couple of miles from Balcombe, where a typical Sussex lane led us to Handcross, where all was found safe for a run into Brighton.

Motoring and Brighton.

ALTHOUGH this popular south country town had an unenviable reputation amongst motorists in the past, we believe things have very much changed since the advent of the new borough Chief Constable, who by the bye, was formerly a member of the Reading Automobile Club. As long as cars are driven steadily along the front we do not believe there is anything to fear, but at times cars are driven furiously, mostly by mechanics, and we are entirely with the police should they take any action against the offenders. At the Alhambra is shown on the screen a cinematograph of the Reliability Trials outside the Old Ship, while a laughable illusion is given of an approaching car, a policeman standing in the way, the progress of the car over the policeman, and his dismemberment into a number of portions. The next scene shows the policeman gathering himself together after infinite trouble, getting the whistle to his mouth, blowing it, the appearance of an inspector, who listens, taps his nose, and winks. The car approaches again, the inspector sticks out his back; the car goes straight for the inspector, and strikes him with a bang, the car rebounding backwards. Then comes the inspector's opportunity; he takes out his notebook, puts his foot on the step, and is evidently asking for name and address. While particulars are being written down the motorist takes his foot off the clutch and rushes off, to the confusion of the police and roars of applause of the audience. Mr. Ernest Lepard, the manager, is an enthusiastic motorist.

Manchester Automobile Club.

ON Saturday last, for the second time this season, the Manchester Automobile Club had a run to Nantwich. The conditions were most favourable, the roads being in the proper state to allow the members to extract the maximum of enjoyment out of their cars. This run is quite a favourite one with the Club, not only because of the easy distance of Nantwich from Manchester, but also on account of the number of routes available, the surface of all the roads being unexceptionable. The objective at Nantwich was the Brine Baths Hotel, an establishment which, besides being very comfortable, stands in the midst of spacious grounds, with a circular drive in front affording ample accommodation for between thirty and forty cars. According to information received by Mr. J. Hoyle Smith, the hon. secretary, it was expected that members and their friends would attend to the number of thirty, but a pleasant surprise awaited him when the total was found to be double that number. This occurrence severely taxed the resources of the hotel, as dinner had been ordered for but the smaller number. However, the difficulty was very easily surmounted by those members who were staying for the week-end contenting themselves with dining late so as to allow those returning the same night to dine and depart. Mr. W. E. Rowcliffe (chairman of the Committee), who is seldom absent from the runs, was on this occasion the victim of adverse circumstances, and did not put in an appearance. It seems that, having by accident taken a wrong turning, he found himself about ten miles out of his proper course, and to make matters worse, the packing of his cylinder was blown out when near Congleton, at which place he was found by a number of members when calling at the Lion and Swan Hotel for refreshments on their return journey. Even this did not suffice to complete the chapter, for, having been forced to abandon the idea



THE CARS AT THE BRINE BATHS HOTEL, NANTWICH.

of getting to Nantwich and making for Buxton to spend the week-end, he had the misfortune to lose one of his driving chains. These incidents are of course part of the delights found in motor-ing, but it is not often that one gets a monopoly. Most members delayed leaving Nantwich until after 8 p.m., relying upon the prophecy of the weather wise among them that the moon would then be shedding its silvery light around.

A Surveyor's Testimony.

SUPPLEMENTING the extract from the paper read by Mr. E. G. Mawbey, of Leicester, at the Sanitary Congress, published last week, we would mention that he also pointed out that in connection with the cleansing of the streets, self-propelled motor-vehicles are coming to the front. "They are," said the Borough Surveyor of Leicester, "a decided improvement on horse-drawn vehicles and machines; they will facili-

tate the work of collecting refuse, sweeping, and watering; they are free from the street pollution attending the use of horses; and from a number of experiments already made, it is fairly well established that they are at least as economical. Electric traction has already boomed immensely, and motor-vehicles for haulage are making great headway. The development of the use of motor-cars has certainly been rapid, and as they become more simplified and thoroughly reliable in starting and running, and somewhat less costly to produce and maintain, they will be very generally adopted for purposes both of business and pleasure. One drawback, however, to rapid automobile traffic is the throwing into the air of clouds of dust, which is chiefly produced by metal tyres and the pounding of the steel-shod four-legged motors of vehicular traffic." This last phrase is distinctly good, and has also the merit of accurately stating the position.

Legislation.

THANKS to Lord Farrer, a motor-car correspondence has again commenced to flow in the columns of the *Times*. He advocates the numbering of cars, and ridicules legislation on such "details" as speed. On the latter point we agree; but would protest against the suggestion as to numbering. In fact, the proposal for legislation at all seems unwise and precipitate. Time is on our side; the number of motorists increases daily, and soon those who ride cars will be in the majority among legislators and those who administer the law in the country.

An Aerial Triumph.

MR. STANLEY SPENCER, the well-known balloonist, has accomplished a record journey by air-ship. On Friday last week he ascended from the Crystal Palace Grounds in the air-ship built by his firm, with the financial help of Messrs. Mellins, and travelling over London he steered away into the country and eventually completed his trip to Eastcote, near Harrow, where a successful descent was made. The ascent was made at 4.15 p.m. in slightly misty weather, but the air was dead still and the conditions may be said to have been most favourable. Mr. Spencer was alone in the car, and the ship rose gracefully into the air and was soon under way. The steering was controlled with great ease, and the route taken was over Tulse Hill, Streatham, and Clapham Common. The Thames was crossed near Victoria Bridge, and the progress of the ship was watched with the keenest interest as it passed on by way of Chelsea, Earl's Court, Wormwood Scrubbs, and Ealing to Harrow.

Details of the Air-ship and its Trip.

IN the course of an interview, Mr. Spencer stated that he made several circles about the grounds and Great Wheel at Earl's Court. Reaching the big bend of the Thames at Barnes, he completed rather a large circle, and, crossing the river for the third time, went on to Gunnersbury. Further manœuvring was successfully made at Acton and Greenford, he finally descending at 5.55. Mr. Spencer estimates that the actual distance covered was, with the circling, about thirty miles, the distance, as the crow flies, from Sydenham to Harrow being 16 miles. The greatest altitude was 1,500 ft., and the lowest, at Chelsea, about 100 ft. Some brief details of the airship may be of interest. The envelope, composed of balloon fabric, is 75ft. in length and 20ft. in diameter at the widest point, which is one-third from the front. It tapers away to a point or bottle-nose at each end, but it is not cigar-shaped. The tractor, a sort of propeller, resembling the blades of a single marine screw, is of pinewood, covered with fabric and varnished. The length is 10ft., and the width at the top 3ft. It is fixed in front of the frame carrying it, and hence it draws, instead of pushes, the balloon along. The tractor is thrown in and out of gear by means of a clutch worked from the car. Its shaft receives its power from a 3½-h.p. Simms water-cooled petrol motor. The

car which Mr. Spencer occupied is four feet square, built into the bamboo frame. The girder is an equilateral triangle, forty-two feet in length, and put together with fishing-rod interlocked joints—so that when detached it forms three equal portions, one having the car and rudder, the central forming the main section, and the third carrying the engine and tractor. Mr. Spencer is to be congratulated on the success of his experiment. His trip is the longest so far made in an airship, and we are looking forward with interest to further trials. We would suggest that our British aerial navigator should, before taking his next trip, give some indication of the route he proposes taking. In this way a much greater value and interest would be given to his performance. As we go to press we learn that the airship was removed to the Crystal Palace on Tuesday, and that when another trip is arranged it will be publicly announced.

The Scottish Automobile Club.

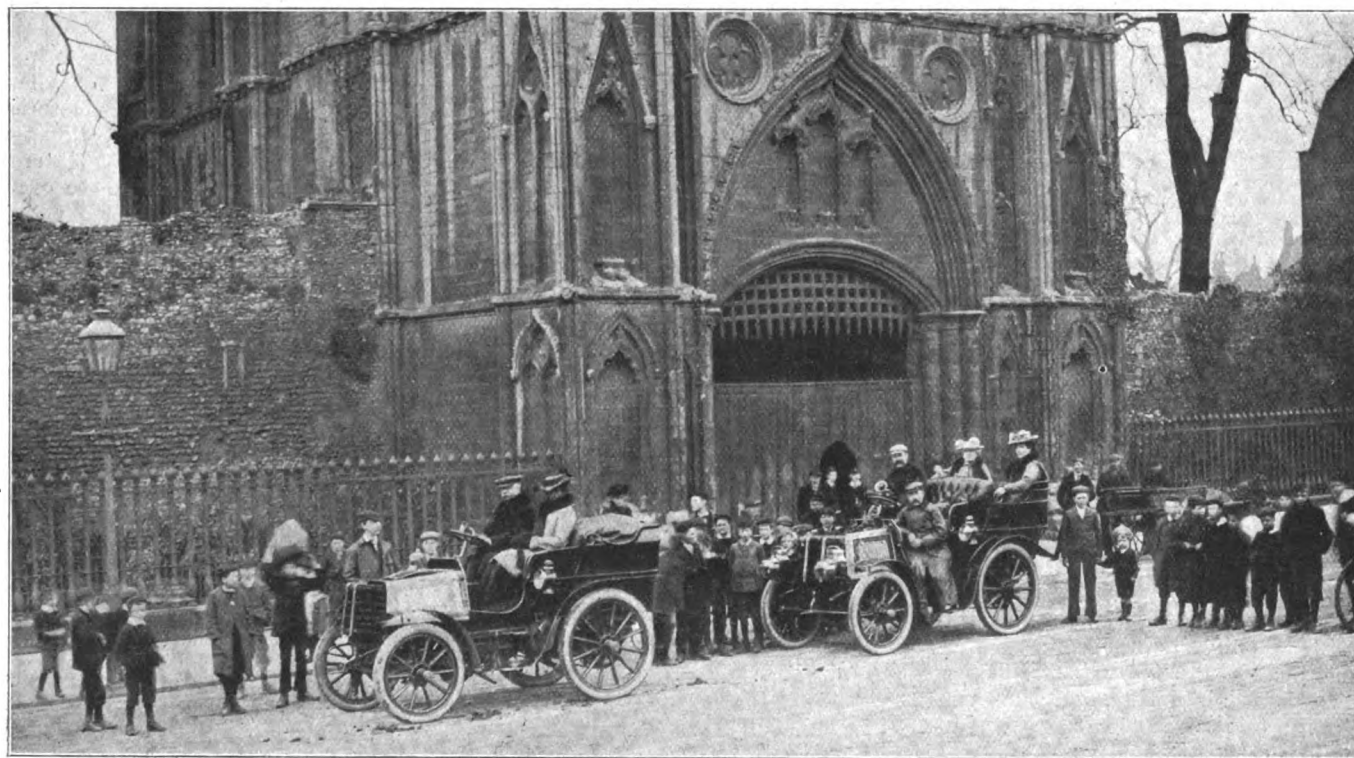
A "MEET" of members of the Western Section of the Scottish Automobile Club took place on Saturday afternoon last, the rendezvous being Aberfoyle, a little hamlet on the borders of the Highlands, and in the Rob Roy country. There was

no organised procession of cars, each making its own way to ensure arrival at 3.30, and, in all, nineteen cars, carrying over fifty

the police were said to be lurking by the way, no evidence of them was discovered. It may be that there was no warrant for their attentions! The following cars were among the numbers: 10½-h.p. Delahaye (Sir J. H. A. Macdonald of Collearn and party), 7-h.p. Panhard (Mr. A. Sharpe), 12-h.p. Gladiator (Mr. W. H. Kingsbury), 8-h.p. Albion (Mr. John Adam), 5-h.p. Argyll (Mr. S. G. G. Copestake), 7-h.p. Darracq (Mr. J. Hunter Steen), two tricycles (Mr. Patrick Drummond), 10-h.p. Clement (Mr. A. G. Rennie), 7-h.p. Panhard (Mr. D. L. Auchinvole), Mr. Holms-Kerr's 20-h.p. Wolseley (Mr. Prosser and Mr. Colville), Mr. Prosser's 10 h.p. Wolseley—the No. 41 of the Reliability Trials (Mr. Barry and Mr. Gemmell), 10-h.p. Argyll (Mr. Alex. Govan), 8-h.p. Albion (Mr. T. B. Murray), 8-h.p. Johnston-Arrol (Mr. Johnston), 10-h.p. Wolseley (Mr. A. J. Dixon), 8-h.p. Albion (Mr. Norman Fulton), 8-h.p. Albion (Mr. Graham). A new experimental car invented by Mr. Babbie was also among the vehicles, and proved a centre of interest.

A Confetti Cypher Code.

A NEW use has been found for "confetti," and Mr. Edward Cragg, the hon. secretary of the Lincolnshire Automobile Club, suggests its value in warning motorists of the proximity of police traps. Every motorist, according to this latest proposal, should carry a supply of confetti, and when the trap



MR. AND MRS. ROGER WALLACE, K.C., AND MR. AND MRS. CHARLES CORDINGLEY AT BURY ST. EDMUNDS, ON THEIR 12-H.P. M.C.C.'S.

ladies and gentlemen, were noted among the arrivals. The party was received at the Bailie Nicol Jarvie Hotel by Mr. John Adam, of Larchgrove, Shettleston, the Chairman of the Section, and by Mrs. Adam, whose guests the Club were for the afternoon, and who were indefatigable in their efforts to secure the success of the "meet." Telegrams of greeting were read from various members in other parts of the country and on the Continent, and Mr. Adam in a few words welcomed his guests. The hospitality of the host and hostess was, on the motion of Sir J. H. A. Macdonald, the Lord Justice Clerk of Scotland, in one of his characteristic speeches, cordially acknowledged, after which the company returned to their several destinations. The day was fine, the roads were in good condition, and the outing was a complete success. No mishap of any kind occurred, and although

is discovered should scatter it on the highway a few hundred yards before and after the scheme is passed. Should the police sweep the "confetti" away, the marks of the brush, it is pointed out, would give sufficient warning. By the adoption of variously coloured papers a system of code signals could be devised which might be worked out by the Automobile Volunteers.

Children on the Roads.

LAST week we told how the deputy coroner for East Sussex utilised the motor-car in his round of inquests. Evidently, the West Surrey Coroner, Mr. Roumieu, is also a devotee of automobilism, for he, too, attends his inquiries on an automobile and in a case heard a few days ago, he said it would

be much better if parents looked after their children instead of complaining about the speed of motor-cars. The public highway was not a playground for children—a fact that all schoolmasters should emphasize. The roads were intended for public use not for the private play of bucolic juveniles. In the olden days they were the recognised routes; but the railway destroyed their importance, and for years their original use has been forgotten. Now that the automobile is bringing them into service again people seem to have altogether forgotten their old-time importance—an importance which is being rapidly restored.



MRS. MARK MAYHEW ON HER "BABY PEUGEOT."

A New Racing Classification.

A NOVEL classification has been adopted by the Chicago Automobile Club for the race-meeting which is to be held to-day (Saturday), at Joliet, Ill. There will be eleven events, and the vehicles will be divided into classes according to specific power, as follows: Class I., .35 to .5 horse-power per 100 pounds of vehicle weight; Class II., .5 to .7 horse-power; Class III., .7 to 1 horse-power. The horse-power is to be based upon the cylinder bore only, and the motors will be rated as follows: Power per cylinder of 3 inches bore, 2.54 horse-power; 3½ inches, 3.46 horse-power; 4 inches, 4.52 horse-power; 4½ inches, 5.72 horse-power; 5 inches, 7.06 horse-power; 5½ inches, 8.65 horse-power. The calculations will not be based on the statement of the owner as to the power of his motor. It will be gauged by a formula based on well-established facts concerning the possibilities of petrol motors. After the Committee had devoted a lot of time to a study of the bore, stroke, and speed of many motors, it found a wide diversity of opinion among the makers as to the capacity of their productions. It is a well-established fact, deduced from actual practice, that the limit for the safe working speed of the piston of an internal-combustion engine is 900 feet per minute. The Committee estimated, therefore, that a speed of 750 feet per minute would yield ample margin of safety, and this found support in the fact that the speed has been adopted by a number of makers whose deductions, in other matters, has proved reliable. That speed was therefore adopted as a working basis on which to establish a formula from which the power of motors of varying dimensions might be calculated. A table has been prepared giving the power of motors with cylinders varying from 3 to 6-inch bore, advancing by one-eighth of an inch, from which the entrant may determine the power of his motor under this rule.

A second table gives the classification of motors of from 3 to 20 horse-power, with corresponding weights for the three classifications. A good deal of interest is being shown by motorists on the other side of the Atlantic in the new departure, and no doubt the results will be eagerly looked forward to by their English confrères.

Motor Blackguards.

THIS phrase does not come from a vitriolic journal opposed to motor-cars, but has originated in the official circles of automobilism, receiving its publicity in the organ of the Automobile Club. No wonder the *Globe* and other papers have expressed wonderment and surprise. Possibly it is true that the visiting cards of motorists have been wrongfully used by others; but it reads rather strangely in the editorial columns of the organ of a gentleman's club that "motor drivers have been known to boast that they select from a drawer in which they keep the cards of visitors at their office a bundle of such cards for the purpose of handing one of them to the police in the event of their being stopped for furious driving." Such conduct is reprehensible in the extreme, and the names of those who gloat over such despicable action should be given at once to the Club Committee. We refuse to believe that motorists lose their characters as gentlemen in this way; and if two or three isolated instances have occurred, we unhesitatingly declare that they have not been numerous enough to warrant the coining of the offensive phrase "motor blackguards."

A New Dust Shield.

ONE of the greatest of the disadvantages which beset motorists is that caused by the raising of dust when travelling on country roads. There have been many attempts made to overcome the dust fiend, but hitherto with little or no success. A simple, cheap, and what appears to be an effective dust shield has been devised and protected by Mr. Henry Lavaggi, of the East Riding Cycle and Motor Company, Hull. The shield consists of a light frame attached to the sides of the car by arms, which are bent or fitted so that they project from the back of the vehicle at a suitable angle. A piece of canvas or other suitable material is fitted across from one arm to the other, this constituting the screen proper, which prevents the dust rising and enveloping the car. Means are provided for allowing the occupants to get in and out of the vehicle without disturbing the shield proper, a central roller blind admitting of easy access to a tonneau body. The shield, which has, we understand, been subjected to severe tests and has proved very satisfactory, can be fitted to any car.

Company Promotion.

AUTUMN seems to have brought the company promoter into the motor trade again, and we hear of some flotations about to be made which will probably find the investing public somewhat shy and modest. The truth is that the trade is now in a very satisfactory position; orders are plentiful and deliveries delayed—hence the alacrity with which company promoters are now seeking to renew acquaintance with the industry.

Damage by Traffic.

THE reverend gentleman who rushed into print with an exaggerated estimate of damage to the roads during the progress of the Reliability Trials, which we duly chronicled last week, must now be reminded of the adage as to the backwardness of angels compared with the impetuosity of mere terrestrial creatures. Of course automobiles remove the dust lying on the surface of the road, but, as Mr. E. Purnell Hooley, the County Surveyor of Nottinghamshire, points out, the remedy is not to dispense with the motor-cars, but to get rid of the dust. Farm carts

moving from field to field will often tear the road to pieces, resulting in an expenditure of £30 to repair a quarter of a mile of road surface fifteen feet wide. The experience of county surveyors throughout the country is that the damage done to roads by automobiles is infinitesimal.

A Daimler Presentation.

THE employees of the Daimler Motor Company, Limited, mustered in strong force at the General Wolfe Hotel, Coventry, on Friday, the 19th inst., on the occasion of a presentation to the works manager, Mr. Percy Martin. Mr. A. Bush (driver of No. 86 in the Reliability Trials) presided, and included in the company were Messrs. E. M. C. Instone (general manager), A. W. Harris (sales manager), G. T. Grant (secretary), P. Martin (works manager), E. W. Lewis (chief engineer), G. H. Henson (chief draughtsman), W. R. Shepherd, W. H. Proctor, and A. C. Hill, Mr. Proctor, in making the presentation, which consisted of a handsome reading lamp and an elaborate fender, said they had met to congratulate their works manager on the occasion of his marriage, and to wish him long life and happiness. It was nearly twelve months since he came to take the reins of the company, and during that time many changes had taken place, but Mr. Martin had won the confidence of all associated with him. In conclusion he asked the company to drink Mr. Martin's health with musical honours. This was done with enthusiasm. Mr. Martin, on rising to reply, was received with applause. He expressed his earnest appreciation of the compliment that had been paid to him. He could assure those present that he greatly valued this expression of their good feeling and the gifts. A year ago he expressed himself as hopeful; he had grown no less hopeful since, although they had been through a good many trials, and had had many reverses during the past year. Now, however, they had been through the worst of it, and had more reason to hope than at any other time. He was pleased to say that the directors were all unanimously in favour of the general policy adopted by the company, and they were men who had backed them up in what they were trying to do.

Furious Driving.

LAST week our list of cases of furious driving extended to a column—a few places appearing to have greater animosity than others against motor-vehicles. This week the list is again a long one, and when reasonable people see it they will be inclined to agree with the *York Herald* that "it is well that our civic guardians should secure the safety of the public on the King's highways, but no unprejudiced observer can help thinking that, to use a general expression, the thing is being overdone." This is being forced upon the public mind by the lengthened lists published in these columns—lists which are startling to the editors of provincial newspapers, upon whom it is dawning that animosity rather than reason is at the bottom of many of these prosecutions. Curiously enough the full column list of cases reported last week has been followed by a succession of leading articles in the principal journals, all of a more friendly tone than would have been possible a year ago.

First Motor Fire Station.

LIVERPOOL is again to the front in self-propelled traffic. After a week's trial, during which the speed, weight-carrying, and starting-up capabilities were thoroughly tested, under the supervision of Chief Superintendent Thomas, head of the Liverpool Fire Brigade, an 18 h.p. Daimler brake has been purchased from the Road Carrying Company, Limited. This is to be used to carry the chemical apparatus and auxiliary hose, weighing some 25 cwt. Many exciting races were witnessed between the horse-drawn and motor vehicles, all resulting favourably to the latter, which averaged a turn-out in 7.5 seconds. It is understood that Alderman Maxwell, Chairman of the Liverpool Corporation Watch Committee, and Councillor John Duncan,

Chairman of the Fire-Police Sub-Committee, intend to equip a station entirely with motor gear. This departure will be watched with interest throughout the United Kingdom.

The Reliability Trials.

THE table published on another page gives in outline form the marks obtained by the various automobiles participating in the Reliability Trials, and will add to the interest with which the report of the judges is now being awaited by the trade. It has been conclusively proved that the motor-car is not a wayward piece of machinery, but a reliable and well-conditioned means of road locomotion. While referring to the subject of the Trials, we would thank the many friends who have favoured us with interesting photographs of various incidents, and express regret that considerations of space have not allowed us to publish more than a small selection of the many supplied.

THE police have a measured mile on the Great North Road at Norton, near Selby.

It is reported that the headquarters of the Automobile Volunteer Corps will be in King's Road, Chelsea, S.W.

OUR bright little contemporary the *Motor-Car Accidents Record* announces that it will shortly be enlarged to double its present size.—*Punch*.

MESSRS. B. COOK AND SON, of Grand Parade, Cork, are now keeping a stock of petrol, grease, oil, etc., and are prepared to execute motor repairs.

THE Continental Caoutchouc and Guttapercha Compagnie are preparing a guide to Germany on the lines of Michelin's well-known handbook of France.

THE first motor-car wedding at Scunthorpe (Lincolnshire) took place on Monday at the parish church, when Mr. Vivian Medd was married to Miss Edith Markham.

THE picture on another page depicts Mrs. Mark Mayhew on her "Baby Peugeot," which the wife of the well-known motorist has purchased for her own personal use from Messrs. Friswell.

THE automobile race meeting at Spa which was to have been held on Tuesday last, under the auspices of the Belgian Automobile Club, was cancelled, owing to the death of the Queen of the Belgians.

MR. CHARLES J. GLIDDEN, of Lowell, Massachusetts, arrived in Paris on Monday, having driven a 16-h.p. Napier car over 5,000 miles—one of the longest continuous tours on record. The driving days numbered thirty-eight.

At the monthly meeting of the Wakefield Chamber of Commerce and Shipping a communication was read from the Automobile Club announcing the holding of a trial of motor-vehicles suitable for use as delivery vans, and inviting the co-operation of members of the Chamber. Nothing was, however, done in the matter.

ON Wednesday last no less than 116 new members of the A.C.G.B.I. were elected, including Lord Stanley, Viscount Castlereagh, Capt. Arthur Hill, M.P., Sir Thomas Lipton, Mr. W. Palmer, M.P., Earl of Warwick, Hon. M. W. Ridley, M.P., Sir W. G. Pearce, Bart., Major K. R. Balfour, M.P., Mr. Leveson-Gower, M.P., Gen. Sir R. Gipps, and a large number of J.P's.

MR. W. PETO, of Messrs. Peto and Radford, Limited, writes that accumulators are constantly being sent to them for repairs with the acid solution left in them. The consequence is that by the time they arrive a repair that may have been a simple matter, such as a broken terminal or cracked case, becomes a big job, owing to the acid escaping en route, short-circuiting the plates, corroding the terminals, and generally ruining everything in the battery. All batteries returned for any purpose should be carefully emptied after the current in them has been discharged. Discharged plates will not oxidise if sent in a dry state, though charged plates will. When returning accumulators it is also a well to label them clearly. They receive about 100 daily of every shape and size, some without any name or method of identification.

OILING THE ROADS.

WITH the growing popularity of the motor-car, county surveyors have a new difficulty to contend with, that of endeavouring by all possible means to overcome the great bugbear of dust. It would appear that the first trials with

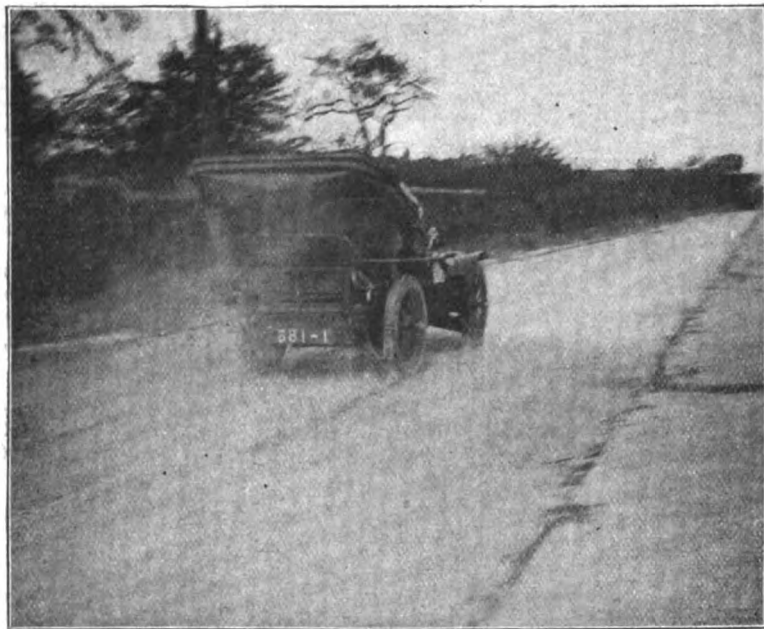


FIG. 1.—MOTOR-CAR TRAVELLING ALONG A DUSTY ROAD.

petroleumed roads were made in California, where the use of petroleum on the highways is rapidly becoming a recognised policy. It is considered to offer the best, cheapest, and most satisfactory solution of the dust problem. The oil used is a crude petroleum with a large percentage of asphaltum, nearly free from water, and fifteen to seventeen degrees specific gravity Beaume scale. The oil has to be applied with method and not put on carelessly and left to do the work itself. The road requires to be carefully graded, crowned, rolled, and otherwise prepared, as if to receive a macadam surface. In putting on the oil the immediate surface is scratched up skin deep so as to facilitate absorption. The question of oiling the roads is just now attracting considerable attention in France. At the beginning of the year, tar was tried on a section of road between Nice and Monte Carlo but the asphalt resulting from this treatment got soft in hot weather, and the experiment was not altogether successful. M. Henri Deutsch recently had oil laid down on a particularly dusty road leading out of Saint Germain. The following morning it was perfectly dry. A day or two later it was tested by motor-cars taking part in a paper-chase, and no more convincing proof could be afforded of the value of dust-laying than the appearance of the vehicles as they approached with a cloud of dust in their wake (see Fig. 1) and then ran over the oiled stretch in a perfectly clear atmosphere (Fig. 2).

In this country, Mr. J. W. Metcalf, the Borough Surveyor of Newmarket, has, we believe, the distinction of being the first surveyor to experiment with petroleum on his roads, he having commenced experiments some eighteen months ago. In April, 1901, Mr. Metcalf selected a piece of main road on the outskirts of the town, some 300 superficial yards long, and on this he had crude petroleum sprinkled, allowing one gallon to each ten super-

ficial yards. The season was very dry, but it was found that the one application, costing about a halfpenny per square yard, sufficed to lay the dust, and no further sprinkling of oil or water was necessary during the whole of the summer. The surveyor considers the results sufficiently satisfactory to warrant further experiments in other localities. The use of crude petroleum in laying dust on public highways is, however, of very recent origin and has not yet emerged from the experimental stage. While enough has been done to give oil a definite standing among the recognised materials in future road construction, it still remains to be shown what its full possibilities are, and how it can be most effectively applied. Its general adoption is, of course, largely a question of expense, depending upon the durability of the oiled surface.

The proprietors of the *County Gentleman* recently offered to contribute towards the cost of sprinkling two or three miles of main road with heavy oil, with a view to ascertaining whether the oil treatment of roads would be as successful in fixing the dust and preventing the formation of mud in this country as it has proved in some parts of the United States and France. Arrangements have, we learn, now been made with the Hampshire County Authorities for oiling a section of the main road from Farnborough Station towards Aldershot. This road forms part of the main line of communication between London, Winchester, and Southampton. It is exceptionally suited for this experiment, as it is a dusty road, much frequented by motorists and cyclists, and one carrying a large traffic. Great interest is being manifested in the experiment, for not only does the dust raised by motor-cars on the country roads cause much annoyance, but it is also a serious danger to health. The arrangements for the experiment are in the hands of Mr. W. J. Taylor, Assoc. M. Inst. C.E., the county surveyor of Hampshire, and of Mr. W. Rees Jeffreys, who is acting for *The County Gentleman*. The oil can only be placed upon the roads when they are thoroughly dry and a warm sun shining upon them. The ex-

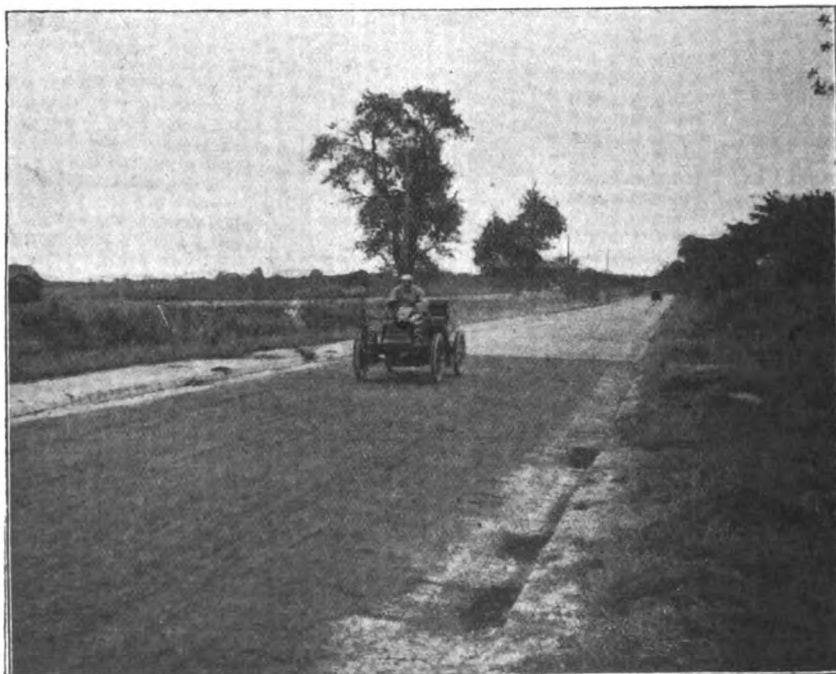
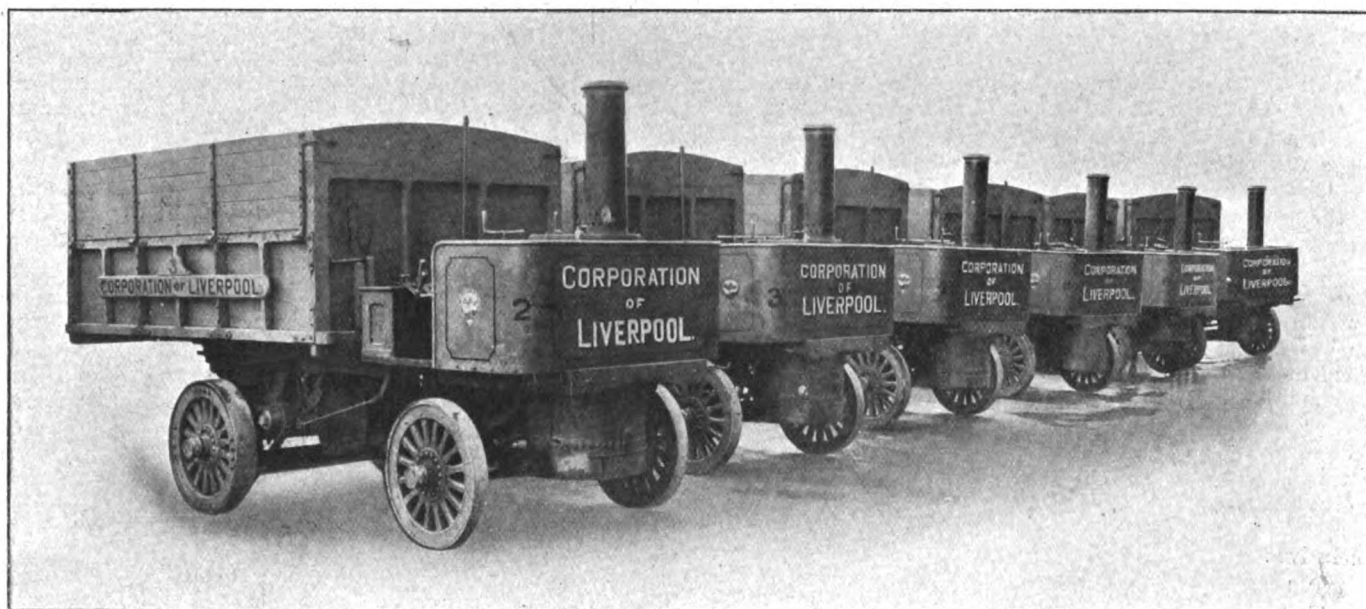


FIG. 2.—CAR PASSING OVER A "PETROLEUMED" ROAD, AT ST GERMAIN.
[La France Automobile.]

periment will accordingly not be made until these conditions obtain.

THE 1st prox. is the last day for receiving designs in the Automobile Club badge competition.

Motor Vehicles for Municipal Purposes.



A GROUP OF SIX LEYLAND STEAM TIP WAGONS BUILT FOR THE LIVERPOOL CORPORATION.

THE accompanying illustration depicts a group of six heavy steam tip wagons lately completed at the works of the Lancashire Steam Motor Co., Leyland, to the order of the Corporation of Liverpool. The boiler is of the fire-tube type, and has eighty square feet of heating surface; it is fired from the top through a central shoot—the fuel used being gas coke—and is constructed for a working pressure of 200 lbs. per square inch. The safety valve is set at 225 lbs. and blows into the water tank. The automatic feed pump works off the compensating gear shaft; it is arranged so that any excessive water above the amount required to feed the boiler is pumped back to the tank; this is regulated by a hand-wheel fixed to the driver's seat. A small steam pump under the driver's seat is used as an auxiliary feed. The fire is regulated by a hinged ash-pan, and also by a lid covering the central firing shoot. The boiler is placed in front of the driver's seat, and the coke bunkers are on either side of same; these hold sufficient fuel for an ordinary day's work. The engine is of the horizontal compound reversing type, with cylinders $3\frac{1}{2}$ by $6\frac{1}{2}$ by 6 in. stroke, and running at a speed of 420 revolutions per minute. It is fitted with link motion, and has exceptionally large and long wearing surfaces. The low-pressure cylinder can be worked with high-pressure steam when necessary. The engine and change speed gear, along with the compensating gear, are entirely enclosed in a dust-proof oil-tight casing, thus ensuring perfect lubrication of all parts. Change-gear giving two different speeds is provided, the gearing being of steel throughout. The drive from the end of the compensating gear shaft is taken to the felloe of the wheel by Renold roller chains. An important feature of the vehicle is the cushion drive. It is arranged in the small pinions on the compensating gear shaft, and relieves the chains and working parts of the engine of the shock usually put upon them when starting a heavy load. With this arrangement the engine makes almost a revolution before the full power is exerted at the road wheel. The compensating gear shaft is of special construction, being hollow from end to end; a bolt is put through this shaft which takes the end thrust caused by the bevel wheels off the bearings, thus reducing the friction considerably. The compensating gear can be locked

by an internal clutch arrangement, by means of a lever located under the frame of the vehicle. The water tank has a capacity of 130 gallons, and is fitted with a removable strainer, a water lifter, and 30 feet of suction pipe. The underframe is constructed of channel steel. The body is made of oak framing, well supported with iron corner plates and tie bolts, and maple side boards and bottom. The inside dimensions are—9 ft. long, 6 ft. wide, 2 ft. 6 in. deep. The body, which has a capacity of six cubic yards or four tons, is mounted so that it can be tipped, this being effected by means of a cut steel screw, working in a gun-metal nut: the tipping can easily be controlled by one man from either side of the wagon. The Liverpool Corporation have had a Leyland steam wagon in use for two years, the order for an additional six being the outcome of the satisfactory results attained therewith.

MESSRS. FRISWELL, LIMITED, inform us that they have now arranged with the Peugeot Company to take their entire output of the Baby Peugeot voiturettes.

Among the latest converts to automobilism is Sir Archibald Macdonald, Bart., who has commissioned the Daimler Company to build a 22-h.p. carriage for him of the same size as that supplied to the King.

ALTHOUGH the shortening days and the cooler nights are disagreeable reminders that the winter is approaching, there are many who consider that September and October are the ideal touring months.

JUST as we had gone to press with our last issue, a postcard bearing the postmark "Warsaw" came to hand. It was from Dr. E. Lehweß, who, on *La Passe Partout*, is now on his way through Russia, which he reports is "a very fascinating country."

THE AUTOMOBILE TOURISTS' HANDBOOK TO GERMANY, published by Herr Carl Bohl, of Eisenach, has met with such a gratifying reception that the firm has decided to take in hand a much more ambitious work, viz., an Automobile Tourists' Handbook to Europe.

THE TYRE TRIALS.

NOW that the 3,000 miles suggested for the Tyre Trials have been run the judges are considering whether the distance will suffice for an adequate test. Up to the time of writing seven of the ten competitors who started from the Crystal Palace are still running; three having been withdrawn, viz.: one of the Talhots, the Martin—previously reported—and the Goodyear.

Up to the close of last week 2,185½ miles had been run, and by the evening of the 26th the appointed mileage will have been completed, a different route having been taken each day, thus securing a variety of roads for the tyres and a change of scenery for the Observers—some of whom have had strange experiences during the progress of the tests. On Thursday of last week the Goodyear tyred car was at Herne Bay, from whence it ran home on an extra (unbranded) cover, two covers and tubes being replaced. It reached Piccadilly at 5.30 a.m. on Friday, and was then withdrawn from the competition. T 6—the remaining Maison Talbot in the contest—had an unfortunate experience, the Clement car on which the tyres were fitted giving up at Chertsey and being replaced by a Panhard.

Under Clause A of the judging rules one mark has been deducted for every minute spent in inflation or repairing, and under this head the results are as follows for the first three weeks of the Test.

Total marks lost under Clause A. from September 1st to the 20th inclusive:—

T 1 Dunlop	...	...	...	33
T 2 "	...	...	...	56
T 3 "	...	...	...	60
T 4 "	...	...	...	200
T 6 Maison Talbot	...	...	...	119
T 7 Collier Twin	...	...	...	34
T12 Mr. E. Midgley's tyre	...	...	...	38

Other factors have yet to be considered by the judges in making their report, but looking at this point the Dunlop is first, with the Collier only one mark behind. Monday's run effected no change in the situation, Mr. E. Midgley's new experimental tyre being still in the third place. This is an armoured tyre, thin metal plates being introduced in the substance of the cover.

Last Saturday the tyres were again photographed under the supervision of Mr. H. Carman, whose labours in analysing the Observers' reports will prove a trial of patience as well as of skill. The "average" and "worst" portions of the front and rear tyres were selected for the purpose, and a most interesting series of photographs have thus been obtained. One shows a tyre split completely around the periphery.

THE Blackrock District Council has called the attention of the Council for Dublin County to the speed of motor-cars.

AT the Exchange Station Hotel, the Liverpool Self-Propelled Traffic Association has a comfortable reading and smoke room, where local doings are discussed by motorists—principally between two and three o'clock in the afternoon—when members meet after luncheon. An invitation is extended to automobilists in the district to become connected with the Association.

A ROAD information bureau is to be established by the Automobile Club of America for the use of its members. Those making tours will be furnished blanks calling for information as to distances, conditions, etc. Maps have already been made showing the best roads to Long Branch, Asbury Park, Lakewood, Atlantic City, Newport, Albany, and Buffalo. Additional maps will be printed as soon as the information is received.

A NEW raw hide motor-bicycle driving belt is being put on the market by Mr. A. C. Laurence, 113, Liberty Street, New York, who claims that it is practically unstretchable. The belt is composed of many strands of pure rawhide, braided together like a rope. It is placed under enormous strain until the stretch is taken out, and then the joint is woven together, and the belt re-stretched over a stock to keep it from contracting.

CONTINENTAL NOTES.

BY AUTOMAN.

THE Provence Meeting, of which I gave an account of the beginning only in last week's issue, was brought to a conclusion on the Tuesday by the hill-climbing competition on Mont Ventoux, a climb of thirteen miles in length, with an average of 8 per cent. and nearly one continuous mile of 13 per cent. The road was in good condition, and although there are bends in the road, none of them are very sharp or very dangerous. The weather was most favourable to the competition. Chauchard, on a Panhard and Levassor 70-h.p. racer, was the first to arrive, and also did the best time, covering the total distance in 27 minutes and 7 seconds, at an average speed of thirty miles an hour. At one time it looked as if his passage would be barred by a tourist car that stuck fast in the middle of the road; an accident seemed inevitable, but fortunately there was just room to get round it. The next best time was done by a Rochet-Schneider, which took 4 minutes and 30 seconds longer, and which was intended to be entered as a light car, and would have been at the head of its class easily; however, the inexorable weighing machine showed it to be twenty pounds over weight, and so it had to take its place in the category of heavy cars.

FIFTEEN cars out of sixteen starters completed the formidable climb, and the sixteenth had to turn back on account of a broken valve. After the meeting was concluded a banquet was held, at which the hope was expressed that Mont Ventoux would become the Criterion of hill-climbing competitions and an annual affair on account of its undoubted suitability for the purpose. The readers of the *Journal* will remember that in describing the hill a few weeks ago, I stated that, although the road was wide and good, it led nowhere except to the observatory and hotel at the summit of the hill, so that there is little or no traffic to interfere with.

THE following are the results of the competition:—

HEAVY CARS.				H.	M.	S.
1. Chauchard (Panhard)	...	...	...	0	27	17
2. Juvanon (Rochet-Schneider)	...	...	...	0	31	47½
3. Mery (Turcat-Mery)	...	...	...	0	35	35
4. Rougier (Turcat-Mery)	...	...	...	0	39	1
5. A. Richard (A. Richard)	...	...	...	2	27	45
LIGHT CARS.				H.	M.	S.
1. Barbaroux (Clement)	...	...	...	0	33	19
2. Hemery (Darracq)	...	...	...	0	35	49½
3. Pichat (Luc-Cour)	...	...	...	1	18	25
LIGHT CARS (FOUR SEATS).				H.	M.	S.
1. Clement (Clement)	...	...	...	0	48	24½
VOITURETTES.				H.	M.	S.
1. Volatum (Clement)	...	...	...	0	43	38½
2. Hanriot (Passy Thellier)	...	...	...	0	45	43
3. Journu (Dion-Bouton)	...	...	...	0	49	38
VOITURETTES (FOUR SEATS).				H.	M.	S.
1. Oury (Clement)	...	...	...	1	56	45
MOTOR-BICYCLES.				H.	M.	S.
1. Deryn (Clement)	...	...	...	0	41	51½
2. Labetta (Werner)	...	...	...	1	29	3½

THE Automobile Club of the Netherlands has removed its club-rooms and secretary's office to Nassauplein 1B, The Hague. At a recent meeting Dr. J. W. G. Borell van Hogelanden was elected president of the Club.

ON Sunday next there is to be a motor-cycle race in France, the route being from Montbeliard to Besancon and back. The Prince d'Arenberg has given a gold medal in connection with the race, to be awarded to the first competitor home using alcohol as the fuel for his motor.

LAST Sunday a hill-climbing contest took place at Gaillon, under the auspices of the *Velo*. It was this paper which founded the Gaillon competitions in 1899, at which time this hill was considered extremely difficult for the self-propelled vehicle,

the best time achieved being 1 min. 16 1-5 secs., by Villemain on a tricycle. The following year, in 1900, the *Velo* decided to hold the contest earlier on account of the weather, and on November 11th Beconnais negotiated the hill, and won the contest on a tricycle in 55 1-5 secs.

IN 1901 the competition was organised by the *Auto-Velo*, and it was held still earlier in the year. The record was lowered by Rigal on a tricycle to 50 secs. It will be remembered that the first Napier racer appeared as a competitor in this event, and negotiated the hill in 1 min. 3 3-5 secs., winning the heavy-car class.

THIS year both the *Velo* and *Auto-Velo* are holding hill-climbing trials at Gaillon, and the dates have been varied several times, until at the last moment the former definitely decided on last Sunday for its event. The weather at any rate was everything that could be desired, and to add to the interest of the meeting the French Minister of Agriculture gave a medal for the best time produced with alcohol as fuel. There were upwards of sixty entries, but only twenty starters. The record was, however, lowered by Le Blon on a Serpollet by 9 1-5 secs., his time being 40 4-5 secs. Three Serpollets headed the list. Baras on a Darracq

THE *Auto-Velo* this year is dividing its hill-climbing contest into two different meetings, the one to be held to-morrow, the 28th inst., at Chateau-Thierry, and the other to-morrow week, October 5th, at Gaillon. In each case it is to be a kilometre with a flying start. There are nearly 130 entries, and if the weather is fine an interesting contest will take place.

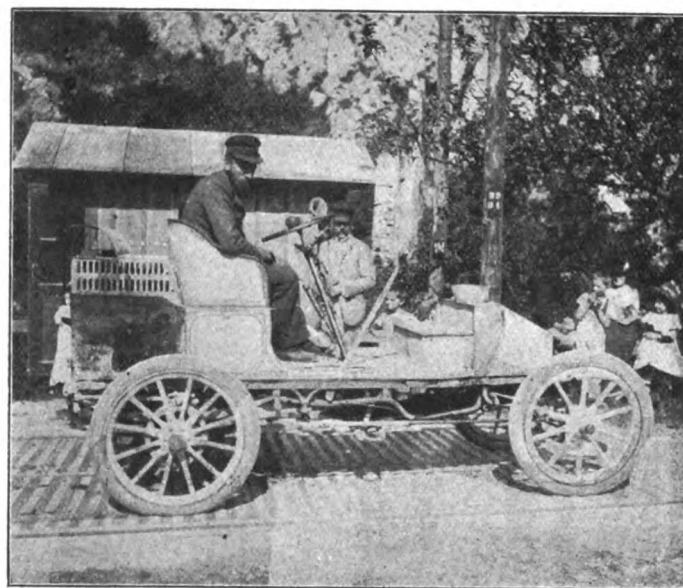
AT Chateau-Thierry, which is on the Eastern Railway, the hill chosen for the competition bears the name of Chesneaux, and is 1,846 yards in length, just 86 yards over the mile. The contest takes place on the last kilometre of the hill, which is the steepest part, the gradient averaging 9.2 per cent.

THE chief interest of the two competitions of Chesneaux and Gaillon is that in the first case the hill begins with an easy slope and ends with a stiff climb, whereas in the case of Gaillon the hill commences with a steep climb and terminates with an easy slope. It will be therefore possible to make a useful comparison of the merits of the different cars under the two conditions.

THE latest move in hill-climbing competitions is the project.



DERNY AND HIS CLEMENT MOTOR-BICYCLE.



LE BLON ON THE LIGHT SERPOLLET STEAM RACER.

THE SEMMERING HILL-CLIMBING COMPETITION (see last issue).

[Allgemeine Automobil Zeitung.]

won the light-car class, and Barre on a Bruneau won the two classes for light and heavy motor-bicycles.

THE following is the official list of the general classification:—

	M.	S.
1. Le Blon (Serpollet)	0	40½
2. Serpollet (Serpollet)	0	41½
3. Le Blon (Serpollet)	0	42½
4. Demester (Griffon)*	0	46½
5. Baras (Darracq)	0	46½
6. Barre (Bruneau)*	0	57
7. Lamberjack (Griffon)*	1	4½
8. Carreau (Carreau)*	1	7½
9. R. Hanriot (Passy-Thellier)	1	12½
10. Labitte (Werner)*	1	17½
11. Peron (Werner)*	1	19½
12. Robin (Lamaudiere)*	1	19½
13. Ardriot (Lamaudiere)*	1	23½
14. Abbott (Locomobile)	1	31½
15. Barre (Bruneau)*	1	44½
16. De Richemond (Ader)	1	45½
17. Breuil (Breuil)*	1	45½
18. Remy (Pelletier)*	1	45½
19. Mme. Jolivet (Pecourt)*	1	53½
20. Valentin (Ader)	1	58½

* Motor-cycler.

for a contest in Italy next year on one of the highest highways in Europe, namely, from "Bormio" in "La Valtellina," itself at an altitude of over 4,000 feet, up to Stelvio, across the Austrian frontier, which is at an altitude of over 9,000 feet, and almost always covered with snow. The distance is over 14 miles, and the average gradient about 7 per cent., over a good road with very little traffic on it. At the top of the pass there is an hotel, the proprietors of which, with the *Gazetta dello Sport* of Milan, are the organisers of the competition. It seems a little previous to talk about entries, and yet it is said in *La France Automobile* that five Darracqs and one Napier are already entered, and that Mr. S. F. Edge will drive the latter.

TALKING about reports, I find, on making inquiries at the fountain-head, that there is no truth whatever in the report that Count Zborowski, M. Fournier, and the Baron de Crawhez have been chosen to contest the Gordon-Bennett Cup on behalf of Germany, and on three Mercedes cars. The story is a pure *canard*, which was invented in the exhilarating and rarefied air of the Semmering during the recent hill-climbing competition. It can be classed with the story that Mr. W. R. Vanderbilt, jun., has given up motoring.

The Reliability Trials.

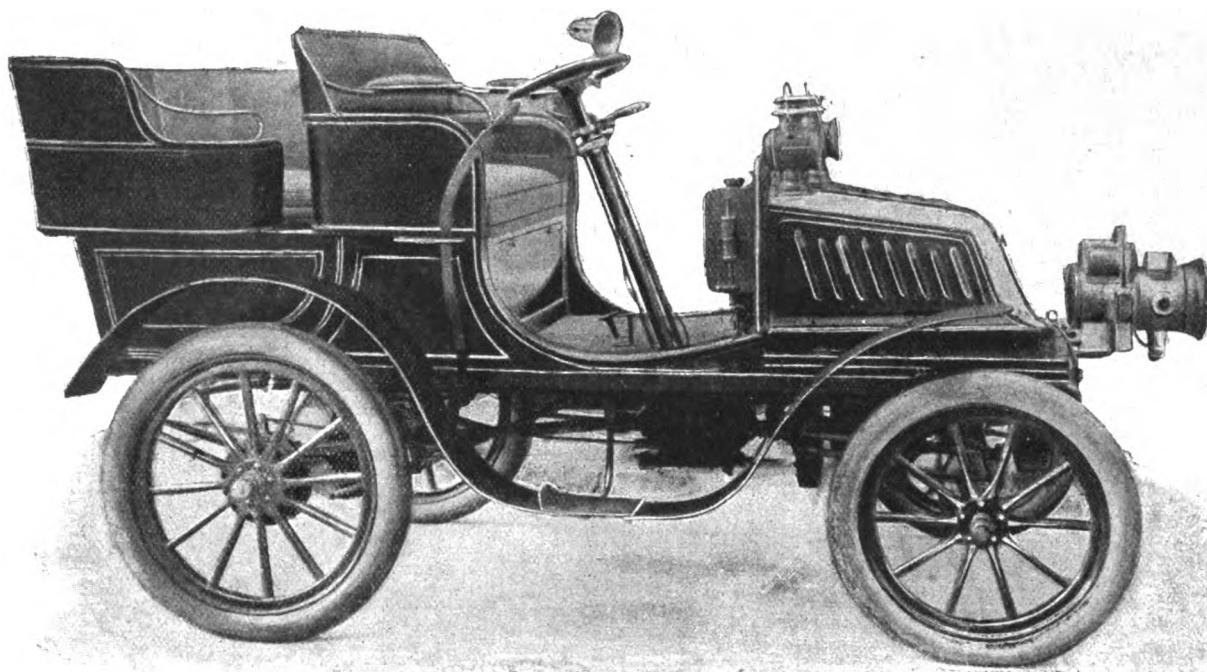


THE OFFICIAL SUMMARY OF MARKS.

Official Number.	H. P.	Vehicle.	1. Total marks for Reliability. Maximum, 1800.	2.		3.	4.	5.	6.	GRAND TOTAL.	Speed on Hills.	
				Hill Climbing.		Condition.	Steering.	Brakes.	Horse-		Miles per hour.	
				River.	Wester-ham.	Maximum marks, 500.	Maximum marks, 250.	Maximum marks, 250.	power and Weight. Marks.		River.	Wester-ham.
1	3	Humber Bicycle ...	1795	418	—	430	250	250	100	3243	21.1	—
2	2	Humber Bicycle ...	1772	—	—	325	200	250	—	2547	—	—
4	5	Century Tandem ...	1790	137	—	500	250	125	70	2572	9.8	—
5	5	Baby Peugeot ...	1799	125	130	425	250	250	78	3057	9.3	7.3
6	1½	Werner Motor cyclette ...	300	—	—	—	250	—	—	—	—	—
7	1½	Ormonde Bicycle ...	1717	—	—	225	250	250	—	2442	—	—
8	4	Oldsmobile ...	—	—	—	—	250	250	—	—	—	—
9	5½	Locomobile ...	1686	57	61	400	250	200	99	2753	15.1	12.2
10	5½	Locomobile ...	1736	47	42	450	250	150	79	2754	13.0	8.9
11	4½	Swift ...	1171	—	—	—	250	200	—	—	—	—
12	8	Parr Light Car ...	248	—	—	—	250	200	—	—	—	—
19	7	Star ...	1718	35	38	300	200	200	77	2568	5.3	4.3
20	5½	Locomobile ...	1382	39	35	350	250	150	73	2279	12.2	8.3
21	5½	Locomobile ...	1780	36	39	440	250	150	89	2784	13.5	10.9
22	4½	Renault ...	1624	55	—	485	250	250	57	2721	7.4	—
23	8	M.M.C. Voiturette ...	1751	52	60	500	250	250	119	2982	6.7	5.8
24	6	De Dion Bouton ...	1735	84	87	440	250	200	118	2914	9.9	7.6
26	6	White Steam Car ...	1722	53	32	500	250	125	67	2749	11.3	5.1
29	6	White Steam Car ...	1799	53	63	500	250	125	72	2862	10.2	9.2
30	10	Decauville ...	1770	25	31	440	240	250	112	2868	7.3	6.7
31	10	Georges Richard ...	1481	45	—	—	250	—	136	—	8.3	—
32	9	James and Browne ...	1776	40	47	465	250	200	123	2901	7.3	6.4
33	12	Gladiator ...	1789	48	23	500	250	50	125	2785	9.2	4.6
35	10	Brooke ...	1772	25	32	470	250	250	86	2885	5.5	5.3
36	8	Light car fitted with Simms motor	1526	47	—	—	250	—	99	1922	7.2	—
38	10	Star ...	292	—	—	225	250	200	—	—	—	—
39	10	Wolseley ...	1651	—	—	495	250	250	—	2646	—	—
40	7½	Wolseley ...	1785	28	—	500	250	200	99	2662	7.5	—
41	10	Wolseley ...	1795	49	61	500	250	200	126	2981	8.2	7.6
42	12	Belize ...	1795	40	39	475	250	200	88	2887	6.8	5.7
44	9	New Orleans ...	1794	53	51	485	250	200	115	2948	8.8	7.0
47	8	De Dion Bouton ...	1758	51	46	500	250	250	127	2982	8.3	6.5
48	8	Clement ...	1678	31	—	425	250	250	40	2674	6.1	—
51	12	Gladiator ...	1643	40	42	495	250	50	174	2694	10.8	8.4
52	10	Ariel ...	1648	40	32	480	250	250	114	2814	8.7	6.5
53	14	New Orleans ...	1199	—	—	—	250	250	—	—	—	—
54	12	Century ...	1452	66	59	240	150	—	115	2082	8.7	6.2
56	14	New Orleans ...	299	—	—	—	250	200	—	—	—	—
57	10	M.M.C. ...	1734	24	31	415	240	200	103	2747	6.0	5.8
59	7½	Germain ...	1791	25	24	490	250	250	82	2912	6.1	4.5
60	20	Georges Richard ...	—	—	—	—	250	—	—	—	—	—
62	6	Gardner-Serpollet ...	1713	38	29	495	250	150	204	2879	16.7	10.9
63	6	Gardner-Serpollet ...	1761	39	29	500	250	150	201	2930	16.2	8.8
64	10	Peugeot ...	1793	56	42	475	250	250	247	3113	13.9	7.8
65	12	Brush ...	1634	25	5	465	250	200	108	2687	8.5	1.3
66	12	Humber ...	1794	26	30	470	250	200	122	2892	7.8	6.9
67	12	Humber ...	174	—	—	—	250	250	—	—	—	—
69	20	Wolseley ...	1800	34	41	495	250	200	210	3030	13.7	12.5
70	10	Mors ...	1129	—	—	—	250	250	—	—	—	—
71	8	Wilson and Pileher ...	1787	26	10	500	250	250	105	2928	8.3	2.3
74	15	Germain ...	1797	36	40	465	250	200	174	2962	12.3	10.2
75	16	Clement ...	1574	29	35	130	250	250	197	2465	12.4	11.3
76	12	Daimler ...	1786	28	30	475	250	250	166	2985	9.7	7.7
77	12	Daimler ...	1196	—	—	—	250	200	—	—	—	—
81	20	M.M.C. ...	1495	20	6	250	250	250	142	2413	10.7	2.5
82	20	Mandslay ...	1797	26	27	500	250	200	115	2915	9.5	7.3
83	20	Pascal ...	1716	28	25	450	250	200	186	2855	15.3	10.5
84	20	Pascal ...	1780	22	28	475	250	250	140	2945	8.7	8.3
86	22	Daimler ...	1792	28	33	500	250	250	179	3032	13.0	11.6
87	22	Daimler ...	1663	21	—	500	250	150	206	2790	13.7	—
88	15	Panhard ...	1799	41	37	500	250	250	212	3089	16.5	11.3

THE HENRIOD LIGHT CAR.

THE name of M. C. E. Henriod, of Neuilly-sur-Seine, near Paris, has long been known in connection with petrol cars. Of late years he has devoted a good deal of study to the question of the utilisation of alcohol, in place of petroleum-spirit, and in his latest types of cars, one of which is illustrated herewith, a special form of injector-carburettor is used, which is stated to work equally well with either fuel. The frame of the light car illustrated is of tubular construction, in the fore part of which a single-cylinder vertical motor is set under a bonnet. The engine has a water-jacketed cylinder 110 mm. diameter by 130 mm. stroke; it is fitted with a simple form of centrifugal governor on the forward prolongation of the crank-shaft, the governor weights acting on a coned sliding collar, which raises a lever and takes effect on a throttle valve in the induction pipe above the carburettor. The motor transmits its power through a friction clutch to the change-speed gear box, from which it is conveyed by a universally-jointed shaft and bevel gearing to the rear differential live axle. Three speeds forward and a reverse motion are provided, these being controlled by a single lever



THE HENRIOD LIGHT CAR.

mounted on the inclined steering column. On the high speed the engine drives straight through on to the gear on the back axle, the change-speed gear only being brought into use when the lower speeds are required.

The levers for spark, mixture regulation, and petrol supply are arranged below the steering-wheel. The water circulation is maintained by means of a centrifugal pump driven by friction off the fly-wheel, a radiating coil being fitted in the fore part of the frame. The double-acting band-brake on the clutch-shaft is actuated by a pedal, the depression of which first throws out the clutch, so disconnecting the engine from the transmission mechanism. In addition a hand lever at the side operates band-brakes on the hubs of each of the rear road-wheels. Any type of body, such as the *tonneau*, double *phaeton*, *limousine*, etc., can be mounted on the *chassis*, which is supported on artillery-type wheels shod with pneumatic tires.

Six White steam carriages were recently shipped to South Africa.

THE CARE OF PNEUMATIC TYRES.

THE Michelin Company, in one of their recent articles on pneumatic tyres, remark that if they had to make a list of the enemies of the motor-car driver they would without hesitation put the driver himself at the top. This is to a great extent true, one of the most frequent causes of damage to pneumatics being insufficient inflation. In the Michelin handbook there is a table of pressures to which various tyres should be inflated. Not only must tyres be pumped up properly, but the fixing bolts must also be well screwed up. Should they be slack, the cover tends to move in the rim, and the thickened edge gets damaged. At high speeds the cover turns bodily in the rim, and this invariably tears the valve out of the tube. Moreover, if the tyre is not sufficiently inflated, and the bolts screwed well up, water is sure to get in, and then the cover lasts a very short time. As for the bolts themselves, care should be taken that the canvas covering is always intact, otherwise damage to the air tube will result. For the same reason bent bolts should never be used, as they do not seat properly.

One very often hears people say that they can "get home"

with a deflated tyre. This is most unfair to the tyre. In case of puncture, unless the sacrifice of a cover and tube is of small moment, the tube should be changed at once. Even in a short distance the cover is generally much damaged and the valve pulled out of the tube. If it is decided to go on at all costs, the inner tube should be removed, the fixing bolt screwed firmly up, and the cover fastened with leather straps. If these are not obtainable rope will do, but it will not last so long. After running on a deflated tyre, the rim should be carefully examined to see if it is dented. This often occurs, and the edge of a new cover is with difficulty inserted in the recess. It can, of course, be forced in, but the rim afterwards invariably cuts the cover. In conclusion, the Michelin Company point out to motorists that water inside a cover is fatal; therefore after a puncture fill up the hole in the cover with solution, and repeat the operation when the run is over.

DURING July the exports of automobiles and parts from the United States attained a value of £26,614 as against £14,480 in July, 1901.

HERE AND THERE.

ON Sunday next the Liverpool Motor Cycle Club will hold a run to Southport.

PRINCE LUDWIG FERDINAND of Bavaria has joined the ranks of motorists, he having lately purchased an Adler car.

AT the closing meeting of the British Association at Belfast, a grant of £90 was made for research into the resistance of road vehicles to traction.

THE DAIMLER MOTOREN GESELLSCHAFT, of Cannstatt, report a net profit of £18,900 for the past year, and a dividend of ten per cent. has been declared.



A SNAPSHOT FROM SOUTH AFRICA. ONE OF THE M.M.C. PUBLIC SERVICE CARS IN JOHANNESBURG.

A SERVICE of motor-cars for the conveyance of passengers and the transport of the mails is about to be started on the Island of Corsica between Vico, Ajaccio, and Sartene.

IN view of the demand for greater hill-climbing power, Werner Motors, Limited, have in hand, and are about to put on the market, a new type motor of 2-h.p. nominal, the size of the cylinder being 76 by 76 m.m.

MESSRS. PETO and RADFORD, LIMITED, have taken up the sole agency for the "P.M." system of electric ignition, so largely used in France. The feature of the system is the contact breaker, which is self-regulating.

MESSRS. STUBBS and ROGERSON, of High Street, Winsford, Cheshire, are laying themselves out for the prompt repair of motor-cars in any part of the country. They have sent us particulars of two repair jobs they have lately carried out with great despatch.

FOR the coming season, a new motor-bicycle is to be put on the market by the Quadrant Cycle Company, of Birmingham. The motor-engine itself is not materially altered, the chief innovations consisting in a rearrangement of the contact breaker, the exhaust valve lift, and the lubricating arrangements.

THE two Germain cars which competed in the Reliability Trials have already found purchasers. The $7\frac{1}{2}$ -h.p. car has been acquired by Mr. Stewart Noakes, of Selsdon Park, near Croydon, whilst the 15-h.p. vehicle, which only lost three points, through a faulty sparking plug, during the whole week's trials, has been sold to Mr. M. D. Rucker, of Ifield Park, near Crawley.

OUR readers will be interested to learn that fresh firms are daily taking space at the Automobile Exhibition, which will be held at the Agricultural Hall, Islington, from March 21st to March 28th next, and that the exhibitors already booked exceed double the number of firms booked for any other Exhibition. With scarcely an exception, every known make of car will be on view.

THE Manchester Automobile Club will hold its last run of the season to-day (Saturday), the destination being Congleton.

MR. BRADSHAW, a Poor Law guardian residing at Sturton, uses a motor-car when going to the meetings of the Board at the workhouse at Retford.

GRAHAMSTOWN, in Cape Colony, has become excited at the advent of the motor-car owned by Mr. W. Alcock, and lately illustrated in our columns.

THE Automobile Club of California has issued a circular to its members, advising them to observe the rules of the road and to show courtesy and consideration to horse drivers.

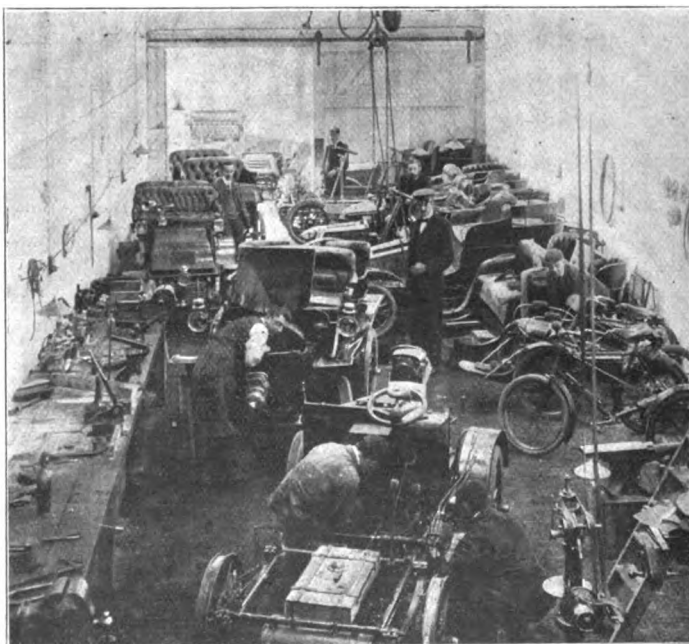
MEMBERS of the Newbury Board of Guardians have expressed the hope that the new Chief Constable of Berkshire will do something to stop furious motor-car driving in the county.

ACCORDING to an American contemporary, a racing car on original lines has been designed and is about to be built in New York. It will have wheels ten feet high, and all the weight of the car will hang below the hubs!

THE Motor Car Company, Limited, inform us that they are now in a better position to give quick delivery of the latest 10-h.p. Decauville cars. They are preparing a new catalogue of these vehicles, giving full directions as to their driving and treatment, and the minutest details of their construction.

SMITH'S PATENTS', LIMITED, of Borough High Street, S.E., have added a new plant to the works, by which they can now secure all treads to motor-tyre covers and other repairs by the vulcanising process. It is claimed that this will to a great extent lessen the great amount of tyre troubles experienced by all users of motor-cars.

ALTHOUGH it is only six months since the Firefly Motor and Engineering Co. opened their premises in Croydon, they already find the large garage and repair shop erected at the rear of their show rooms too small. While this garage was in course of erection, many critics scoffed at the idea of a place covering 2,400 square feet ever being wanted for the motor industry in Croydon.



Last week, when the accompanying photograph was taken, every available inch of the garage was occupied with a cosmopolitan collection of cars, embracing all the well-known makes. An efficient staff of mechanics is kept on the premises, and the amount of repairs brought to the company is evidence of the quality of the work turned out. A large variety of spare parts for all cars is kept in stock.

FROM Edinburgh the Prime Minister and Lord Kitchener journeyed to Whittinghame by motor-car at the latter end of last week.

THE Woodstock Manufacturing Company, Woodstock Works, Birmingham, are now catering for the wants of motorists, by keeping a stock of petrol, lubricating oils, grease, &c.

It is expected that no less than 125 cars will compete in the reliability run from New York to Boston and back which will be held next month under the direction of the Automobile Club of America.

SOME idea of the work entailed on county and borough surveyors may be obtained from the fact that in Bristol there are 281 miles of streets.

THE special clock for timing automobiles which is being made for the Automobile Club will shortly be ready for use. Meanwhile it has been suggested that the Club's official timekeepers should take no records unless ten days' notice of the proposed attempt to make records are given.

MR. J. GRANT LAWSON, M.P., at the Easingwold Agricultural Show's luncheon, said he believed that horses would become accustomed to motor-cars when they were reasonably driven. In future farmers would have to breed for nerve as well as stamina, shape, and action. They would then need to enlarge their prize lists by classes for nerve, which he believed would excel the leaping competitions in interest and excitement.

A VERY ingenious and simple motor-cycle belt fastener has been put on the market by Mr. F. W. Rosser, of 46, Upton Lane, Forest Gate. It consists of three hooks linked together hook-and-eye fashion, and, like the ordinary single fastener, the ends of the outer ones pierce the belt. When fitted with the Rosser



fasteners a perfectly silent-running belt is obtained, by reason of their resting entirely on the inside of the belt. Not only so, but Mr. Rosser claims that the belt can be run so much tighter than usual that uniform speed can be maintained even if steep, long hills are encountered.

"DUNHILL'S MOTORITIES" is the title given to an effective catalogue brought out by Mr. Alfred Dunhill, of 145 and 147, Euston Road, N.W., and 2, Conduit Street, Regent Street, W., and who has long been known to motorists in connection with leather clothing. He is now the sole manufacturing agent in the United Kingdom for the specialities of Messrs. O. Strom and Son, of Paris, whose fashionable garments have been prominent at recent Agricultural Hall exhibitions. Among the special lines are "drencher proof" clothing to withstand heavy and continuous showers, the umbrella coat, which has attained a large measure of popularity owing to the ease with which it is put on and the effective provision it affords against rain and damp; a ladies' motor skirt, made in the form of a sack, with the exception of two holes through which the feet protrude; and gentlemen's motoring coats of various designs. A full range of cloaks and jackets in furs is also illustrated, as well as a complete selection of aprons, rugs, foot muffs, overalls, leggings, capes, gloves, etc. Goggles, car covers, mats, and other accessories are also enumerated in this excellent catalogue. With reference to the "motorists' umbrella," already mentioned, we have lately had personal evidence of its utility. It is absolutely impervious to wet, and has the advantages of lightness and neatness. In fact, so keenly do we recognise its use that we not propose to journey without our umbrella coat in future, and we believe that other automobilists will be equally quick to adopt this almost indispensable garment.

UNDER the auspices of the Austrian Automobile Club, a motor-cycle race is to be held on the Prater Velodrome in Vienna, on the 12th October. The distance is 100 kilometres.

AT the Silver Cross Cycle and Engineering Works, Monkton Road, Dewsbury Road, Leeds, Messrs. Walker and Foster keep a stock of Pratts motor-spirit and are prepared to attend to disabled cars.

THE Renfrewshire police are reported to have laid a trap for motorists on one of the main roads of the county, and the chief constable is calling the attention of motorists to the legal limitations with regard to the speed of cars on the public roads.

THE accompanying illustration shows a useful terminal for attaching to the ends of ignition wires which is being introduced by the London Autocar Company. It is a copper stamping, to which the ends of the wires are to be soldered. The annoyances caused by loose wires and poor connections are claimed to be obviated by the use of these terminals.



THE Richmond (Yorkshire), Rural District Council has decided to support the Helmsley Council in a petition to Parliament to free the highways from the dangers of motor-cars, and thereby give back to the public the pleasure and safety of travelling thereon without fear of injury or accident.

ON Saturday last, the 20th inst., at St. Stephens, St. Albans, Mr. Albert E. Oakley, of the Beaufort Motor Company, was married to Miss Annie L. Franks. The pair were driven from the church to Deanswicke, where the reception was held, in a 12-h.p. Beaufort car, another car carrying the bridesmaids.

AT the annual meeting of Messrs. McNamara and Company, the cartage contractors for the General Post Office, the chairman made special mention, evidently with a feeling of satisfaction, of the fact that in the last Post Office report it was said that, "So far no motor-vehicle has been found which can be relied on to carry heavy loads of mails with the same regularity as vans drawn by horses." This will be interesting reading to the future historian.

WE regret to learn of the death of Mr. Ernest Garrard, the younger son of Mr. C. Garrard, managing director of the Garrard Manufacturing Company, which occurred on Sunday afternoon from the result of a collision with a tramcar in Birmingham, while the unfortunate man was returning home from a motor-cycle ride. The many friends of Mr. Garrard will join in our expression of deepest sympathy with him in his bereavement.

WE are this week able to illustrate a little device lately put on the market by Messrs. Worsnop and Company, Carlton Lamp Works, Halifax, which should save practical motorists much inconvenience and annoyance. The article we refer to is a "Self-Regulating Petrol Filler and Filter," by using which petroleum spirit can be poured from the can into the tank in such a way that not a drop is wasted, and when the tank is full, the petrol ceases to flow. Moreover, as the fluid passes through the filter, all foreign substances, sediment, etc., are retarded, thus ensuring the presence in the tank of only pure spirit. All that is necessary to do is to screw the patent filler on to the can, and turn the whole upside down, with the nozzle of the filler in the feeder of the tank, and when the latter is full the spirit ceases to flow. It is made in two styles, one with a tap and one without. The London agents for the filler are the United Motor Industries, Limited.



THE present law with regard to motor vehicles is, says the *Times*, "afflicted by nearly all the vices which a bad law can have. It is unsound in principle, impracticable and vexatious in operation, ill-adapted to restrain or prevent the evils against which it is ostensibly directed, and quite incapable of being rationally and equitably administered. In our judgment," continues our contemporary, "the speed of any vehicle on the highway is not a thing to be regulated by fixing a legal *maximum*."

CORRESPONDENCE

DYNAMO IGNITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR.—There seems to be considerable uncertainty among amateurs as to what form of ignition to adopt on petrol motor-cars for the best results, or, rather, what source of current supply accumulators and dry batteries are probably used in the greatest number of vehicles at the present time, although the application of mechanical generators is making steady progress. The field seems to be divided between the accumulators and dry battery on the one hand, and the mechanical generator (dynamo or magneto) on the other, and that the latter is not at present more generally used is probably due to its considerable first cost as compared with a set of batteries. There is no question, however, that a well-made mechanical generator is easily worth its first cost, and will furnish the ignition current cheaper than accumulators, not to speak of the troubles and delays caused by batteries becoming discharged. The drain on the batteries is, of course, the greater the larger the number of cylinders of the motor, and with a three or four-cylinder engine dynamo ignition is almost a necessity.

It might be argued that the additional complication of an electric generator, its driving and governing means, overbalance the advantages secured in the way of more reliable ignition at less cost, but such is not the case. Small electric generators have been brought to a high state of perfection and require very little attention. Electric fan motors, for instance, which are in every respect similar to the small generators used for ignition purposes, frequently run a whole season with no other attention than oiling once a month and having the carbon brushes renewed a few times. The jolting of the vehicle makes the conditions under which the spark generator operates somewhat severer than those which determine the operation of



PROFESSOR AND MRS. DAWSON TURNER ON THEIR DELAHAYE CAR.

the fan motor, while, on the other hand, the lower pressure of the spark generator is a point in its favour.

A number of American manufacturers whose engines, owing to their construction, require a considerable quantity of electricity for ignition, have adopted spark generators exclusively, and the example is beginning to be followed in France. As intimated above, others would adopt them if it were not for the additional cost over a set of batteries. With intelligent handling the spark generator is bound to prove the most efficient and least expensive source of electricity, and hence its general adoption in the near future may, I think, be expected.—Yours truly,

ELECTRICIAN.

TOURING ON SMALL CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have seen references lately in different journals as to the capabilities of quite small cars, and as all the tendency now is towards cars of 8 and 10-h.p., it should not be forgotten that much pleasure can be got out of even a 2½-h.p., if properly managed. I bought in March last a Mabley car which has a 2½-h.p. De Dion engine. I ran it for about 1,500 miles during the spring and summer, and at the end of July this tiny engine took myself, a lady passenger, two bags, and a heavy hold-all from South Lincolnshire to Strathpeffer, 486 miles, in five days' easy running, the route being by York, Berwick, Edinburgh, Perth, and Inverness. The petrol consumed was just under 10½ gallons, though the road is certainly trying in parts. I was never hung up, nor did I touch the engine on the way, having ground my valves before starting. We had many delightful runs in Ross-shire, and returned by Inverness, Aberdeen, Perth, Carlisle, Appleby, Wensleydale, to the north road at York. This is much longer than the east coast route, and the road from Appleby is very stiff indeed. I

was again never hung up, and had to adjust the trembler only once. The tyres, Michelines, have never been punctured, and are hardly ever blown up. I attribute this, in addition to their quality, to the light weight of the car. I have had quite my share of worries with another car, even to the extent of nights out, and got this merely as a runabout for the country, but I think many of your readers may be interested to know that even touring may be enjoyed on such a tiny machine.—Yours truly,

H. M. W. BRIDGMAN, M.D.

A TYRE QUERY.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have a motor-car with pneumatic tyres which I use in my business as a land agent. These tyres are constantly going wrong. My idea is that a motor-car to be relied on and to go at a slow speed of fifteen miles an hour could be made with wooden wheels, iron tyres, with rubber on them like hansom-cab wheels. The body of the car, to which the engine would be attached, would be hung on good springs. I should be much obliged if any of your readers would let me know what their experience in this matter is, and where I could see such a car as I describe.—Yours truly,

T. T.

AUTOMOBILISM IN SOUTH AFRICA.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Perhaps a few jottings re matters automobile may be of interest. We anticipate a good season here this summer, as a number of new members have joined the South African Automobile Club, and they all have cars. Amongst the latest arrivals are two 10-h.p. Wolseleys, a 12-h.p. Panhard, a 22-h.p. Daimler, a 10-h.p. Brush, a 6-h.p. Darracq, several steam cars, and some small petrol cars. I have placed an order for a 14-h.p. New Orleans, delivery of which is promised towards the end of October. My 8½-h.p. Decauville is as good as the day I bought it, and has now run nearly 5,000 miles, the only renewal being a new change-speed gear. This car has never been in a repairer's hands, and beyond punctures and a stoppage in the petrol pipe once or twice, I have never had a break down, and in no case have I failed to reach my destination.

Should any motorists think of coming out to South Africa for a trip, I would strongly recommend them to bring a car with them, as they can have some thoroughly good runs and see the country in a way no other means of transit can allow them to. In the Orange River Colony and the Transvaal the roads as a whole are very good, and well suited for motor-ing. Cars intended for this country should have a large capacity for carrying petrol, as no facilities exist for getting oil away from the large centres.

Johannesburg will undoubtedly be a big motor centre, and already there are quite a number of cars about the streets. A company styled the Johannesburg Motor-Car Company, Limited, has recently been formed, with a capital of £25,000, privately subscribed, for the purposes of establishing a motor-car service to different parts of the city, and for dealing in cars, repairs, etc., and its prospects of success are excellent.—Yours faithfully,

A. T. HENNESSY.

CAPETOWN.

STEAM BOILERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am obliged to "Marine Engineer" for his partial reply to my inquiry, but should have liked him to have given his experience on the "flash boiler." I have tried the valves on the pipes, as he suggests, but had to abandon the one on the water, as I found it increased the blockage to pipes. The piping used on small boilers is only ½-inch bore; of course, when a car is new, one has no trouble with blockage of pipes, but use it regularly for a few months (blowing out, say, every third run), and they will find it is very difficult to keep pipes clear, and the driver runs in fear of a scorch the whole time. That is my experience and of scores of others. There is nothing to touch the steam-car for short journeys. It is free from vibration, silent, gearless, etc.; the great drawback is the boiler. I should be extremely obliged to any of your subscribers who are using the Serpollet, Miesse, or any flash boiler if they would give their experience.—Yours faithfully,

ANXIOUS.

STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to the many erroneous statements made respecting the ability of the above to do anything but travel short distances, it may interest you to know that for the past three years I have been experimenting with a view to ascertain how far it would be possible to run, for example, a Locomobile, on one supply of water and fuel. This of course necessitated a return water system, and early last year one was fitted to an ordinary light Locomobile, with the result that a distance of eighty miles was covered on a loss, due principally to evaporation, of only three gallons of water. Since that time I have fitted up a second car with the return water system, oil separator and filter, and the results obtained are highly satisfactory, as the car is now able to do over one hundred miles without necessitating a stoppage for either oil or water. I am still working at the system, and expect that on my next test I shall be able to exceed the results named by considerably over fifty miles, which will then enable the light steam car to hold its own with its rival, the petrol car.

Great alterations are necessary if the petrol car is to be placed within everyone's reach; as at present, although its advocates boast loudly of their small consumption of petrol, the cost of up-keep is rarely mentioned, whereas, on the other hand, with the steam car, although it may cost a little more for petrol, if given fair attention the cost of repairs is practically nil.—Yours faithfully,

BOARD OF TRADE ENGINEER.

THE RELIABILITY TRIALS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It must have been highly amusing to the ordinary individual to read in last week's issue of your paper a letter from the Weston Motors, regarding the reason why they did not enter their cars in the Reliability Trials. Our apology for asking you to insert this letter in your paper is because we feel—as everyone would do who reads it—that it is directly pointed at our Locomobile steam carriage. No doubt every manufacturer received a copy of the rules and regulations months ago, giving every detail regarding the rules for entering cars in these Trials. I maintain that Rule 10 is so plain that no one could mistake the rendering of this. It is as follows:—

"A competitor in Sections I. and II., in entering, shall state the price at which he guarantees to provide to the public exact duplicates of the vehicle or part entered for trial, provided that the order be received before the 1st December, 1902, with a deposit of one-third of the value.

"The classification for privately owned cars shall be (a) if the vehicle is made in the United Kingdom, by the manufacturer's list price; (b) if it be made abroad, by the list price of the authorised agent in this country, or, failing that, the actual price paid by the purchaser to the seller."

We feel sure that every manufacturer or selling agent in this country, after he had carefully gone through the rules, felt that this was the biggest test run that any vehicle had been asked to enter, and the first question that he had to decide was—Am I manufacturing or selling a car which is sufficiently reliable to stand these tests? After he had decided, the thing was simple. If he had, he entered his car, or cars, fully appreciating the seriousness of the entering, and doing all he knew to get through with losing the least number of marks. If he had not a reliable car, the best thing to do was to sit quiet until the Trial was over, and then explain to the public why he did not enter. From our past records we were sure that we had a car that would successfully go through these Trials.

Photographs of the cars as they appeared in the Trials have been published in the different automobile papers, and it is absolutely absurd to talk about any steeple-like structures on this carriage. It is equally absurd to imagine that the Locomobile is limited as to the number of miles that it will run with water and petrol. The limitations lie in the tanks, and numbers of our customers have paid extra for additional water and additional petrol tanks, as we have found that the success of our business has been in giving the public what they want. Therefore, if a man wants a car that will run forty or fifty miles on one tank of water he has got to pay extra for a water tank. We have cars that will run 100 miles on petrol and will carry one for a run of thirty to fifty miles. I fully appreciate the fact that when we started in England with the Locomobile the longest distance that could run on one tank of water, was about eighteen miles; but although we gained the Gold Medal in last year's Glasgow Reliability Trials, if we had attempted to enter the same car as we entered last year in this year's Reliability Trials, we should not have ever hoped to gain the success which we have gained in the 650 Miles Trials.

We think it is hardly fair that this attack should have been made upon our cars. We have never entered a competition which has not been open to all manufacturers and sellers. Every steam carriage manufacturer or agent has the same opportunity of entering in any test trials or speed competitions that we enter in.

This company entered four carriages, two in Class B. at a selling price of £200, and two in Class C. at a selling price of £300 or less, and we shall be pleased to supply exact duplicates of these cars at the above-mentioned price to any intending customers. And though we ourselves have no cause to regret that the marks deducted for stoppages were so few, still we are sorry that this should have been the cause of the correspondence.—Very truly yours,

THE "LOCOMOBILE" COMPANY OF GREAT BRITAIN, LTD.,
W. M. LETTS, Managing Director.

MOTOR CYCLING.

On the Canning Town track on the 17th inst. J. Van Hooydonk covered 200 miles on his Phoenix motor-bicycle in 6 hours 42 min. 52½ secs. But for the tightening of a slack belt occupying 2 min. 40 secs. the run would have been an absolute non-stop one, but as the belt was only twisted in and no tools whatever used the run was such for all practical purposes. The petrol used was one gallon two pints, and three pints were measured out of the tanks after the 200 miles were completed. The bicycle was a fully equipped touring machine with a Minerva 70 by 70 engine, the rider sitting upright in the usual touring position. The distances travelled were; 29 miles 600 yards in the first hour, and in three hours 87 miles 100 yards; 177 miles 1,550 yards were covered in 6 hours, and 30 miles 1,550 yards in the last hour. The final mile occupied 1 min. 49½ secs. Mr. Ebbelwhite, N.C.U., took the times, and Mr. Straight, N.C.U., judged.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Chelmsford	W. Wriken, Effingham, Surrey	25 m. p. h.	£5, etc.
Lincoln	A. G. Dykes, Lincoln	Above legal limit.	Dismissed. 23s.
Northampton ...	J. Lewis, Birmingham	" "	"
Isle of Wight ...	W. Warren, Bembridge, Isle of Wight	27 m. p. h.	£10, etc.
Northallerton ...	J. C. Shaw, Bishop Auckland	Above legal limit.	£1
"	W. H. Wilson, "	" "	"
"	L. Coulson, "	" "	"
York	W. Rampling, Saltby, Birmingham	24 m. p. h.	£3, etc.
"	H. Bush, Leeds	27 m. p. h.	"
"	W. J. Robson, J.P., Pontefract	20 m. p. h.	"
"	J. T. Tindall, Market Rasen	Above legal limit.	"
"	A. H. Marriner, Keighley	" "	£2, etc.
"	F. Green, York	" "	£3, etc.
Lowestoft	L. Kirkwood, Kes-singland	" "	£2, etc.
"	" "	" "	No evi dence offered. 40s., etc.
*Brentwood ...	C. Rogers, Harley Street, W.	" "	"
"	A. G. Campbell, Richmond	" "	"
Stratford	T. Coningham, Walthamstow	18 m. p. h.	Dismissed.
Leeds	H. Tate, Leeds	Above legal limit.	Dismissed. 40s., etc.
Tadcaster	S. Dillon, Battersea	" "	£2, etc.
Thirsk	A. H. Eden	" "	£1 and 9s. 6d.
Bedale (Yorks)	C. Morley, Darlington	16 m. p. h.	"
Inverness	M. Giltay, Inverness	Above legal limit.	£1 and 25s.
Warwick	B. Gibberd, Leamington	" "	£1, etc.
Epsom	A. Carpenter, Oxford Street, W.	16 m. p. h.	40s.
Southampton ...	O. W. Payne	16 m. p. h.	40s., etc.
Guildford	C. E. Thomson, South Kensington	19 m. p. h.	£3.
"	G. H. Malton, Queen Street, E.C.	20 m. p. h.	"
"	P. Elch, East Dulwich	18 m. p. h.	"
"	E. Russell, Camberwell	18 m. p. h.	"
"	G. H. Tripp, Hampton	17½ m. p. h.	"
"	G. Munroe, Finsbury	20 m. p. h.	£3.
Perth	F. Barber, Ballinlaig	30 m. p. h.	£5.
"	H. Crease, Ballinlaig	24 m. p. h.	£5.
"	J. A. Ross, Crieff	18 m. p. h.	20s.
Birmingham ...	W. A. Spraggs, Edgbaston	25 m. p. h.	20s., etc.
Dunblane	J. A. Dixon, Stirling	Above legal limit	£5.

* Motor-cycle cases.

BY WAY OF CONTRAST.

COURT.	OFFENCE.	RESULT.
Wolverhampton	Allowing dogs to fight 1½ hours	£3 and costs.
Lincoln	Dragging a cow on the ground behind a cart after cutting one of its ears	Fined 15s.
Burton-on-Trent	Working horse in unfit state	Fined 5s.

THE Lincoln magistrates thought in the case against Mr. Dykes that it was not safe to convict in face of the conflict of evidence. If other magistrates were equally fair-minded the appearance of the fourth column of our list of cases would be materially altered.

✱ In the case at Chelmsford the defendant evidently knew the customary fine at that court for this offence, for he had the money ready in his hand before the fine was actually inflicted.

At York, in the case against the Pontefract J.P., Mr. Robson said it was absurd to say he was travelling at twenty miles an hour. There was no traffic in the road, and he slowed to turn the corners and go through villages. He thought his speed was about twelve miles an hour, as, after making deductions, it took him seven hours to cover seventy miles to Whitby.

The business of the Southampton Police Court had been declared closed on Thursday week when Chief Constable Berry entered, and said he had instituted proceedings against the driver of Sir William Pearce's motor-car for furious driving in the High Street that morning, and Sir William had requested that the case might be dealt with that day to enable him to proceed on his journey. The Bench agreed to hear the case. Odo William Payne, the driver of the motor-car, was the defendant, and he pleaded guilty to driving the motor-car in High Street at a greater speed than 12 miles an hour that morning. The Bench imposed a fine of 40s. and costs.

✱ In the six cases heard before the Guildford County Bench Police-Sergeant Jarrett was the judge of speed, and the witness for the prosecution. Whether the defendants pleaded guilty or not the result was the same, and fines of £3 were inflicted in each case. Mr. Tripp was summoned for driving a motor-cycle hauling a vehicle, on the Ripley Road, on 7th inst., at a greater speed than six miles an hour. Police-Sergeant Jarrett said there was an ordinary trailer, in which was a lady, attached to the cycle. The speed was 17½ miles an hour. Defendant submitted that there should be no prosecutions for going less than 12 miles an hour, or the trailer would be useless. He considered there was sufficient protection if they did not exceed twelve miles an hour.

✱ Mr. THOMAS CONINGHAM, of Walthamstow, was summoned at Stratford for furiously driving a motor-car. Constable 442 J said that on September 7th he saw the defendant driving a motor-car along the High Road, Woodford, and that he passed the witness at the rate of between eighteen and twenty miles an hour. The defendant gave an emphatic denial to the allegation. Three witnesses (one who was in the car with the defendant, the other a cyclist riding close to the car, and the third who was walking along the roadway) were called, and each of them stated that the defendant's testimony that the car was not going more than eight miles an hour was correct. The Bench retired to consider the case, and on their return into court Mr. J. T. East, the chairman, said the evidence was not sufficient to justify a conviction. The summons would be dismissed.

BEFORE Sheriff-Substitute Sym, at Dunblane on Saturday week, Alexander John Dixon, stockbroker, Springbank, Stirling, was charged with having on July 19th last, on the public road between Callander and Kilmahog, near Mill Farm, while driving a motor-car, negligently caused hurt and damage to a carriage with two horses, belonging to Robert Blair, hotel-keeper, Trossachs, the pole of the carriage being broken and the carriage otherwise damaged, and one of the horses injured. There was an alternative charge of driving the car on the wrong side of the road. Mr. Watson pleaded "Not guilty." After hearing evidence the Sheriff, in giving judgment, said the regulations for motor-cars embodied, as such regulations were wont to do, a good deal of the common law. The Sheriff instanced the case of horse vehicles in the same situation as the car and the landau, and said that if an accident had happened, and if the driver, coming slowly and carefully on his proper side from the east, had had his carriage and horses injured, he would say the driver coming from the west was responsible for the road offence through not carefully and properly driving his vehicle. What difference did it make for this vehicle, propelled by petroleum and driven by a man? None whatever. Mr. Dixon himself stated that he came down the road at ten miles an hour, without slackening speed at that blind corner. He came round the corner confident in his power to stop rapidly if he saw necessity. He saw the horses in front of him becoming restive. They became worse and worse, and at last he stopped because he could not go on. What did it matter whether he stopped thirty yards nearer the unfortunate man whose horses had shied? He thought it was an accident happening through the negligence of going round a corner on the wrong side of the road to his own at undiminished speed, and the going forward when the horses were obviously frightened. He thought it was a case that could have been prosecuted as a common law road offence, and could also be prosecuted under Article 4, Sub-Section 4, of the rules for the regulation of motors. He was prepared to find Mr. Dixon was responsible for a road offence in this unfortunate and, he was afraid, costly accident. He would find the facts proved in the conviction, and they amounted to negligent damage to this vehicle by the negligent driving of Mr. Dixon in the manner he had specified. He accordingly found the first branch of the charge proved. Mr. Dixon would be fined £5.

ON THE WRONG SIDE.

At the Leeds City Police Court, before the Stipendiary Magistrate, Harry Tate, a music-hall artiste, was summoned for having driven a motor-car on the wrong side of the road, and for furious driving. According to the police evidence, the defendant drove his motor-car up the near side of Briggate on Tuesday afternoon, and on passing the end of Commercial Street the car crossed to the other side of the road. The car was travelling at the rate of about twelve miles an hour. The defendant, in his evidence, said that he had driven from London to Leeds in the car last week-end. He denied that on Tuesday his speed exceeded six miles an hour. The summons for furious driving was dismissed, but the defendant was fined 10s., including costs, for driving on the wrong side of the road.

NO LIGHTS.

At the Hastings County Bench the Rev. Edward Mortlock, Vicar of St. Barnabas, Bexhill, has been summoned for riding a motor-bicycle without a light. Defendant admitted the offence, and Police-constable Budgen said it was twenty minutes after lighting-up time. The Bench imposed a fine of 2s. 6d. and costs.

At the Aylesbury Petty Sessions, Emil Laudet, motor-car driver to Mr. Fletcher, of Dadbrook House, Cuddington, was charged with failing to carry a red light on the rear of his motor-car in accordance with the provisions of the Locomotive Act, at Aylesbury on August 30th. The Bench inflicted a fine of £1, including costs.

OBSTRUCTING THE HIGHWAY.

AN important case has been heard at Scunthorpe, when Wilfrid Barlow, farmer, of East Butterwick, was summoned for wilfully obstructing the highway at East Butterwick on September 3rd by causing a plank to be placed across the road. J. W. Hanby, Scunthorpe, said that on the day in question he was travelling in a motor-car between Butterwick and Burringham with his wife, and in making a turn in the road he saw a plank, with one end resting on the Trent bank, and the other on trestles in a field on the other side of the road, and which was being used for conveying manure in barrows from vessels to the field on the other side of the road. He slowed down, but the plank caught his wife on the face. Mr. G. S. Sowter, solicitor, Brigg, who defended, said the question was a serious one for the residents at East Butterwick and the district generally. The manure was being delivered from the Trent to Mr. Barlow's farm. From time immemorial this had been the only way, and everything that came was practically delivered in this manner. There were six men employed on the job, and it was one man's duty to be at the plank to remove it for vehicular traffic to pass by. Mr. Hanby thought he could get under, and it was obvious that there was contributory negligence on Mr. Hanby's part. He maintained that it was only a temporary obstruction, and justifiable. The magistrates were of opinion that there had been obstruction in this particular case, and fined defendant 12s.

OBTAINING MOTOR-CARS ON TRUST.

At the Salford Police Court, two brothers, Frederick and Charles Ingham, twenty-four and eighteen years of age respectively, have been charged with stealing a motor-car, value £175, the property of the Manchester Motor-Car Corporation. It appeared that the prisoners called at the works of the company on August 30th, and offered to purchase a motor-car for £175. The elder prisoner said he would go to his solicitor for the money, but returned later and said the legal gentleman he had sought had gone home, but he would be able to procure the money on the Monday. He then requested to be allowed to take the car out for the week-end in order to learn how to manage it. This was agreed to, a mechanic in the employ of the firm accompanied them, and afterwards drove the car back to the yard. The prisoners, it is alleged, subsequently took the car from the yard and sold it for £50.

Mr. Arthur Booth, of Walkden, said he saw the prisoners with the car, which had broken down, near the Stocks Hotel, Walkden. They told him they were going to Blackpool, and he repaired the machine for them. They then asked him to buy it for £90, as after their experience of motor-cars they thought it would be better to keep to horses. He told them he would never give £90 for a broken-down car, but eventually gave them a cheque for £50 for the vehicle.

The prisoners, who reserved their defence, were committed to take their trial at the next Salford Sessions.

THE total length of the River Hill, up which the cars were timed in the hill-climbing tests in connection with the Reliability Trials was 1,228 yards, the average gradient being 1 in 12.5. Up Westerham Hill the cars proceeded 980 yards, the gradient being 1 in 9.4.

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THE Motor-Car Journal.

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PUBLISHER'S ANNOUNCEMENT.

In consequence of the very large increase in the circulation of the "Motor-Car Journal," the prices for all Advertisements have been advanced 20 per cent. All previous rates are now cancelled.

Cordingley and Co., Proprietors.

COMMENTS.

BEWARE of the dog" is an injunction of peculiar significance to motorists, and a canine census would not be without interest as revealing a multiplicity of dangers that is really alarming. In his paper on the "Sanitation of Streets," read before the Sanitary Congress, Mr. E. George Mawbey, of Leicester, said that in that town alone 7,280 dogs were licensed in January of the present year. The Midland town is not an exceptionally "doggy" place, and it may therefore be accepted as an average of the whole of the country. As a matter of fact, during the last financial year licences for 1,455,273 dogs were taken out at a cost of £572,101 to their owners, so that this motorists' terror brings a revenue of more than half a million sterling to the income of the Government. But it is safe to assume that another half million dogs live without licences, so that the chances of annoyance, even of danger, to the automobilist run into several figures. Verily people have much to do if, when horses have been accustomed to automobiles, attention is turned to the education of the dogs that rush in front of motor-cars in frolicsome fashion, daring death with the pleasurable feeling with which the heathen warrior goes into conflict.

Halifax Automobile Club.

LAST week the members of the Halifax Automobile Club had a run to Higher Hodder, by way of Hebden Bridge and Todmorden, and along the Burnley Valley to Burnley. The party, which consisted of the president, Alderman J. T. Simpson, Mr. James Lord, the vice-president, and other ladies and gentlemen, afterwards journeyed to Whalley, *via* Padiham, and on to Higher Hodder, where lunch was served. The homeward journey was commenced before four o'clock, and home was reached about 7 p.m. The weather was very favourable, and the outing much enjoyed.

The Control of the Highways.

It is apparent that, as the automobile is fast becoming the successful rival of the railway locomotive, and that not merely for pleasure purposes, but for the furtherance of trade and agriculture, the maintenance of efficient main roads is not a matter which can be left to the locality, but is a question of national importance. Besides, it would be unjust, even if it were possible, to require poor and thinly-inhabited areas to crush themselves with heavy rates for the maintenance of good roads, chiefly for the benefit of through traffic. By-roads are another matter, because the benefit derived from them is almost exclusively confined to the places which they serve. The principle,

then, of the liability of the national exchequer for the cost of main roads may be considered as established, says the *Field*, and the Commissioners lately inquiring into the subject address themselves to the question of the machinery of road maintenance. One obvious method would be to transfer the whole responsibility to the central Government. It would certainly result in unity of administration and economy of staff, and probably in the elimination of the unpleasant element of local jobbery, for the jobs of an obscure local authority escape the fierce light which beats upon the shortcomings of a great department. But this ideal the Commissioners think "must be dismissed as impracticable," and certainly the tendency of the day is setting strongly towards decentralisation.

More Prosecutions.

THE crusade against motorists seems to have extended throughout the county of broad acres, and at Thirsk, York, Wetherby, Bradford, Halifax, and elsewhere prosecutions have taken place, which show that the police are responding to the call of the various district and rural councils that have lately passed resolutions against speedy means of locomotion on the public highways. It is very evident that the battle royal between motorists and the police will not be limited to the south, and the conviction of the Premier's driver is an interesting point, the influence of which cannot fail to be for the benefit of the automobile fraternity. Mr. Chaplin, the author of the present regulations, has declared that they are wholly unadapted to the present condition of things; and the Premier recognises, too, that they seek to perpetuate a slowness of movement which is not compatible with the temper of a high-powered car.

Motor-Cycles for Doctors.

DR. EDWARD PHILLIPS, of Coventry, has had a motor-bicycle constructed on his own lines, so that the inside of the frame is open, like an ordinary bicycle. The engine is placed behind the bottom bracket, and the petrol tank in front of the handle-bar, so as to allow the carrying of bags or other paraphernalia required by the doctor. The wheel-base is some 6in. longer than the safety bicycle, which makes it easier to steer. The engine is of 2½-horse power, thoroughly silenced, and the total weight with everything on is between 70 lb. and 80 lb. He had no difficulty in learning to ride; the first time he mounted it he rode straight away, all his previous fears vanished. In his opinion a motor-bicycle in a practice could well take the place of two horses, and should give little or no trouble providing ordinary details were regularly attended to.

The Automobile Volunteers.

ENROLMENTS in the Automobile Volunteer Corps are proceeding rapidly, among the latest recruits being Sir J. H. A. Macdonald, P.C., K.C., the Lord Justice Clerk of Scotland, and Mr. Rudyard Kipling. London and the suburbs supply forty members, Ireland one, Scotland five, and the South of England makes up the number to 130. So far the northern counties are unrepresented in the Corps, the organisation of which into districts will shortly take place. Many militia

and volunteer officers have offered their services, and it is hoped that many other recruits will send their names to Mr. Mark Mayhew, at Scio, Putney, S.W. We believe that members will be expected to qualify in signalling both with flag and flash-light, and it should not be difficult to fix a shutter for this latter purpose to acetylene lamps. It is also suggested that members should go through the usual volunteer course of rifle shooting, and it would be very valuable to have as many expert revolver shots as possible.

Mr. W. S. Gilbert's View.

Mr. W. S. GILBERT has taken to motoring, and is the possessor of a steam car. Already he has learned a few things about automobilism, and has "found reason to believe that the twelve-mile limit is quite reasonable and should not be exceeded." Really we should have thought that one who has contributed so much to the glories of the Savoy and to the gaiety of the nation would have proved other than a slowcoach. But such, it seems, is the early judgment of one of the latest converts; when he has had a longer experience we shall be glad to have the fruits of his matured knowledge and experience.



THE MEET OF THE LINCOLNSHIRE, YORKSHIRE, AND SHEFFIELD AUTOMOBILE CLUBS AT BAWTRY.

Photo by

[Mr. S. G. Lovell.]

At Bawtry.

At the meeting of motorists at Bawtry there were between forty and fifty motor-vehicles of various kinds, including a large number of motor-cycles from Sheffield. Most of the cars hailed from Bradford, Leeds, or Nottinghamshire, and their presence in the place made a considerable stir.

In the Air.

SIR THOMAS LIPTON, whose zeal as a sportsman is extending in many directions, is said to be contemplating an excursion into the clouds. Having attained distinction as a yachtsman and having served his motoring novitiate, Sir Thomas now contemplates a cross-Channel trip with the Hon. C. S. Rolls, and in the event of the voyage being made the balloon will probably be followed by the steam yacht *Erin*. On Saturday he had a busy day on shore and sea. Princess Henry of Battenburg terminated her visit to the Empress Eugenie at Farnborough on that day, and Sir Thomas Lipton, who had four motor-cars in readiness, drove her Royal Highness, the Princess Ena, the Duke of Alba, and other guests to Southampton, whence they were conveyed to his yacht *Erin*, lying in Southampton Water, where luncheon was served. During the motor-car trip they had an opportunity of seeing the stretch of road upon which the oil experiments were being carried out.

The Petroleum Treatment of Roads.

ADVANTAGE was taken of the fine weather which prevailed at the end of last week to carry out the proposed experiment with oil upon a portion of the London and Southampton road between Farnborough and Aldershot. This is a thoroughfare much frequented by motorists and cyclists and is near the great camp of the First Army Corps. Two thousand five hundred gallons of Texas heavy oil were supplied for the purpose by the proprietors of the *County Gentleman*, and the oil was placed upon the road under the immediate supervision of the County Surveyor of Hampshire. The oil was laid upon three-quarters of a mile of road commencing at the 32nd milestone from London. Several dressings were given, the oil being first distributed by means of a watering cart, and subsequently, in order to secure an even distribution, the men went over the length with large watering cans. The oil soaked quickly into the road and left the surface well knit and firm. The treatment was immediately successful in preventing dust. On the Sunday a large number of motor-cars passed along the road; on the oiled portion they raised not a speck, but immediately that was passed they disappeared in a whirlwind of dust, similar, in fact, to the effect illustrated in our last issue. It was feared that the smell from the oil would be found objectionable, but the odour was much less than was anticipated, and, while objected to by some people, was considered by others to be not unpleasant. It is now rapidly passing away.

The Experiment to be Watched.

A LARGE number of questions have to be decided in connection with this experiment, such as the relative cost compared with watering, the effect of the oil in consolidating and preserving the road, the extent to which it will prevent the formation of mud, etc. In due course a report dealing with these and other points will be issued by Mr. W. J. Taylor, the County Surveyor of Hampshire, and Mr. W. Rees Jeffreys, the hon. secretary of the Roads Improvement Association, under whose joint direction the experiments have been made. It is hoped, however, that the one treatment with oil will for many months render watering or a further application of the oil quite unnecessary. It would be interesting, and also add to the value of the information obtained in connection with the experiment, if motorists passing over the oil-laid surface would send us their views as to the efficacy, or otherwise, of the treatment.

The Effect of Oil on Tyres.

WE have been in communication with Mr. Frank G. Howell, the County Surveyor of Surrey, with regard to his opinion as to the experiments now being carried on in oiling roads. Mr. Howell is naturally very much interested in the subject. He is not, however, very sanguine of the success of the innovation; and he states that from actual experiments he has made he has satisfied himself that nearly all oils have a very deleterious effect upon rubber tyres. He is afraid that even if the roads are by the use of oil rendered more convenient for motorists, the life of the tyres will be considerably shortened.

Sensible.

A PROPOSAL for the licensing and numbering of motor-cars has been made at a meeting of the Fenge Urban District Council, but we are glad to hear that the Chairman of the Council, Mr. Bryce Grant, recognised the folly of such innovations, remarking: "All this interference with a great industry appears to me to be quite out of order, and it is a pity local bodies have nothing better to do." But these are the days of meddlesome interference by many local wiseacres, who have to denounce something or other in order to secure some meed of newspaper recognition.

The Tyre Trials.

SEEING that the seven competitors left in the Tyre Trials were going so well at the conclusion of the 3,000 miles the judges decided that another thousand miles should be added to the distance, and during the past week the vehicles have been continuing their runs. It is remarkable that on the 25th ult., when the run was to Norman Cross and back, not a single mark was lost by any competitor, the record in each case being "tyres untouched." The summary of marks last week was as follows:—

	Marks lost 4th week.	Total to end of 4th week.
1. Dunlop	6	39
2. " ... ..	...	56
3. "	73	133
4. "	62	262
6. Maison Talbot	330	449
7. Collier	3	37
12. E. Midgley	28	66

More War Office Trials.

A CURIOUS motor-wagon for military use, capable of a speed of eight miles an hour, has this week been experimented with at Aldershot by the War Office Committee on Mechanical Transport. The vehicle is of German design and construction, and is being introduced into this

20-h.p. oil engine, having axle or driving wheels 2 ft. 2 in. diameter, and road rail-rings 7 ft. 6 in. diameter and 6½ in. wide. The results then obtained showed that the provision of the road rail-rings minimised many difficulties previously encountered in driving motor-vehicles over uneven surfaces, and at the same time reduced the customary cutting-up of soft road surfaces where heavy loads were hauled over them. The trials at Aldershot commenced on Monday, and have been continued all the week.

Engineers and Automobillism.

It is evident that the automobile will form one of the most attractive subjects of discussion at meetings of engineering societies during the coming winter. At the opening meeting of the session of the Leeds Association of Engineers, the President, Mr. G. W. Blackburn, referred to automobilism and condemned the present restriction of speed. British engineers had been left far behind by French, German, and American engineers, who were filling our markets. It was only after seeing what was done in France that the trade in this country had its eyes opened and went into the business, though they would soon find themselves checked if the law were not amended. On the 17th inst., at the meeting of the Institution of Mechanical Engineers, Storey's Gate, St. James's Park, S.W., Captain Longridge, M.I.M.E., will read a paper on "Oil Motors of 1902," when there should be a useful interchange of ideas. Invitations can be obtained by



ON THE WAY TO JERICHO—LONG ISLAND, U.S.A.

[Automobile Topics.

country by Mr. C. T. Crowden, of Leamington. An illustrated notice of the machine, which is known as a "rail ring tractor," was published in our issue of March 24th, 1899, but a few brief particulars may again be given. In appearance the tractor is somewhat like a tramcar, but its body is articulated in the centre, and the wheels and axles are mounted on springs and fitted with horn plates similar to an ordinary railway or tramway vehicle. Instead, however, of running on the road they run inside large iron rings which virtually form road wheels, the car thus, as it were, laying down a line of rails to travel over as it goes along. Inside each road-ring is bent and secured a rail of light section in which the main axle wheels are constructed to run. The wheels are driven by a suitable motor and gearing, with change-gear apparatus fitted in the body of the vehicle, and both pairs of axles are driven so that the tractor drives with all four wheels through the road-rings (without racks and pinions and cogs) without any of the difficulties hitherto experienced with traction engines. All four road wheels are drivers, and also steerers, and the control of the vehicle can be effected from either of its ends, both platforms being provided with the necessary levers controlling the gear. Mr. Crowden conducted trials with one of these vehicles at Horstell, Westphalia, two or three years ago. The tractor was fitted with a

those interested in the industry from the Secretary of the Institution.

Small Boys and Large Carts.

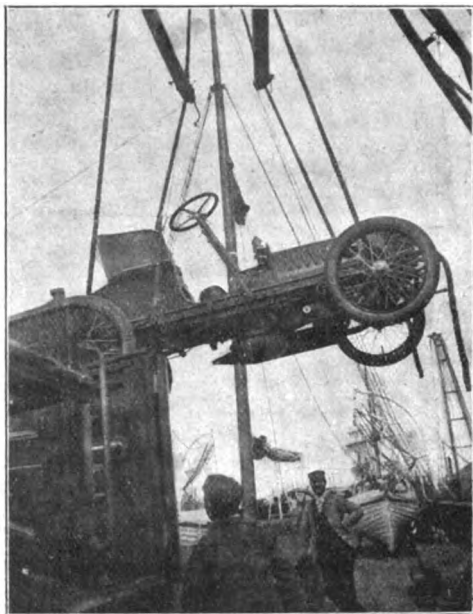
MR. ALEXANDER ILES, of Fairford, who is an influential farmer in the "West Countree," complains that it is "absolutely unsafe for small boys to drive our wagons and carts on the road" in consequence of the presence of motor cars. Motorists have a just cause of complaint against junior lads who are sent out in charge of farmers' vehicles, and it will have to become the duty of those in authority to see that no one is allowed in charge of any vehicle unless he has proved his fitness to drive. This is a rule that should apply equally to vehicles whether drawn by animal or mechanical power.

Lord Kitchener in Suffolk.

WHILE in Suffolk last week Lord Kitchener had a pleasant motoring experience. Mr. A. F. Garnham, of Ipswich, supplied three motor-cars for that trip from the town to Aspell Hall. Along the Henley Road the travellers went to Brook House, where a short halt was made. Resuming the

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journey and passing through the villages of Crowfield, Pettaugh, and Debenham, Aspall Hall was reached in good time. The motor-car in which Lord Kitchener rode was a 12-h.p. Clement, with tonneau body, driven by Mr. Garnham. The second car was an 8-h.p. Renault, driven by Mr. Strutt. A table of the times of passing through different villages had been drawn up, and was kept to the minute, the journey being alike pleasant and expeditious, though one somewhat odd incident of it was that the leading car ran over and killed a chicken.



AN EVERYDAY SCENE AT SOUTHAMPTON.

Photo by]

[Mr. D. M. Weigel.

A Social Distinction.

MR. T. P. O'CONNOR is a convert to automobilism—a result of a personal experience from Vichy to Rogat, whither he was driven by Mrs. Clarke, a lady who has motored through Europe and who followed the Paris-Vienna race through most of its stages. In *M. A. P.* the genial "Tay Pay" discourses of the social distinction that the automobile secures—or rather the lack thereof that its want of possession indicates—and concludes with the practical note that "plenty of land and houses which now go for a song will rise in value when the automobile becomes general, for distance will be abolished, and people won't mind whether the country house is near or far, and whether there is a good or bad train service."

The Sheffield Automobile Club.

It is calculated that there are about 120 owners of motor-cars and motor-cycles in and around Sheffield, and, as already announced, the idea of an Automobile Club for the locality has been entertained for some time. This has just been inaugurated at a meeting at the Wharnccliffe Hotel, when Mr. E. F. Coupe presided over an attendance of about sixty. The provisional committee had previously discussed the details and recommended that a club should be formed for Sheffield and district; that the subscription should be £1 1s. per annum; that an entrance fee should be imposed after December 31st next; and that the club should become affiliated to the Automobile Club of Great Britain and Ireland. The first recommendation, that the club should be for Sheffield and district, was unanimously agreed to, on the motion of Mr. E. Hill, seconded by Mr. H. Barber. The question of the subscription was dis-

cussed at some length, and it was ultimately agreed that it should be £1 1s. for the first year. The entrance fee was fixed at £1 1s., and it was resolved that it should be enforced after the 31st December, or when fifty members had joined the club. The next part of the business was the election of officers. Mr. J. R. Wade was chosen as secretary, and Mr. E. Coupe was elected as treasurer. A committee of ten members was elected as follows: Messrs. P. Fawcett, E. H. Hill, J. T. Thompson, E. Ledoux, F. B. Cawood, B. Hind, J. W. Needham, W. Coldwell, A. J. Blythe, and W. James. Before the meeting concluded the names of thirty-six gentlemen had been received as members.

Motor-Cars and Matrimony.

MATRIMONIAL alliances are always venturesome exploits, and some of our readers are apparently inclined to regard wedding trips by motor-cars as adding too greatly to the risks of newly-married couples. But there is no need for uneasiness. In connection with the motor-car wedding in Lincolnshire, to which reference was made last week, we learn that neither the happy pair nor the clergyman had been on a car before, yet they thoroughly enjoyed the experience. On Saturday a wedding took place at St. Mary's, Lewisham, when the bride and bridegroom as well as the guests were conveyed to and from the church in electrical automobiles. It is a pity that when motor-car weddings are becoming so popular anything should be heard likely to discourage the practice. Hence the regret with which we record the fact that the wife of Dr. Pine, of Chicago, is suing for divorce on the ground that her husband, who is the owner of two automobiles, devotes too much of his time to them, and in consequence neglects his better-half.

An Interesting Rumour.

THE Surrey Police have for the last few days chosen the Fair Mile on the Ripley road for the purpose of trapping motorists, but, fortunately, owing to the many friendly warnings, not a single capture has been effected. We passed on Saturday, Sunday, and Monday, and in each instance the police were on the *qui vive*. On Saturday, however, in Ripley village, there were no police about, owing, we were informed, to the fact that the redoubtable Inspector Jarrett was taking holiday, previously, it was suggested, to his succeeding Capt. Sant as head of the Surrey County Constabulary.

The 40-h.p. Mercedes.

ON Tuesday morning, at Southampton, we took possession of our new 40-h.p. Mercedes Simplex. The night had been a stormy one and the Havre boat was two hours late. Those in charge of the car had a somewhat anxious time, as the waves were continually dashing over the vessel. However, the car with its limousine body escaped injury, and it was with delight that we got on board for the purpose of driving it to London. Barring had punctures—two great holes in a new 120mm. tyre—we had a lovely trip to town, the car pulling beautifully and running most quietly. Going up Winchester and other hills was a delightful experience, and passing through London on the fourth speed, at about seven miles an hour, seemed somewhat novel, the car travelling with the silence of an electrical vehicle. The elasticity of the Mercedes motor is remarkable, and the system of governing on the throttle enables the merest tyro to drive a car with comparative ease.

Yorkshire Automobile Club.

MANY members of the Y.A.C. accepted Mr. and Mrs. Walter Jackson's invitation to Harrogate on Saturday last, and a very enjoyable half-day was spent there. Most of the members and friends met at Pool Bridge, and shortly after a general move was made towards Harrogate. As the road was mostly

on the rise, it enabled all the drivers to put on all speed. However the police had got scent of the run, and had a measured quarter of a mile nicely prepared near Weeton. Luckily the first car saw the signal of a dropped handkerchief, and gave warning for all cars to stop, after which delay the run was continued towards Harrogate, where the cars were drawn up on the Stray. Whilst here it was noticeable that two or three horses were being accustomed to the cars by being walked around them, and after a short time took no notice whatever. Afterwards the cars were put under cover in the spacious yard of the "Prince of Wales" Hotel, where tea was partaken of. Mr. Heeper proposed a vote of thanks to Mr. and Mrs. Jackson for their kind hospitality, which was heartily seconded by Mr. H. R. Kirk, and suitably replied to by Mr. Jackson on behalf of Mrs. Jackson and himself. Amongst those present, in addition to those who have been mentioned, were Mr. and Mrs. Faires, Mr. Broadbent, Mr. Booth, Mr. Dixon, Mr. Jones, Mr. Berry, Mr. A. Lancaster, Messrs. L. and H. Hey, Mr. A. Farnell, Mr. and Mrs. Heeper, Mr. T. Chippendale, Mr. Borland, Mr. and Mrs. Wharam, Mr. and Mrs. Brookes, Mr. and Mrs. Jessop, Mr. Atkinson, Mr. Winn, Mr. Greenwood, Mr. A. W. Dougill (hon. secretary), Mr. E. Dougill, Mr. Meyer, Mr. Pickles, Mr. Firth, Mr. Dawson, Mr. and Mrs. Burrows, Miss Burrows, Mr. Harrison, and Mr. Knowles.

Delivery Vans for Fruit.

WHEN the trials of delivery vans take place we hope the needs of fruit-growers will be considered. The present system of the railway companies is very unsatisfactory. One Kentish grower says that to protect his fruit from the tender mercies of the railway porters at Farleigh he was eventually compelled to send his own workmen to load the baskets. But the hapless plums or strawberries, as the case might be, still had to suffer the ordeal of unloading by careless hands on arrival in London. If motor-vehicles were employed they would be able to take the fruit direct from the orchards to the market with the minimum of handling. The question of rates of carriage and that of the need for increased speed of transit are two particularly sore points with Kentish growers. Hence the hope that makers of motor-vehicles will not ignore the wants of the fruit growers.

Two Suggestions.

ACCORDING to Colonel C. G. Edwards, of Wicklesham, Faringdon (who is a chairman of petty sessions), there are two amendments to the existing law with regard to automobiles which are essential in the interests of the community. He urges that the law ought to enact that drivers should, upon a person holding up the hand, be required no longer to stop but to slow down to a speed not exceeding four miles an hour. The other point upon which he has a strong opinion is with regard to the noise of motor-cars. It should, he says, be made a penal offence to drive a motor-vehicle which is not noiseless when stationary and practically so when in motion.

Sensible Scotland.

THERE is evidently more common-sense applied in the administration of the law in Scotland than on this side of the border. The question of the speed at which motor-cars may safely be propelled has been raised in Forfar Sheriff Court, when James Robertson, Tachbrook, Leamington, admitted having, on 7th September, on the public road between Edzell and Brechin, driven his car at a speed exceeding sixteen miles an hour. Mr. Charles M'Nicoll, depute procurator fiscal, stated that the accused had gone from Brechin to Edzell and returned at a speed of sixteen miles. There was no evidence, however, of anyone having been annoyed or alarmed. Sheriff Lee said there had been a plea of guilty, but he was not going to impose a penalty. He must repeat what he had said on a former occasion, that this was an Act that must be administered with

common-sense. The progress of science had considerably altered the methods of modern life, and there was no doubt that motor-cars were now a very common means of locomotion. These machines were advertised in all cases as going at a greater speed than twelve miles an hour, and if this Act was intended to be strictly and literally enforced it would be an offence to so advertise the machine for sale. In the present case, while there had been a contravention, it was not necessarily a contravention that the police were bound to take notice of. It must be presumed that if the legal speed was exceeded, and if any accident occurred, or if drivers of motor-cars caused annoyance to anyone, the party was prepared to take the consequences. On the other hand, if the twelve miles limit was exceeded in a place where the rapid pace could do no harm to anyone, and if the driver was a sensible and careful person, willing to stop or slow down when called upon, his lordship was prepared to give a reasonable interpretation to the Act.

Two Locomobiles have lately made their appearance in Colombo, Ceylon.

MR. FRANK WELLINGTON has sold his four-cylinder Panhard to Mr. Arthur Collins, of Drury Lane Theatre.

THE attention of the police of Dumfriesshire is being called to the speed of motor-cars travelling on the roads of that county.

THE Motor Power Co., Limited, is at work on a silent Napier petrol brougham for town use. The first is being built for Mr. S. F. Edge, who will run it constantly before the brougham is placed upon the market.

IN connection with the recent Reliability Trials, letters containing objections to marks have been received from a few competitors, and the judges were to meet on Friday (yesterday) to consider these. If found necessary, the marks will be re-adjusted before arriving at the final decision as regards awards.

MESSRS. GEORGE F. MILNES AND CO., LIMITED, have secured the sole agency for the Daimler Motoren Gesellschaft for Great Britain and Ireland, its colonies and dependencies. In addition to public service and goods vehicles, the Mercedes Simplex cars for 1903 will be built in various sizes, ranging from 8-h.p. to 60-h.p.

WE understand that a man representing himself as Ernest Cordingley is fraudulently introducing himself to American automobilists as a brother of Mr. Charles Cordingley of this Journal. We would ask our American contemporaries to announce that Mr. Cordingley has no brother of the name of Ernest and no relative in the United States. The alleged Ernest is an imposter.

IT is announced by telegraph that at the second annual race meeting of the Rhode Island Automobile Club, held on Thursday last week, Mr. George C. Cannon drove the steam racer of his own make, illustrated in a recent issue, one mile in 1 min. 5 1-5 secs. The young student afterwards made a new world's record for steam vehicles for five miles, his time for this distance being 6 min. 5 sec.

ALTHOUGH the North London Railway Company only owns twelve miles of railway, its engines work over more than 100 miles of "foreign territory," and only one-quarter of a mile of the North London line is not used by other companies' engines. A brief history of this interesting little line has just been written and published by Mr. A. J. Chisholm, of 54, Lordship Lane, N., in which are a few useful suggestions to the directors. The North London Railway and its connections are associated with some pleasant suburbs familiar to motorists, including Potter's Bar, High Barnet, Wood Green, Enfield, etc.

THE Manchester Automobile Club had its tenth and last run of the 1902 season on Saturday last to Congleton. This old Cheshire town is situated in the midst of delightful scenery, and is within easy distance of Moreton Old Hall, the manor house which was the locale of Miss Amelia Edwards' well-known novel "Lord Brackenbury." It was the intention of the Club to call there on the return journey, but dinner being rather late, darkness set in too soon to carry out this intention. Nearly forty members and friends sat down to dinner at the Lion and Swan Hotel; the start for home being made between seven and eight o'clock.

THE POLICE AND THE CAR.

THE development of the automobile is having its effect in many ways, but perhaps none more so than on the methods, and one were inclined to add the manners, of the police. There is hardly a police-court of the country which is not an evidence of the prejudice which the blue-coated representatives of the law entertain towards the automobile, and although there have been some examples of fairmindedness among chief constables and others in authority, it must be confessed that in the majority of cases the police have not preserved that attitude of impartiality which characterises them in many departments of their work.

The plan of measuring a certain distance along the road, stationing one policeman at one end and another at the other extremity, both armed with stop watches, and signalling by raising the arms from one to the other, has been adopted practically throughout the south and eastern counties, and is steadily working its way further north. Although to the lay mind this may seem an accurate method of gauging the speed of motor-cars, it is very certain that in nine cases out of ten it gives very inaccurate results. The raising of the arms two or three seconds after the car has passed will, of course, affect the rate of speed when only a short



"£5 AND COSTS."

distance is measured. It is really remarkable that country magistrates should not see this, but they are apparently prepared to accept it as veracious evidence that cannot possibly be disputed. But the measured mile is not the only means by which the modern policeman pursues his avocation, for in Berkshire police constables have lately been observed in plain clothes prowling about with telescopes, and although their attentions have up to the present time been restricted to the gangs of lads who create a nuisance in every small town, there is little doubt that the telescope will shortly play its part in connection with the prosecution, or we should say, the persecution, of automobilists. Some two or three years ago at Yarmouth opera glasses were used by the police for watching motorists going at a fairly rapid rate of speed along the front, so that the telescope is not nearly so problematical as it would appear at first sight.

In the early days of the motor-car in this country, the police in one Buckinghamshire town are said to have placed trees across the roadway to stop the progress of advancing motorists. Fortunately the public outcry prevented the continuance of this policy and so no harm was done, but it is a useful reminiscence as illustrating to what extremes the police will go. Only the other day, when many who had been in procession to one southern resort were

returning to town the police were found to be hiding not only behind hedges, but also in farm buildings, and some of the least frequented parts of the main road. The policy then adopted seems to have been very successful from the point of view of the county authorities, for the fines imposed at one court alone as a result of the police activity amounted to nearly £40, and very good hauls were made at three or four petty session courts in Surrey in connection with that event. Mr. J. A. Holder, of Birmingham, was among the victims on the particular occasion referred to, and his interview with the policemen is photographically recorded in the accompanying illustration.

There is one suggestion that has not yet been tried by the police, and which if adopted would do much to secure the end they have in view, which is apparently the driving of motorists off the main roads of England. If the county authorities would provide them with guns they would be able most effectually to arrest the progress of motorists whom they wished to secure for further identification, and, although the proposal may appear to be somewhat farcical, it is about as sensible as some of the means already adopted by the police in their campaign against modern users of the public highway.

Whilst thus giving publicity to the antics of the police in this matter, we would also suggest to motorists who are in the habit of maintaining the legal limit on their journeys, that they should preserve a civil attitude when passing the limbs of the law, and should also be extremely careful, when going through villages and towns where people congregate in little knots, often on the roadway, instead of keeping to the paths which are exclusively their own. In the present state of public opinion it behoves all interested in the movement to exercise proper care and a steady reasonableness, so that no excuse can be made for the introduction of legislation or regulations calculated to further restrain the ardour of motor enthusiasts.

GREAT activity against motorists is being shown by the police of the North Riding of Yorkshire.

THE Automobile Club of Basle, Switzerland, will hold its autumn run on the 11th and 12th inst., the destination being Solothurn.

THE Liverpool Watch Committee recently made a test of one of the Merryweather steam motor fire engines, which was driven from Preston to Liverpool after the Lancashire Agricultural Show.

UNDER the name "Plaxine" a new liquid to make motor-brakes grip, and to remove grease and oil from any part of motor-cars, is being introduced by the Plaxine Company, of Burnham, Somerset. We have received a sample of the liquid, which we intend submitting to trial.

AT the race meeting held on the 16th ult., under the auspices of the Automobile Club of Cleveland (U.S.A.), Mr. Alexander Winton on his "Bullet" racer made a new record by covering ten miles in 10 min. 50 sec. The fastest mile was done in 1 min. 2 sec.

THE Long Island Highway Protective Society has been formed at Oyster Bay, N. Y., U.S.A., to protect all users of the highways of that section from the encroachments of automobile users, to co-operate with the authorities in the enforcement of laws governing the operation of automobiles, and to promote legislation against the reckless driving of motor-vehicles on public highways.

THE members of the Metropolitan Fire Brigade stationed at the head-quarters at Winchester House, Southwark Bridge Road, S.E., have made a trial trip with a new motor steam fire-engine, built for experimental purposes, which has aroused considerable interest. The motor-engine resembles an ordinary steam fire-engine. The driver is seated on the front part of the vehicle and controls the driving gear, and a fireman stands at the back in the same way as the "steam man" does at the present time on the ordinary fire engine.

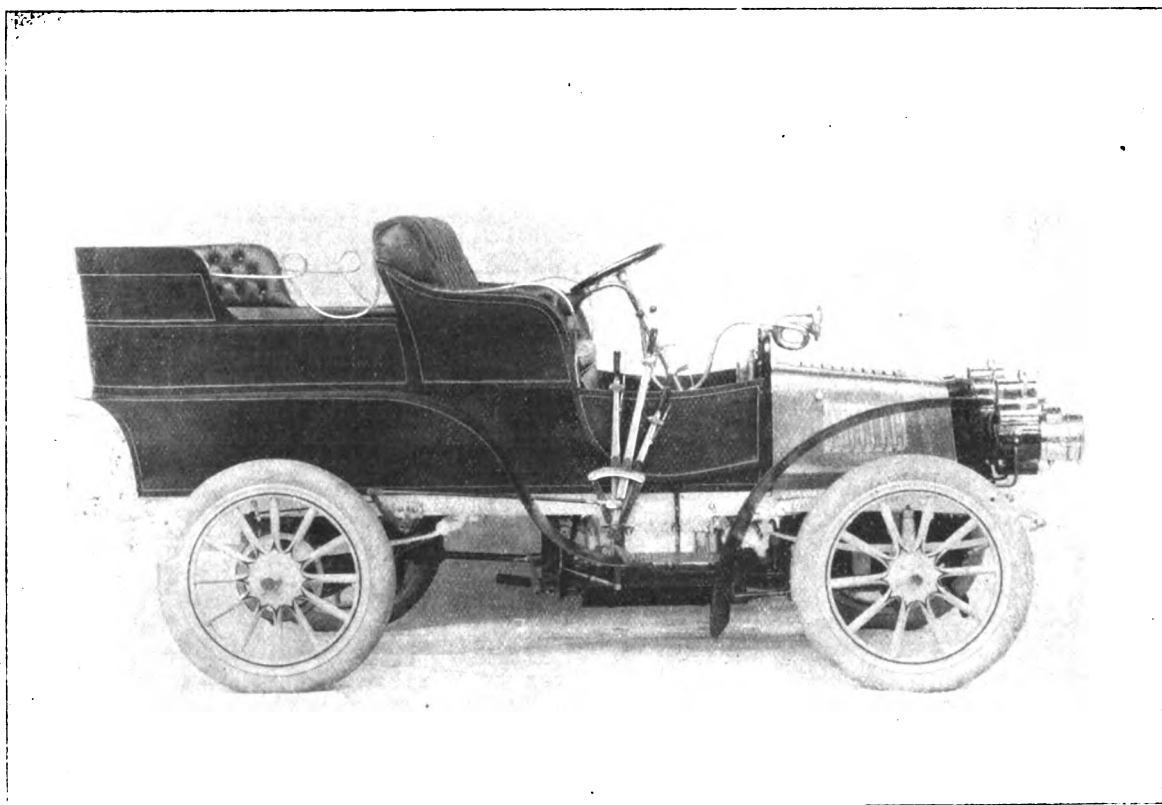
THE "VELOX" PETROL CAR.

AMONG the latest firms in the Midlands to take up the construction of motor cars is the New Amalgamated Tyre Company, Limited, which has secured the services of an engineer who until recently was the works manager of one of the leading English motor companies. Two types of cars are being turned out—a two-cylinder 10-h.p. and a four-cylinder 20-h.p.—an illustration of the former with tonneau body being given herewith. The frame of the 10 h.p. vehicle is built of steel and ash; in the fore part, under a bonnet, is set the two-cylinder vertical motor. The cylinder diameter is $4\frac{1}{4}$ in. and the stroke 5 in., the normal speed of the engine being 800 revolutions per minute. The cylinders are water-cooled by means of a self-contained pump; the radiator is located forward of the bonnet, while the water tank is situated in front of the dashboard behind the engine, thus shortening all water connections. The "mixture" is furnished by a carburettor practically on the lines of the Panhard Centaure type. Electrical ignition is fitted, while the governor is arranged to automatically act on the admission pipe.

than those usually adopted. The road-wheels are of the artillery type, all being 32 in. diameter and shod with $3\frac{1}{2}$ in. pneumatic tyres.

The body is of the usual tonneau pattern, but is far more roomy than usual, and has several features which, if not novel, are seldom met with. Among these we note a false bottom in the rear portion of the car, providing space for a complete spare tyre. In the tonneau portion an auxiliary seat is also provided, giving accommodation for three persons if necessary. The occupants of the front seats are well protected from any side winds or draughts by the provision of side doors, which also add to the appearance of the body. The 20-h.p. car is on similar lines to the 10-h.p. above described; both will be on view at the next Exhibition at the Agricultural Hall.

We understand that the directors of the New Amalgamated Tyre Company, Limited, are forming a small subsidiary company to take over the motor business. The capital is fixed at £50,000, about half of which will be working capital. The management of the Motor Company will be in the hands of the directors of the New Amalgamated Tyre Company, including Mr. R. C. Power



GENERAL VIEW OF THE "VELOX" 10-H.P. PETROL CAR.

Passing now to the transmission we may mention that the car is gear-driven throughout. The power of the motor is transmitted through a self-contained clutch to a gear-box, giving four speeds ahead and one reverse. From the gear-box a special longitudinal shaft, having both universal and telescopic joints, conveys the power to the rear live axle through bevel gearing. The clutch is so designed that there is claimed to be no end thrust, while the change-speed gear is of the type in which, on the high speed, a direct drive is obtained. Special attention has been devoted to the gear wheels and axles, these being of ample proportions. The inclined wheel steering is of the worm and sector irreversible type, and the front axle is a solid forging. Both foot and hand brakes, acting on water-cooled drums, are provided, these working equally well whether the car is running in a forward or rearward direction. The wheel base of the car is 7 ft. and the track is 4 ft. 3 in. The whole carriage is exceedingly well sprung owing to the fact that the springs are much longer

(chairman) and Mr. A. E. Harris (managing director). The works are admirably suited to the manufacture of motor-vehicles, being spacious and equipped with modern labour-saving machinery.

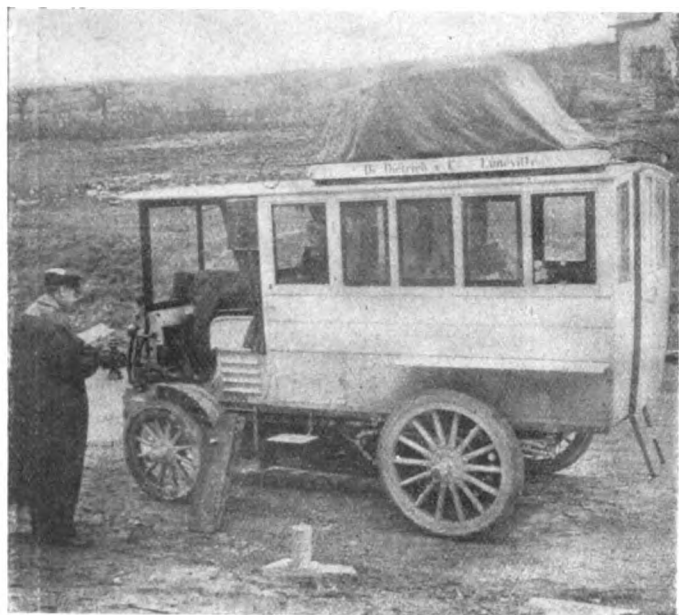
IN the current issue of the *Tatler* is a photo of Mr. Charles Cordingley, on his 9-h.p. Napier, taken last year at Penrith.

THE Hozier Engineering Company's agreement with their London agents has now expired, and while arrangements are being made for future London representation, the Argyll cars can be seen at 103, Long Acre, London, W.C.

JUDGED from the railway, the building of the Ryknield Motor and Engine Works, at Burton-on-Trent, is steadily proceeding. The opening of the works in the near future will be an important event in the town, which is, at present, dependent upon a single industry.

THE DE DIETRICH PUBLIC SERVICE OMNIBUS.

THE De Dietrich Company have at present two omnibuses which run between Luneville and Blamont, France, a distance of 17.4 miles, each making two round trips per day. The service has been working satisfactorily since the 27th January last, and is stated to show a considerable profit. This type of omnibus can carry twelve persons in the interior and two on the front seat beside the conductor, as well as 440 lbs. of baggage on the roof, the average speed being twelve miles an hour and the maximum speed eighteen miles on a level road. The weight of the vehicle in running order is 3,630 lbs. The figures for the consumption are as follows:—Petrol, 1 gal. per 9 miles; oil, 1 gal. per 200 miles; water, 1 gal. per 16 miles. The petrol reservoir contains 112 gal., and the water reservoir 84 gal., this allowing a sufficient reserve for an entire day. The following are the principal data for this type of omnibus. The motor, which is of the horizontal two-cylinder type, giving 12 horse-power, is connected with the countershaft by a belt working on a fast and loose pulley, and the speed-changing is carried out by a gear-shifting



device and chain transmission. The maximum width of the vehicle is 7 ft.; the total length 13 ft.; and the distance between the axles 7 ft. 2 in.

According to the official report of the consumption trial which was organised by the *Auto-Velo* in February last, a De Dietrich omnibus of the type illustrated consumed in the trip of thirty-six miles from Paris to Longjumeau and back 3.36 gal. of petrol. The gross weight of the vehicle was 6,360 lbs., including a load of 2,332 lbs. The omnibus made the trip in 3 h. 36 min., including a stop of fifteen minutes at Longjumeau. The consumption of petrol per ton-mile was 0.031 gal. These figures with regard to the efficiency of the vehicle are even better than those stated above by the De Dietrich Company. During the competition of heavy-weight vehicles which was organised by *La France Automobile*, the De Dietrich vehicles gave a remarkable example of efficiency and endurance. The route was from Paris to Nice, and was covered by the vehicles in successive stages, the trip lasting eleven days. All the cars entered by the De Dietrich Company arrived at Nice in very good condition, after having made the run of 660 miles without having to stop for repairs of any kind.

THE Mayor of Maisons-Laffitte, France, has issued a regulation restricting the speed of motor-cars in the town to five miles per hour.

CONTINENTAL NOTES.

BY AUTOMAN.

THE question why France is the chief centre and home of the motor-car industry of the world is one which constantly crops up in the press and in meetings of automobilists. The fact cannot be controverted. Yet the motor trade, or at any rate the most important part of it, had its origin in Germany. For without the Phoenix engine of the invention, or rather of the construction of Daimler—for there was nothing new in it, only a happy contriving of known elements—and the Maybach carburettor with its float feed, to which the same remarks may be held to apply equally well, Panhard and Levassor would never in all probability have come to the front and pushed ahead in the industry with such incredible speed that they left all and sundry competitors a long way behind.

IF, however, Panhard and Levassor had not had Michelin ready to sink all his capital and risk his future in staking all on a motor pneumatic tyre, the efforts of Daimler, Maybach, and Panhard and Levassor would have been practically useless, and the motor-car of to-day could not have existed. And it needed much faith, courage, and capital to carry through the experiments with pneumatic tyres, seeing that the first set of tyres tested on a carriage averaged nearly one puncture per mile.

THEN again, if De Dion had not introduced his little motor, which made the tricycle possible, and thus brought within the reach of the people a self-propelled vehicle, practical, speedy, light, and taking up a small floor space or stable room, thousands would not have known the delights of motoring.

ALL these French names, which will, with many others of course, always be cited in the history of the industry, are reason enough for the trade to have centred in France, but I venture to suggest that there is another name not unconnected with the fact. It is true that the ashes of the great man were laid to rest long before the automobilism of to-day was even thought of, and that nothing was probably farther from his mind when he undertook the immense work, but the fact remains that Napoleon did more for the present motor-car trade as it is represented in France at the present day than anyone else.

THE roads of France must be seen and travelled over in a motor-car before they can be thoroughly appreciated; and making a long journey such as I have just accomplished, from the heart of Germany, through Wurtemberg, Baden, and Alsace into France, and across the whole width of France to Havre, and on from Southampton to London, the comparison of the roads of the three countries throws into light the magnitude of the work which Napoleon carried out—for military purposes, of course.

OR almost fifty miles at a stretch the roads are at times straight as an arrow, well macadamed, well kept, wide enough for four vehicles, and quite flat, not arched or higher in the middle, so that one sees before one a white ribbon passing over hill and dale, and for the most part lined on each side with trees. This is undoubtedly the great reason why automobilism has taken such a firm hold in France.

ON Sunday last the hill-climbing contest organised by the *Auto-Velo* took place on the hill of Chesneaux, at Chateau-Thierry. This is the first of two contests organised by this paper. The second one is to take place at Gaillon next Sunday.

THE hill of Chesneaux begins in the town of Chateau-Thierry, and is mounted by a narrow street very badly paved, and with a bend at the last and most difficult part of the hill. The conditions, therefore, are the most difficult, and the test all the more

severe. A footpath on each side of the road with a stone edge makes the bends more difficult to take, and the hill, starting fairly easily, becomes steeper and steeper until the summit is reached.

THERE were, according to the *Auto-Velo*, 148 entries for the contest, but out of all this number only seventy-three turned up, so that the competition did not assume the proportions which it at one time promised. There were, however, crowds of spectators, and the meeting was undoubtedly a great success. The day was very fine, and although at times the sky was clouded over, it soon cleared again, and a cool wind kept the temperature down when the sun was shining. Wires had been stretched along the edge of the pavement from end to end of the course to keep the spectators back, and the system worked admirably, for there was no one on the road except when Serpollet was going up, at which time a man crossing the road made him swerve and lose at least a second.

THE weighing of the cars took place on Saturday and also on Sunday morning before the race, and at nine o'clock the motor-bicycles started the competition, Barré on a Bruneau being the first to mount the hill. In the light bicycle class, Deryn,



A 20-H.P. GEORGES RICHARD CLIMBING THE LAUTERET, ONE OF THE HIGHEST PEAKS OF THE ALPS IN THE NEIGHBOURHOOD OF LAFFREY, BEYOND GRENOBLE.

on a Clement, was first with 1 min. 3 1-5 sec., whilst in the heavy bicycle class Lamberjack won in 55 4-5 sec. In the tricycles Loste, on a Buchet, won in 49 1-5 sec.

IN the voiturettes a Buchet motor in a Passy-Thellier voiturette was again successful, which won its class in 58 1-5 sec. Rigolly, as usual, won the light-car class on a Gobron-Brillié, using alcohol as fuel. The *piece de resistance* was of course the heavy-car class, and all those who saw Gabriel rush up the hill on his Mors felt that he must have done the best time for the whole competition, and so it turned out, for he did the kilometre up the hill in 48 2-5 sec., and won the gold medal. This time equals about 46 miles per hour.

THE following are the first three in each section:—

	Min.	sec.
<i>Light Motor-bicycles.</i>		
1. Deryn (Clement)	1	3½
2. Muller (Clement)	1	34½
3. Coudert (Lurquin and Coudert)	1	37½
<i>Heavy Motor-bicycles.</i>		
1. Lamberjack (Griffon)	0	55½
2. Barré (Bruneau)	1	0½
3. Carreau (Carreau)	1	0
<i>Tricycles.</i>		
1. Loste (Buchet)	0	49½
2. Holley (Clement)	0	51½
3. Osmont (De Dion)	0	55

	Min.	sec.
<i>Voiturettes.</i>		
1. Thellier (Passy Thellier)	0	58½
2. Volatum (Clement)	1	14
3. Hanriot (Passy Thellier)	1	19
<i>Light Cars.</i>		
1. Rigolly (Gobron-Brillié)	0	52
2. Baras (Darracq)	0	54½
3. Edmond (Darracq)	0	56½
<i>Heavy Cars.</i>		
1. Gabriel (Mors)	0	48½
2. Serpollet (Gardner-Serpollet)	0	49½
3. Teste (Panhard et Levassor)	0	52½

TO-MORROW (Sunday) the trial begins again, but this time at Gaillon, where the steep part of the hill is at the commencement. The driver of the car achieving the best combined times for the two hills will hold the championship for the year.

SINCE the mistake of the timekeeper in the Deauville mile record, by which the times were all made incorrect by seven or eight seconds, several projects for automatic timekeeping have been brought forward. M. Leon Serpollet is at present working on one in which, at the start and at the finish of the kilometre, light cords are stretched across the track. The competing cars,



on touching the cords, release springs which are connected with cords at each side of the track, and at the same time start or stop a chronometer at each end.

THERE will be an exhibition of the uses to which alcohol can be put at Madrid next month, and amongst the exhibits there will naturally be a large space devoted to motor-cars. The exhibition is under the patronage of the young King of Spain, and the space will be free of charge.

THE Shah of Persia, before leaving Paris, is reported to have placed an order for a special 50-h.p. Serpollet steam coupé.

THE postponed hill-climbing competition at Spa, under the auspices of the Belgian Automobile Club, is to take place, according to present arrangements, on the 13th instant.

M. DE BRADSKY, a young Saxon aeronaut, is in Paris preparing to make some trials of a new motor airship, built in accordance with his ideas.

THE French Ministry of Public Works has placed a sum of £160 at the disposal of M. Imbert, the engineer-in-chief of the Alpes Maritimes, for the purpose of making a test of tarring the roads with the view of laying the dust.

RECENT TECHNICAL LITERATURE.

SLOWLY but steadily the literature appertaining to the construction of motor-cars and to the automobile movement is increasing. The latest work is that due to the energy of Mr. Paul N. Hasluck, a copy of whose book, entitled "The Automobile: Its Construction and Management,"* lies before us as we write. It is a translation, with many additions, of M. Gérard Lavergne's work, which has gained some reputation in France. The English author, in his preface, declares that the original book has been rewritten throughout in a more condensed style, and the space thus gained is occupied by entirely new matter devoted mainly to the description of mechanisms which have made their appearance within the last year or so. In addition, many of the original illustrations have been superseded by new ones, and a great number of additional blocks inserted. The chapters on boilers, steam motors, carburettors, petrol motors, steam and petrol cars have been re-cast and considerably amplified, quite a large proportion of the present text having had no place in M. Lavergne's treatise. Important additions have also been made to the historical chapter, the early history of mechanical road locomotion in England being here treated in detail. The book does not pretend to teach constructors, but will show the engineer how the mechanism with which he is



MR. ROWLAND WARD, THE WELL-KNOWN NATURALIST, ON HIS 22-H.P. DAIMLER.

Photo by]

[Mr. E. M. C. Instone.

familiar is applied to motor construction. Those who are not engineers, but who are nevertheless interested in automobiles, will find the whole subject placed before them in clear understandable language, as free from technicalities as the character of the subject will admit. The chapters on petrol motors, carburettors, the transmission of power, and that on springs, underframes and bodies, are particularly good. The author sums up the relative advantages of steam, petrol, and electricity, as applied to the propulsion of automobiles, as follows:—"The part assigned to each of the three principal agents is, in brief, steam for heavy loads, petrol for long-distance touring, and electricity for town cars. This has the reservation, however, that steam may yet rival petrol in the latter's domain. Moreover, these conclusions must not be taken too literally, and in each case the general remarks hitherto made must be brought to bear, especially as regards facilities for obtaining new supplies of energy. With regard to this last point, petroleum and petrol spirit generally can be obtained most readily, whilst electricity is obtained with the greatest difficulty, unless the house has a suitable installation. As regards rapidity of starting, the petrol motor is always ready to start, but the electric motor, if the accumulators are charged, is more rapidly

set in motion. As regards road profile, steam appears to be the most suitable for rough ground, but electricity gives very good work in mountains, where it can utilise for its own production unemployed waterfalls, and can even regenerate on the road. Petrol spirit seems more suitable than steam or electricity for express speeds; but on mountains the two latter can claim superiority. Economy depends much upon the conditions of traffic and on the tonnage, and, apparently, can be claimed by steam, but special circumstances, such as the difficulty of obtaining coke, may make the employment of petrol cheaper."

The motor-car industry is advancing with such rapid strides that by the time a work on the subject has passed through the hands of the author and the publisher there is a considerable likelihood of its proving somewhat out of date. In some respects this is true of the work under notice, as in several instances the types of cars attributed to certain builders—notably De Dietrich, Peugeot, Georges Richard, Delahaye, and several others—have been superseded by models on quite different lines. If we might make some suggestions with regard to future editions, we think much more space might well be devoted to a more lengthy account of the latest types of British cars, more particularly those which differ materially from vehicles of Continental design, such as the Lanchester, Wolseley, Brooke, and others. Again, while interesting from an historical point of view, and as showing what has been done in the past, we think that the description of those vehicles which have never got beyond the drawing office stage, or, if they did, are now no longer produced, might be curtailed to make room for longer notices of those at present on the market, which find no mention in the volume. As a case in point, we may refer to page 489, where, to present-day motorists who have followed the performances of the Mercedes cars in recent years, it is somewhat strange to read that "the German Daimler car manufactured by the Daimler Motoren Gesellschaft, of Canstatt, Wurtemberg, has its motor enclosed in a case at the rear, instead of being at the front as in English and French cars." Then, too, as regards petrol-electric combination cars, which have lately come into prominence, no mention is made of the Jenatzy and Lohner Porsche systems. First editions of a work of this kind bring forward many suggestions, and the cases we have taken at random indicate that Mr. Hasluck will have plenty of work before him to bring his second edition up-to-date. Not that the present edition will not be found useful, however; the volume is a comprehensive reference book which should be valuable to the designers and makers of motor-cars, and also to those owners who desire to have by them a descriptive account of various types of motor-vehicles interspersed with critical observations on the many different points connected with motor-car construction. The book, which contains an admirable index, the omission of which is one of the principal defects of the original French edition, comprises over 600 pages, and needless to say the publishers have done their part of the work up to the usual standard.

The opening of the winter sessions at the technical institutes is always immediately preceded by the publication of many new books on the subjects of study. Among those just issued is Mr. J. Duncan's little volume dealing with applied mechanics.† The author is the head of the department of Civil and Mechanical Engineering at the West Ham Municipal Technical Institute, and has had much experience as to the work required of elementary students, for whose special service the present volume has been written. The letterpress is elucidated by means of about 350 diagrams and illustrations, and the arrangement of the various chapters is, in every way, admirable. In view of the advance now being made, more might, perhaps, have been said in Chapter XIII., on Transmission, as to chain driving, but probably the author will deal fully with that subject in a second edition. For we anticipate such will be required when the book becomes generally known.

MOTORISTS about to tour in the Austrian Lake district will find Mr. E. Ruffer, 39, Lombard Street, E.C., in possession of much useful information regarding the roads in that region.

* "The Automobile, its Construction and Management." By Paul N. Hasluck. Translated from Gérard Lavergne's "L'Automobile sur Route." With additions and new illustrations. (London: Cassell and Co. 10s. 6d. net.)

† "Applied Mechanics for Beginners." By J. Duncan, Wh. Ex., A.M.I.M.E. (London: Macmillan and Co., Ltd., 1902. 2s. 6d.)

HERE AND THERE.

THE accompanying illustration represents the usual scene when one of the steam lorries of the Road Carrying Company, Limited, of Liverpool, is taking a trial trip. The test consists of travelling over a thirty-mile circular course carrying four tons and hauling a trailer loaded with another two tons. The photograph was taken on the top of Cemetery Brow, entering Preston



Photo by]

[Mr. W. G. Gornett.

from Blackburn, after climbing this hill, which has an average grade of one in thirteen for several hundred yards. One of the stiffest ascents embraced has a grade of one in nine. On the left of the lorry is a 10-h.p. Georges Richard driven by Mr. Shrapnell Smith, while on the right of the lorry is Mr. Leonard Williamson's Daimler car Sapho, formerly known as Le Chat Noir.

THE Bavarian and Frankfort Automobile Clubs will hold a joint meeting at Ingolstadt on the 12th inst.

A NEW electrical motor-carriage is in course of construction at the works of Anti-Vibrator, Ltd., Croydon. It comprises a number of special features to which we hope to refer in a subsequent issue.

SOME experiments with "petroleumed" roads, with the view of laying the dust, are being made in St. Oswald Street and Rathbone Road, leading from Old Swan to Wavertree, Liverpool.

THE opening of the International Exhibition of Industrial Appliances of Alcohol at Lima, Peru, which had been fixed for the 1st November next, has been postponed until the 10th January, 1903.

IN the course of an interview with Mr. Green, of the Remington Automobile and Motor Agency, the other day, we learned that he is daily expecting a new light motor runabout, of American design and construction. We hope to refer to the car in detail later on.

MR. W. A. SALE, of Luton, has just had a 900-mile trip on a Quadrant motor bicycle. Among the places through which he passed were Doncaster, Newcastle-on-Tyne, Edinburgh, Carlisle, and Coventry. Mr. Sale rode every hill *en route*, including Shap, went through without any trouble, never even changing a sparking plug, and only meeting with one puncture.

"MODES AND THE MOTOR" is the title of an illustrated article in the current issue of the *Royal Magazine*. The author acknowledges his indebtedness to Mr. Alfred Dunhill for much assistance in the preparation of the sketch, which would have been a meagre one but for the illustrations from 2, Conduit Street, W., where a complete exhibition of motor clothing is now to be seen.

THE Earl of Wemyss has been motoring in Scotland.

THE police are watching motor-cars somewhat closely in the Lake district.

LA PASSE PARTOUT, accompanied by the Argyll car, has now reached St. Petersburg.

HUNTING on motor-cars is said to be the latest development of the sport in Southern California.

A MOTOR-CAR Exhibition was opened in Hamburg yesterday and will continue until the 12th inst.

THANKS to the public spirit and generosity of the English Lake District Association a new road is to be constructed from the Red Bank to Ambleside.

NOT only Nottinghamshire but the county of Lincolnshire, too, has considered the question of roads, and several local authorities have urged upon the Lindsey County Council that the rural bridges of the county should be considerably strengthened. The co-operation of various bodies in different local schemes is being obtained, and the Gainsborough Rural Council is now being approached with regard to the strengthening of the Sturton Road bridges, over which a good deal of automobile traffic has passed during recent months.

BELOVED of tourist, artist, and motorist, Shakespeare's country maintains its popularity, despite the artificial charms given to many other resorts by enterprising municipalities. Stratford-on-Avon and its graceful spire; Warwick, dominated by the frowning towers of its castle; and Leamington, with its leafy groves, are all places of beauty and interest. In a guide to Leamington, Warwick, Stratford, and the Avon Valley, Mr. Edward J. Burrow, of Cheltenham, has revealed their charms in a way that no other book has depicted. Historical accuracy and picturesque variety characterise every page, while the excellent literary style of the letterpress is notable, even in these days when guide-books



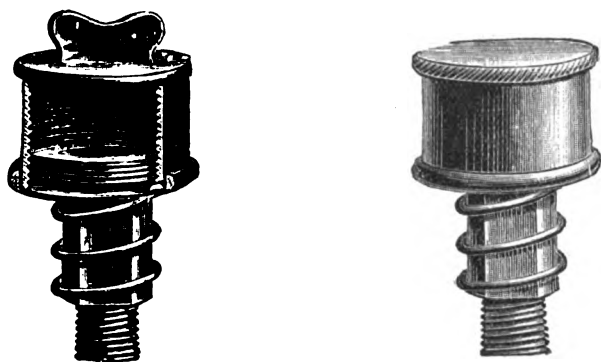
THE EAST GATE, WARWICK.

are as thick upon our shelves as autumnal leaves upon the country lanes. The East Gate, Warwick—an elaborately ornamental archway, dating back to the time of Henry VI., and surmounted by a chapel—is a fair specimen of the illustrations so plenteously scattered about the pages of Mr. Burrow's guide, which is published under the auspices of the corporations of the three principal towns with which it is concerned.

THE De Dion Company are reported to have a new 6-h.p. car weighing about 7 cwt. on the stocks.

MR. A. R. ATKEY, the hon. sec. of the Nottingham Automobile Club, has addressed a spirited reply to some strictures on motorists which have appeared in the daily papers of the great lace centre.

It is essential in lubricating bearings of motor-cars that no dirt or dust can get into the bearings or into the lubricators. It is also essential that the cups should be so constructed that constant vibration will not shake off a part or the whole lubricator. Another important feature is a constant supply of lubricant to the bearings. Although not automatic in action, the 1902 improved



dustproof high-speed screw motor lubricator of Messrs. Stern Bros., and of which two patterns are illustrated herewith, is claimed to combine these advantages. A turn or so must be given to the cup occasionally in order to force down a small quantity of lubricant and to keep the bearings lubricated for some time. The best lubricant to be used in these grease lubricators is stated to be the Sternoline, semi-solid, high-melting point grease, supplied in three qualities, the melting points varying from 175 deg. to 215 deg. Fahr., whilst for troublesome bearings a special cooling Sternoline is supplied, which, as soon as the bearing gets slightly warm, will soften and feed more freely.

THE business of James Neale and Sons, of 68, Graham Street, Birmingham, has been acquired by J. Neale and Sons, Limited, a company registered with a capital of £10,000. The manufacture of motor lamps is one of the objects of the concern.

THE Crown authorities will contribute £1,000 towards freeing the tolls of Sutton Bridge, which connects the main road between Lincolnshire and Norfolk. Only £2,000 is now needed to make up the £7,000 required by the Great Northern Railway to free the bridge.

A NEAT electric voiturette has just been completed by the British Electromobile Company. The car has seating accommodation for two persons, and is equipped with a battery of forty-two Leitner accumulators, the capacity of which is sufficient to run the vehicle a distance of fifty miles over good roads on a single charge.

INCLUDED in the programme of the Westbourne Park (London) Institute we notice a lecture on "Liquid Air," by Dr. W. Hampson, M.A., on March 24th next. The syllabus includes the following heads:—"Popular fallacies concerning liquid air, company promoters' science, company promoters' surgery, company promoters' mechanics, a visit to the Liquid Air Power and Automobile Works, with lantern illustrations, and advice to investors."

THE annual renovation of the Victoria Embankment, London, is in progress, the work being expected to take about eight weeks. The surface of the roadway of the Embankment has an area of about fifty-thousand square yards. The whole road has to be ploughed some two or three inches deep, so as to loosen the surface for the reception of the new material, and more than 3,000 tons of macadam and 600 tons of yellow gravel are used for this purpose, eighty men being employed on the work.

AT the inquiry into the circumstances of the death of Mr. Ernest Garrard from the result of a collision while riding a motor cycle, and briefly reported in our last issue, a verdict of "Accidental death" was returned.

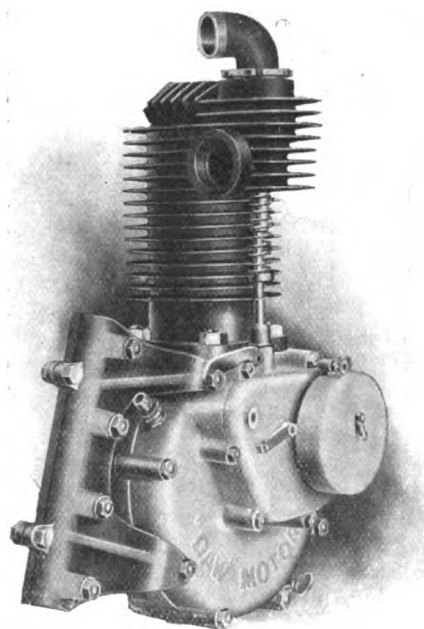
OWING to their increasing business Werner Motors, Limited, have removed from Woodstock Street, W., to larger and more convenient premises at 151A, Regent Street, W., where all communications should in future be sent.

MESSRS. MONTAGUE HAWNT and Company, Clerkenwell Road, E.C., have been appointed wholesale London agents for Wilburine and Valvoline, the new motor oils for cylinders and bearings respectively. These oils leave no gummy deposits and are claimed to possess high lubricating properties.

AT the annual show in connection with the Rea Valley (Shrewsbury) Shire Horse Association, Mr. W. C. Bridgeman, who presided, said it would be a long time before horses would be displaced by motor-cars. And having thus assured his hearers, he ventured on a joke. A great many gentlemen he knew owned motor-cars, and they would start in the morning flying across the country, but many a time had they had to be drawn back by horses at night. Really!

THOMAS SILVER, a motor-bicyclist, has made an attempt to go from Land's End to John o' Groat's in record time, but rainy weather, treacherous roads, and mechanical inconsistencies have been against him. Before reaching Bristol he had trouble with his lubricating pump. Mud and mire hampered him through Lancashire, and when he reached Inverness, a distance of 750 miles from the start, nearly 48 hours had been occupied, this being 10 hours behind his anticipated time. He then determined to go on to John o' Groat's and to return to Dingwall to complete a thousand miles. But, when 50 miles from the Scottish end of the journey, the roads were so bad that he had to give up entirely.

MESSRS. DALTON AND WADE, of Coventry, are now turning out the neat little bicycle-motor, illustrated herewith, in three sizes, 2-h.p., 2½-h.p., and 3½-h.p. As will be observed, the inlet and exhaust valves are of large size, as are also the radiating ribs. The cylinder and head are cast in one piece,



while another useful feature is the special exhaust-valve lifter, described in the report of the Exhibition at the Agricultural Hall in April last. Adjustable clips are provided which allow the motor to be placed in any position on the frame of a bicycle, either vertical or inclined.

CORRESPONDENCE.

COMPRESSION IN MOTORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Can any of your readers inform me as to the highest compression allowable in petrol and similar motors? Does too high a compression tend to aggravate to any great extent the difficulty of pre-ignition? Can anyone supply me with any data which will give an idea as to the expansive ratios before and after explosion of properly proportioned charges containing vaporised petrol, &c.? What is the highest pressure usually developed in small motors (vehicular and cycle)? What power should a double cylinder petrol motor, 120 m.m. by 120 m.m., running at 500 revolutions a minute, give out? If I was to run it at 800 revolutions per minute, would the mixture explode quick enough to give out its full power?—Yours truly,
W. H. M.

THE RELIABILITY TRIALS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Since the publication of the results of the Reliability Trials we have had numerous enquiries from owners of our cars as to the reason of our low speed on the hills, saying that their experience is just the opposite, the hill-climbing powers being a strong feature of the car; and as it is possible that many of your readers may be interested in this matter, we beg to state the facts of the case. On the day of the hill-climbing tests, owing to one cylinder miss-firing, we were compelled to climb the hill from the start on the low gear, although only two days previously we had climbed it on the second speed, and had even picked up on the stiffest point a fifth passenger shed from another car.—Yours faithfully,

p.p. MARSHALL & Co.,

J. HOYLE SMITH.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have scanned Mr. Letts' letter in reply to mine of last week, and am happy to have been able to afford that gentleman some amusement. Otherwise I fail to detect anything novel in his assertions, beyond a very patent desire to throw dirty water in my eyes. Whether in the face of the many occasions on which the Weston has beaten every American steam car, we were frightened to enter for the Trials, we are content to leave the public to judge. Besides, there are enough Westons' running about the country in the hands of private owners to answer this question.

Mr. Letts lays stress on the art of obliging customers. I am sure I am much obliged for his lesson in commercial courtesy, but there again I think our clients will answer for us.

I fail to see on what grounds Mr. Letts construes my letter as an attack on his firm, and the fact that he goes out of his way to interpret it in this fashion tells its own tale.

In conclusion, allow me to state that I still contend that if Mr. Letts' interpretation of the meaning of the Club Committee's rules is correct, then nothing would prevent a manufacturer from building special machines for the trials, and if, as it appears, he is not compelled to state that they are of special construction, then the public is, when studying the results, falsely led to infer that the competing vehicles were of standard design. What would prevent a manufacturer from following the above course, and, if subsequently required to do so, accepting orders for specially built machines' which, nevertheless, do not represent the stock article? If Mr. Letts' interpretation is correct, and I do not doubt it, since he happens to be a member of the Committee, then I agree that the value of the trials is nil.—Yours truly,

p.p. WESTON MOTORS,

A. E. COHEN, Director.

[This correspondence, having assumed a personal tone, must now cease. The questions of fact which have been raised will be dealt with by the Committee of the Automobile Club.—EDITOR *Motor-Car Journal*.]

TOURING ON SMALL CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I was much interested in Mr. Bridgman's letter in your last issue, and surprised to learn that his car with such a small engine as 2½ h.p. was capable of giving such satisfactory results. I have recently obtained a Mayfair two-seated voiturette with a 3½ h.p. De Dion engine, and after reading the results obtained by Mr. Bridgman I have come to the conclusion that something must be wrong with my 3½ h.p. motor, for up to the present it snuffs out at a hill of 1 in 18 with two up, and I cannot go on the top speed excepting on a dead level. I may explain that this is not due to my want of experience in management, as I at first thought, as expert motorists have also failed. I have been told by the mechanic who has done a few minor repairs for me that I cannot expect to get up hills with it as it is only suitable for knocking about the town with, but as I did not buy the car from him, was not inclined to take for granted all he said, and after reading Mr. Bridgman's letter I am of opinion that I am justified in not doing so. I shall, therefore, esteem it a favour if Mr. Bridgman or any other reader can give me any idea how I can get more power, as I feel convinced that I am not getting the power that the motor is capable of. After getting the mixture

correct I get the most power when the petrol throttle is almost closed; if I open the throttle further I do not get so much power. Possibly it may be the carburettor which is in fault, which is, I am told, an old pattern with a cork float.—Yours faithfully,

C. H. PEAKE.

STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The letters of your correspondent "Anxious," in your issue of the 13th and 27th inst., have interested me greatly, confirming, as they do, the suspicion I have always had, that the boilers of steam-cars would give trouble from furring. It stands to reason that if hard water is used fur must be deposited somewhere. The constant agitation in the boiler itself may prevent it from adhering to the boiler tubes, but it is liable to block the tube supplying the boiler, or that leading to the gauge-glass. In this neighbourhood, where the public water supply is extremely hard—17 in. temporary and 4 in. permanent hardness—engineers use a composition to prevent boiler-furring; they tell me that a very small quantity will prevent fur from adhering to tubes, and that it is thrown down as a sort of mud at the bottom of the boiler, whence it is easily removed by blowing down. In the Serpollet and Miesse systems a smaller amount of water is required, as it is condensed and used over again, consequently the risk of furring is very much less, and the steam pressure being so very much higher there is, I take it, less chance of fur adhering in the generator.—Yours faithfully,

HARD WATER.

September 29th, 1902.

SUCTION VALVES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—A part which I think receives too little attention in motor design is the suction valve. I lately noticed on my machine—a 1½ h.p. bicycle—that while the motor was running, particularly at high speeds, there was a considerable amount of gas blown out of the mixing valve, this occurring in a series of puffs, synchronously with the half speed of the engine. At first I put it down to the inlet valve, and so reground it carefully, but that did not alter it in the least; then it suddenly struck me that the spring (I am speaking, by the way, of a self-acting valve) was too weak to overcome the inertia of the valve soon enough, so I fitted a stronger one. This decreased the amount of air blown back; but then the power of the engine was considerably decreased; consequently, I designed a valve to be of less than half the weight, though of the same strength. The shape of the valve is a part of a sphere, with the part of the sphere at which the seating is at right angles to the latter. The stem is 1½ in. long and 3-16 in. diameter, the valve seating is 1½ in. in diameter, and 3-32 in. broad; the dome is 1-80 in. thick, and the nuts on the stem ¼ in. thick and ¼ in. across the corners. This works out at less than half the weight of the same sized standard valve, is just as strong, and with a standard strength of spring obviating the blow-back entirely, without decreasing the power of the motor; in fact, at high speeds I think the power has increased. Anybody who cares may make use of this, as it is not protected (by me), and I do not intend to protect it.—Yours truly,

H. C.

AN AERIAL TRIUMPH.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Two paragraphs appeared in your last issue in allusion to Mr. Stanley Spencer's aerial trip across London on the 19th ult.

As the actual facts of the origin of that craft have not transpired, it is only due to myself to state that its design originated with me. That particular form of gas-vessel (rather resembling the porpoise) with its largest diameter at .333 of its length from the nose, and with a ratio of length to major diameter of 3.75 to 1, I claim to be the first ever made to those proportions, and the most efficient yet produced.

It was at a distinct disadvantage in having a heavy motor of small power: there is no doubt but that if it had been fitted with the specially light and powerful motor and propeller I originally intended for it six years ago, it would have beaten the Santos Dumont speed record. It might have had more than twice the power—with the same weight—than it actually had.

The degree of success attained was certainly due to the comparatively small head resistance of the gas vessel.

I have, of course, communicated with Messrs. Spencer, and they will doubtless see the expediency (to say nothing of the justice) of giving credit where it is due. I may add that neither Messrs. Spencer, nor Messrs. Mellin, Limited, commissioned me to design the vessel.

It may, perhaps, to some appear strange that I—a keen upholder of aviation proper—should have been connected with this matter. In anticipation of any such thought, I may explain that I was commissioned to design a buoyant motor-driven air-craft, and I did so to the best of my ability, as a matter of business; by no means advocating it, nor guaranteeing results, but sinking my personal convictions for the time being. However, as buoyant "air-ships" go, it has been a success, and I wish it still better luck next time, but am not disposed to "lie low" while the whole credit of the design is taken by others.—Yours faithfully,

SIDNEY H. HOLLANDS.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Blackpool	R. Gitton, Blackpool	30 m. p. h.	10s., etc.
*Durham	G. Foster, New Elvet	Above legal limit.	40s., etc.
Elgin	S. Gold, Easter Elchies.	" "	£5.
"	H. Gillan, Easter Elchies.	" "	£5.
Chelmsford	B. Weake, Maida Vale, W.	22 m. p. h.	£5, etc.
"	F. Biston, Woodford	27 m. p. h.	£5, etc.
Guildford	Dr. Hill, Middlesex Asylum	Above legal limit.	£3
"	Mrs. Paine, Carlisle Mansions, W.	" "	"
"	H. Batr, Merton	" "	"
"	W. B. Kelly, London	" "	"
"	G. Isaac, Holborn	" "	"
"	L. Savory, Westminster	" "	"
Chertsey	Mrs. A. Du Cros, Shepperton	19 m. p. h.	£2, etc.
Huntingdon ...	R. Wemyss, Wemyss Castle, Fife	Above legal limit.	"
"	M. Drummond, London	" "	£5, etc.
Ramsgate	W. Rendle, Ashley Gardens, W.	Above legal limit.	Dismissed.
"	J. Letta, Hampstead	30 m. p. h.	£10, etc.
* "	G. Groth, West Hartlepool	" "	£3.
Thornaby	W. Jones, Brighton	18 m. p. h.	£3, etc.
Thirsk	F. Giffen, Coventry	Above legal limit.	£10, etc.
"	E. Curran, London	" "	£5, etc.
"	C. E. Smith, West Hartlepool	" "	£2 etc.
"	W. H. Marley, Bradford	" "	"
* "	W. J. Gifford, Biggleswade	" "	£3, etc.
Slough	W. Branson, Dulwich	" "	£6.
"	G. Christian, Kensington	" "	£3.
"	J. Gretton, London	" "	£5.
Mark Cross ...	A. E. Stock, London	" "	"
Worthing	E. M. Iliffe, Coventry	20 m. p. h.	£5, etc.
Moreton Hampstead	A. W. Poppy, Croydon	Above legal limit.	£2, etc.
Forfar	J. Robertson, Leamington	" "	Dismissed.
Richmond	T. S. Manning, Darlington.	26 m. p. h.	£5.
* "	J. Teetham, Darlington.	18 m. p. h.	£1
"	Capt. L. E. Elwis, Darlington.	17 m. p. h.	2s. 6d., etc.
* "	C. Wilson, Darlington.	30 m. p. h.	Dismissed.
St. Neots	F. Mills (driver to Mr. Balfour)	Above legal limit.	£6, etc.
"	J. Gillan (driver to the Hon. T. Cochrane)	" "	£5, etc.
Snaith	W. T. Betts, York	" "	£10, etc.
Lutterworth ...	W. Wilford, Nottingham	" "	£1, etc.
York	W. McCormack, Paddington, N.W.	" "	£10.
* "	W. H. Hawley, Tadcaster	" "	10s., etc.
"	H. E. Tateham, Blackburn	" "	£2.
Grimston (Norfolk)	J. Frost	" "	£2.
Beaconsfield ...	H. Hirsch, London	" "	£5, etc.
"	G. Copley, Shepherd's Bush	" "	£5, etc.
Holt	E. Midgley, London	" "	£5.
"	H. Blackburn, Thetford	" "	£4.
Malton	F. Toye, York	Above legal limit.	£1, etc.
"	G. Cook, London	" "	Adjourned.
Flaxton	F. Smith, Clifton (driver to Countess Rosslyn)	" "	£5, etc.

* Motor-cycle cases.

MESSRS. BESCOBY AND WILLIAMSON, solicitors of Retford, write—During the hearing of a prosecution against a motorist at Doncaster, the defendant objected to the measurement of the half-mile upon which the prosecution relied, and the Chairman intimated that if, upon re-measurement, the half-mile in question should be found to be incorrectly measured, there would be no conviction in any of the cases. The same afternoon the half-mile was again measured by the police, and it was found 25 yards and one foot short of the half-mile from post to post, and, as a result, all the cases were dismissed.

CAPTAIN L. E. ELWIS, of Coniscliffe, near Darlington, was charged at the Gilling West Petty Sessions, at Richmond, with driving a motor-car at the rate of 17½ miles an hour at the same place. Mr. Staplee Firth defended. It was stated that there were three people in the car, which covered the quarter of a mile in fifty-one seconds. On being pulled up by the sergeant, defendant said they were only crawling along. P.C.'s Smith, Barton, and Bruce, Melsonby, gave corroborative evidence. For the defence, Mr. Firth contended that his client was not going more than eleven miles an hour. He had driven over 10,000 miles with a car, and was aware of the police traps, which were set in that part of the country. Captain Elwis said the vehicle was a 10-h.p. one, and would weigh about 15 cwt. He was very careful not to exceed the speed allowed by law. From Boroughbridge they passed several sets of police, and he did not think up the gradient his car could travel at the speed stated. Mr. Williamson and Mr. C. E. Hunton gave evidence for the defendant, who, they said, was a very careful driver, and gave every consideration to people on the road. A fine of 2s. 6d. and costs was imposed.

At St. Neots, Huntingdonshire, Frederick Mills, motor-car driver to the Right Hon. A. J. Balfour, M.P., was fined £6 for driving at an excessive speed. According to a constable, whilst taking a car to Scotland to his master, he travelled 650 yards in fifty-two seconds, equal to 25.23 miles an hour. The solicitor for the defence urged that there was no danger to the public, as the road was perfectly clear and the car quite under control.

MR. JAMES ROBERTSON, gentleman, residing at Tachbrook, Leamington, has admitted in Forfar Sheriff Court to having driven his motor-car at a speed greater than sixteen miles an hour on the public road between Edzell and Brechin. Sheriff Lee said there was no report as to anyone being annoyed, and as it seemed to him this was an Act which should be administered with common sense, he would not impose any penalty. Motor-car drivers must, however, carefully respect the rights of others on the road.

THE magistrates for the Hallikeld Division of the North Riding, sitting in Petty Sessions at Wath, near Ripon, on Saturday had before them several cases of furious motor riding. S. W. Farr, a motor-car driver, of Reading, was summoned for having driven a motor-car furiously on Leeming Lane on the 13th September. Inspector Shield stated the defendant drove over the measured half-mile in 1 min. 12 sec., equal to 25 miles an hour. Captain Vyner, of Newby Hall, and Mr. Sharp, his agent, were in the car. Mr. Sharp said that Mr. Vyner and himself were trying a motor-car which had come for his approval from Mr. Major, of Reading. The place chosen by the inspector was a very unfair one, as there was a clear road for at least a mile, and it was down-hill. The car was thoroughly under control. The Chairman said the penalty would be £5 and costs (19s.).

WALTER MCCORMACK, 13, Essendine Road, Paddington, London, was charged at the Eastern Ainsty Petty Sessions, York, on Saturday, with driving a motor-car at a greater speed than twelve miles an hour, and not giving audible warning of his approach. For the furious driving he was fined £10 and costs, and for not giving warning £5 and costs.

MR. E. TYLDEN WRIGHT, of Workop, was summoned at Doncaster West Riding Court, for having driven a motor-car at a speed exceeding the twelve-mile limit. On the 12th ult., the police having measured half a mile on the highway at Austerfield, at one end of this distance Sergeant Sowray was stationed, and at the other extreme Police-constable Brookes, both officers being in plain clothes. At a minute past six in the evening defendant passed Sergeant Sowray, and a minute later Brookes signalled with his handkerchief, defendant having covered the half-mile in that time. The police said that defendant when requested to stop did so immediately. A fine of £5 and costs was inflicted. At the same court Edward Coleman, Rotherham, was ordered to pay 10s. and costs for furiously driving a horse at Balby on the same day. Evidently cruelty is regarded as a minor offence compared with the crime of driving a motor-car rapidly.

At the Blackpool Police Court, last week, Robert Gitton was charged with furiously driving a motor-car owned by a prominent London theatrical manager. Alderman Heap, the chairman of the Bench, said that some motor-cars seemed to go at the rate of 12,000 miles an hour, and he hoped the Chief Constable would enforce the Act. Defendant was fined 10s. and costs. After the case, Mr. H. Fisher, one of the magistrates, expressed a desire to ride on the car, and he was driven home by the defendant.

At the Guildford Court, Sergeant Jarrett has proudly recounted his exploits in connection with alleged cases of furious driving during the summer. He has been the means of securing the conviction of nearly forty motorists during the past season, and, from the police point of view, deserves promotion.

THE ADVENTURES OF A MOTOR-CAR.

In the City of London Court, on September 23rd, before Judge Rentoul, K.C., the case of Millett v. Herbert and Toye was heard. The plaintiff, Mrs. Martha Millett, widow, 5, Blomfield Terrace, Bath, had obtained

a judgment for £50 against Mr. Arthur H. Herbert, motor-car agent, Norfolk Square, Brighton, and when execution was levied upon the defendant's goods, they were claimed by Mr. Percy Toye, merchant, Henage Lane, E.C., whose claim was now heard. Mr. Pepsy, counsel for the claimant, said under the execution proceedings the officer of the Court had seized a motor-car in satisfaction of the plaintiff's judgment. The question for the Court to determine was whether the motor-car belonged to Herbert or to Toye. On the 28th February last Mr. Toye, the claimant, bought from the Pick Motor-Car Company, of Stamford, a No. 2 voiturette motor-car for £170. Delivery was to be given at the company's works at Stamford. Toye bought the car on the recommendation of Herbert, who was an agent for the company. Not knowing how to drive the motor-car, Toye commissioned Herbert to take delivery of it at the works, and drive it to London. Toye gave Herbert permission to show it to any person who might prove a likely purchaser, in order that Herbert might earn for himself any commission on sales that he might effect. If Herbert found a re-purchaser of the car at a profit, he had liberty to negotiate the sale, but Toye strictly limited Herbert's authority to parting with the motor-car only upon reference to Toye. The sale took place on February 28th, and Toye's cheque was paid to the manufacturers that day. On the same day, as Toye was giving Herbert the charge of a car of some value, and as he did not know very much about Herbert at the time, he decided to take security from him. This took the form of a bill of exchange, which Herbert gave to Toye for £170. It was payable in one month, and, when it became due, another bill was substituted for it. When that became due a promissory note was substituted for the second bill. That promissory note was now in the possession of Toye. The car was not delivered to Herbert until April 10th. Herbert then drove the car to Bath. It remained there until June 25th. Toye was willing to part with the car at a profit if it could be done, and during the interval he had one or two inter-

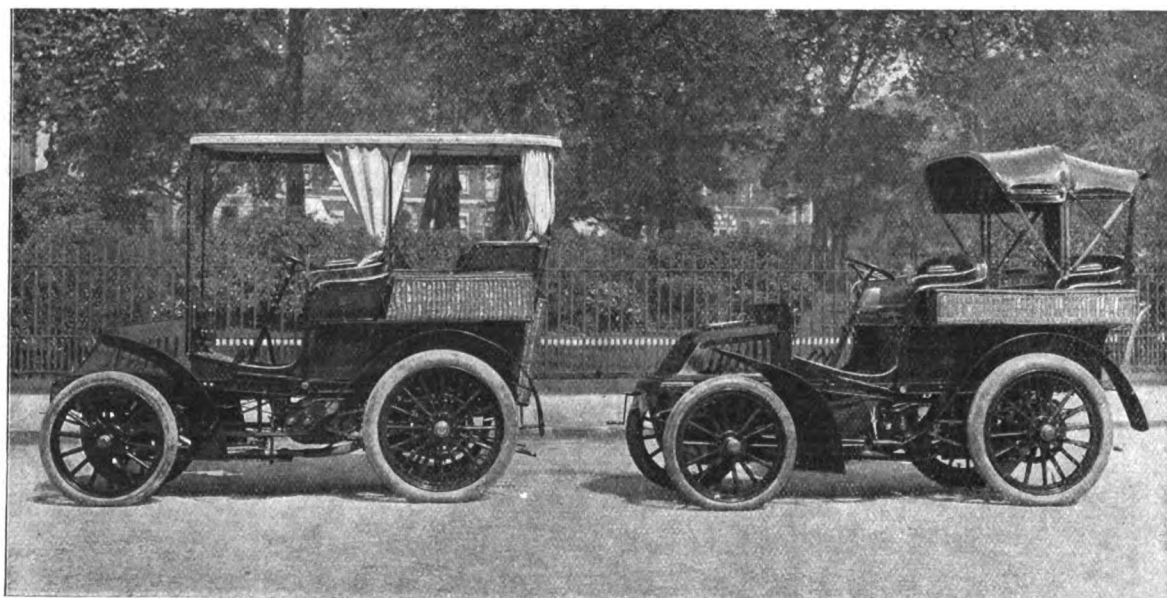
would therefore be entered for the execution creditor, Mrs. Millett, with costs.

THE STORAGE OF PETROLEUM.

MR. GRIFFITHS, of 63, Lavender Street, Brighton, has been summoned for keeping petroleum without a licence, between the 12th and 17th ult. Mr. Hugo Talbot, Deputy Town Clerk, appeared for the Brighton Corporation, at whose instance the information was laid. Defendant admitted the offence. Mr. Talbot said according to the regulations defendant would be entitled to keep a quantity not exceeding 60 gallons of the spirit, but for over that quantity a licence was required. Between the dates mentioned in the information there were, Mr. Talbot said, 96 gallons on the premises, and an inspector who visited the premises found that the spirit flashed at a temperature of 60 degrees, which was 13 degrees below the flash point allowed. Defendant had told the officer that he was thinking of taking out a licence. Defendant, who expressed his intention of complying with the law, was fined £1 and costs or fourteen days.

NOT STOPPING WHEN REQUESTED.

At the Hurst Green (Sussex) Petty Sessions, James Mackenzie, of the Hozier Engineering Company, Ltd., Glasgow, has been summoned, the summons being worded as follows:—"That on August 22nd, he being then and there the driver of a light locomotive upon the highway there leading from Hurst Green to Robertsbridge, which light locomotive was not worked according to the regulations made by the Local Government Board, dated November 9th, 1896, which were then and are still in force, namely, he did not, on Samuel Stevens, who was in charge of a restive horse, putting



THE TWO 15-H.P. BENZ CARS BELONGING TO MR. FRANCIS LEY, J.P., EPPERSTONE MANOR, NEAR NOTTINGHAM.

views in London with Herbert, and asked him where the car was and whether he had resold it. Herbert said he was still endeavouring to resell it, but on the 5th of July Toye heard that Herbert had been giving accommodation bills. Toye then went to Herbert and asked him for the car. Herbert said it was at Bath and that he had housed it with Jelf and Co. It turned out the next day that the car was seized by the sheriff in respect of a debt due from Herbert to the plaintiff, Mrs. Millett. Toye had paid £170 for the motor-car, which he had never seen. It was sold at the instance of the judgment creditor in satisfaction of a debt of £65. The costs in connection with levying execution had been deducted from that sum, and £43 had been paid into Court, which the parties were now fighting about.

Judge Rentoul, after hearing evidence, said he did not wish to cast any discredit on the claim. Even supposing the claimant's statements were all accurate, nevertheless he had acted in a strange way in allowing his motor-car to go about the country for several months. That had weighed with him from the beginning of the case. Without saying anything about it, Toye had allowed Herbert to hold out that he was the owner of the car, and so obtain money, without having in him the supposed ownership. Then again, Toye had acted in regard to the bill of exchange as if it were given in consideration for the motor-car. If it had been given simply as security Toye would never have written the letters which had been written. Between the time when the first bill was given for £170, and when the second bill was given for £187, there must have been a change in the transaction. In his view Mr. Toye had not made out his claim, and therefore judgment must be given against him. Judgment

up his hand as a signal, cause the said light locomotive to stop, and to remain stationary so long as might be reasonably necessary." Defendant was fined £3 and costs.

THE LEFT SIDE OF THE ROAD.

At the Lowestoft County Bench, Harry Ayers, driver, of Lowestoft, was summoned for not keeping his carriage on the left or near side of the road, at Somerleyton, on the 7th ult. Defendant pleaded not guilty, but was fined 10s.

NO LIGHTS.

MR. FREDERICK SMITH, Manor House, Datchet, summoned for driving a motor-car at night, at Eton, without a red light behind, was fined 10s. Defendant said he had driven 45,000 miles, and had never been summoned before.

MOTOR-CYCLING.

F. W. CHASE, mounted on a 2½-h.p. Bat motor-bicycle, beat all motor-cycle records from 5 miles to 50, inclusive, at the Crystal Palace, last week. The rider's times were:—Five miles, 6 min. 34 2-5 sec.; ten miles, 13 min. 17 sec.; fifteen miles, 20 min. 4 2-5 sec.; twenty miles, 26 min. 56 2-5 sec.; thirty miles, 40 min. 35 2-5 sec.; and fifty miles, 1 hr. 7 min. 57 2-5 sec.,

as against the previous best of 1 hr. 15 min. 44 3-5 sec. His distance for one hour was 44 miles 210 yards, the previous best being Van Hooydonk's 42 miles 290 yards.

At the Redhill Sports Ground J. Van Hooydonk has beaten the five miles grass track motor-cycling record of 9 min. 54 4-5 sec. made by H. Martin, at Uxbridge, by doing the distance from a flying start in 9 min. 24 3-5 sec.

At the West Ham meeting on Saturday afternoon, F. W. Chase won the five miles scratch race on his 2½-h.p. Bat motor-cycle, completing the distance in 6 mins. 52 4-5 secs. Tessier and W. Parry were second and third respectively. In the handicap for the same distance, in which there were thirteen competitors, he finished third from the scratch mark. H. Collier was first and Tessier second.

MOTOR-CAR v. TRAM-CAR.

On Monday, at the Brompton County Court, an action was brought by Mr. N. L. Scott, of Harrow, against the London United Tramways Company, in respect of damage done to his motor-car in a collision with one of their tram-cars at Shepherd's Bush on June 8th. The amount claimed was £52 4s. Plaintiff's evidence was to the effect that he was driving his motor-car from Harrow to Putney, and when at the bottom of Wood Lane, Shepherd's Bush, saw a tram-car coming along at thirteen miles an hour, and twenty yards from him. He pulled up, but, as far as he could see, no attempt was made by the driver of the tram-car to check the speed of his vehicle, which was not stopped until it had covered another thirty yards. His speed on crossing the road was under seven miles an hour. The driver of the tram-car stated that at the moment of the impact his vehicle was travelling at the rate of three miles an hour. The jury returned a verdict in plaintiff's favour, and assessed the damages at £30.

OBSTRUCTING A MOTOR-CAR.

At Lowestoft Police Court, H. Ayers, of Lowestoft, driver, was summoned for not keeping his carriage on the left or near side on Lowestoft Road, at Somerleyton, on September 7th, thereby obstructing the free passage of Mr. Septimus F. Beaver, of North Parade, Lowestoft. Mr. Beaver said he was staying at Lowestoft, and on the day named was driving a motor-car from Somerleyton to Lowestoft. He saw a four-horse brake going in the same direction as himself. As he wanted to pass, he sounded his warning gong. Seeing the brake drawn partly aside, he attempted to pass. There was not too much room, and his off-wheel mounted a heap of stones. He passed the defendant and pulled up a short distance ahead. The brake then passed witness, who subsequently overtook the brake, driving on the wrong side of the road, and he used every effort to attract the attention of the driver and conductor. A carriage passed the brake on the right side, and witness attempted to pass through the opening, when defendant drove into his car again. Witness warned the conductor that if he were not allowed to pass he should inform the police, and as he had his wife and family on the car, he thought best, as defendant declined to let him pass, to return to Lowestoft by another route. There was ample room for him to pass, but he was deliberately obstructed by the defendant, whose horses did not appear to be restive. The chairman said the Bench were of opinion that the defendant deliberately obstructed the motor-car, and he would be fined 10s.

THE MOTOR MANUFACTURING CO., LTD.

THE first ordinary general meeting (statutory) of the Motor Manufacturing Co., Limited, will be held at Winchester House, Old Broad Street, E.C., on Tuesday, the 7th inst. The total number of shares allotted is 252,973, of which 252,966 are allotted paid up otherwise than in cash to the extent of 3s. per share, pursuant to terms of agreement, dated June 19th, 1902 (adopting agreements of April 14th and June 2nd, 1902, entered into by a trustee on behalf of the company), and made between this company and the Motor Manufacturing Company, Limited, incorporated 1900, such 252,966 shares being allotted with 3s. per share credited as part of the consideration for the acquisition by this company of the undertaking of the old company, and upon each of the remaining seven shares the sum of 3s. has been paid in cash. The total amount of cash received by the company in respect of the shares issued wholly for cash is £1 15s., and on the shares issued partly for cash is £14,493 8s. £11,921 3s. 1d. has been paid to the liquidator of the old company as part of the consideration money under the before-mentioned agreements in respect of the discharge of the liabilities of the old company. The company has also incurred liabilities on capital account beyond the liabilities under the agreements before-mentioned amounting approximately to £700, part of which has been paid. The preliminary expenses of the company are estimated at £500.

MR. J. VAN HOYDONK, the maker of the Phoenix motor-bicycles, is, we hear, about to introduce a new light car.

"WE have no hesitation," remarks *The Field*, "in asserting that, taken all round, the automobile is driven with a greater regard for the safety both of the public and of its occupants than is the horse-drawn vehicle."

OWING to the Wesleyan body having acquired the Westminster Aquarium and the adjoining property, the Automobile Garage, 19, Princes Street, Westminster, has been closed. Pending the opening of another garage in the West End, cars will be received at the City Garage, 34, Queen Street, E.C.

MOTOR-CARS have become the subject of questions at municipal elections, and Mr. W. C. Hardaker, a candidate for the Bradford City Council, has declared his opposition to the suggestion that motor-cars should be provided for certain departments of the municipal service.

CONVENIENTLY located at the Holborn end of Chancery Lane, Mr. C. R. Base's showroom presents an interesting study for motorists replenishing their winter wardrobe. He has many serviceable overcoats in Melton cloth lined with leather and with lapels that can be buttoned closely under the collar, forming a very efficient protection for the throat. Mr. Base has also brought out a new garment somewhat on the lines of the motorist's umbrella, but having a wider neck space, which is well buttoned up when the raiment is in position. This is cut on the round so as to effectually prevent any wind finding its way to the body. Motorists' coats of every description are on view, and for ladies the C.R.B. rain-coat has the merit of stylish appearance combined with wet and wind resisting qualities. Motor aprons are another department of the business, and some very effective foot-sacks with muff and pockets should prove a popular line. In fur coats Mr. Base has some capital ideas, and the Russian doeskin coat with opossum collar will appeal to many. Coats made of pony skin are another speciality, and gloves, goggles, caps, silk overalls, boot top covers, and other winter requirements form part of the large stock now held by this enterprising motorists' tailor, who has some of the best-known motorists among his clients.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

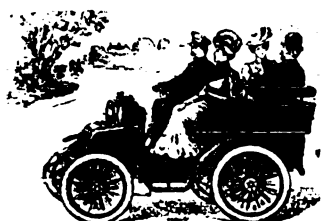
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COMMENTS.



ON Saturday several motorists made special trips over the portion of the road between Farnborough and Aldershot, which has been made the subject of dust-laying experiment. The 40-h.p. Mercedes cars owned by Mr. Alfred Harmsworth and Mr. Charles Cordingley went over the road where the dust had been settled by oil, and as the automobiles approached the specially-treated part the dust rose behind them in a stream, which filled the air as high as the tops of the tall firs and larches on either hand. But where the oil had been spread there was not a particle of dust. The autumn leaves ran races after the whizzing cars, but the road surface was like a layer of clean brown linoleum. The general application of this method of dust-laying must depend on the cost. The oil at fifty miles from London costs about 50s. a ton, and eleven tons were needed for three-quarters of a mile. Mr. J. W. Taylor, the county surveyor, explained that experiments are being made to ascertain how long the good effect lasts, how much oil should be used, and to what extent it preserves the macadam so as to avoid frequent breaking. If the oil, besides preventing dust, reduces the wear and tear, its adoption may prove a considerable saving to the local authorities.

A Dustless Road.

MR. H. W. BUTLER, the assistant to the county surveyor, has explained the way in which the oil was applied. In the first place, they put on about seven barrels in the usual way with the water distributor, but next day the result did not appear satisfactory, so the men went over it with hand cans, and the oil was brushed in as it was poured on. Mr. J. St. Loe Strachey and Mr. Roger H. Fuller also went over the road on their cars on Saturday.

On the Ripley Road.

THERE is going to be fun on the Ripley road if the police continue their present tactics. On the next few Sundays Mr. J. D. Hill, of Baker Street, W., intends to go to the Cobham fair mile to warn motorists of the presence of the police. This will be done by placing a quantity of blue paper on the side of the road, and also on the furze bushes at the top of the hill on Cobham Common. On Sunday week Mr. Hill warned thirty-five automobilists as to the presence of the police, and we believe they gave up the game last Sunday. Mr. Hill intends to continue this system of patrol in the interests of motorists.

The System of Capture.

MR. W. MARRIOTT, of Brixton, has also been giving the subject his attention, and sends us an account of the "system" of timing adopted on the day when Mr. Hill proved himself a friend to so many fellow-motorists:—"There is an archway thickly covered by bushes to gain the entrance to Ripley Church, and as soon as a car came in sight from Guildford, P.C. 194 concealed himself in the archway and took off his hat, presumably for the purpose of escaping notice. Outside the Anchor Hotel a gentle-

man in plain clothes timed the cars over a measured distance, and if a vehicle covered the distance under a certain time it was stopped by P.C. 171, who was stationed opposite at the Ship Inn. If a car came from the opposite direction P.C. 171 made himself scarce while P.C. 194 kept on the lookout for the sign to stop. After waiting sometime and not having seen any captures, we walked in the direction of Guildford, but on coming back saw a Gladiator that had been 'arrested.' Much laughter was caused by cars crawling through on slowest speed at about two or four miles an hour and smiling at the policemen as they passed them."

A Challenge to Jarrett.

MR. SAVORY, the manager of the Westminster Motor-Car Garage, sends us a sketch of a portion of the Ripley road, demonstrating very clearly the inaccuracy with which the speed of cars is ascertained, and challenging Sergeant (or is it Inspector) Jarrett to disprove the conclusions at which he arrives.

The Portsmouth Automobile Club.

WHAT has proved a most enjoyable season has just been brought to a close by the members of the Portsmouth Automobile Club, which has now completed its first year. The committee are now considering a programme which will bring members in close touch with one another during the winter months. For this purpose a general meeting is to be called shortly, when it is hoped that a series of social evenings will be arranged, at which friends may be induced to expound their views and experiences on ignition, tyres, and a host of other subjects of interest to motorists generally. During the season the popularity of motoring in the town and district has spread to a remarkable extent and the Club has thus had every opportunity of establishing itself on a firm basis. The picturesque country surrounding Portsmouth has been frequently visited by the Club on their week-end runs, which have, as a rule, been well attended.

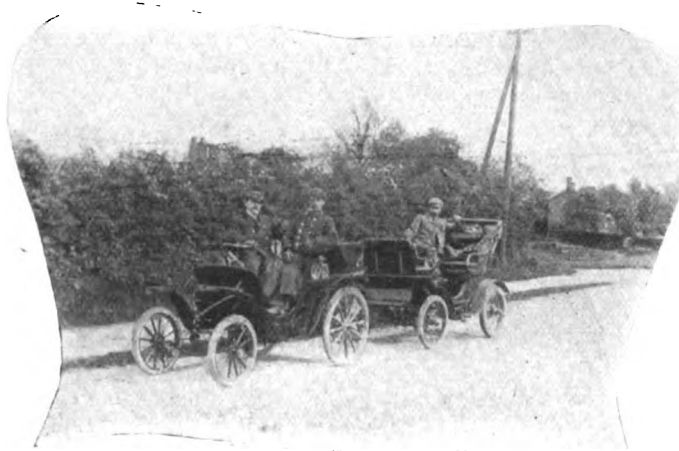
A Rothschild on Automobillism.

AMIDST all the nonsense that has been written against motorists, a letter of Mr. Leopold de Rothschild stands out in pleasant relief. "I venture," he writes, "as an old roadster, to ask for that consideration towards motor drivers which is called in common parlance the courtesy of the road. There is a camaraderie amongst all coachmen, which enables the vehicle to thread its way through the intricacies of a crowded street. At the present moment the motor-car is somehow or other looked upon as the common enemy by coachmen, cyclists, and pedestrians alike. I cannot help thinking that it would be a great mistake to allow this feeling of irritation to increase, because motors have come to stay, and they are not merely rich men's toys. There is no doubt that the large cars, from 12 to 40-h.p., are only available for those possessing large means, but the smaller cars are of the very greatest service to country professional men whose business takes them 20 or 30 miles round their homes. As an industry, already the building of motor-cars means the employment of many men, and as the sales of English-made cars are daily increasing, more hands will be wanted at the factories. More men will also be wanted as *chauffeurs*, and they must be men possessing some knowledge of engineering; and as such they are able to

command a very good wage. At present this varies from 30s. to £4 a week, according to whether they combine skill in driving with a thorough practical knowledge of the machinery and how to repair a motor. It is probable that the supply of good men will increase, and then the present high rate of wages may be lowered; but, still, it would be higher than the ordinary wages of a coachman or a groom. My contention is that it should be a question of give and take."

At Newcastle-under-Lyme.

THE Tyneside Newcastle has long been familiar with motor-cars, but Newcastle-under-Lyme has maintained a more conservative reluctance to adopt automobiles, and for the last three years Mr. F. J. Butterworth has been the only owner of a motor-car in the ancient borough, his particular fancy being a $4\frac{1}{2}$ -h.p. De Dion. Lately Dr. J. Tibbets, of Fenton, has



become an enthusiast with his Stirling dog-cart, and the accompanying photograph shows these two Newcastle motorists posing on the roadside.

Direct Bevel Gear v. Chain Drive.

In the course of an interesting letter on the question of direct bevel gear versus chain driving, Mr. S. F. Edge explains why chains were not used in the Gordon Bennett car. "The point which caused us to adopt the bevel drive for our racer," says Mr. Edge, "is that a racing vehicle is made to go at its topmost speed, and when racing in France one practically never uses anything but the top speed. Now, on our racing car we sacrificed practically everything to reduce to a minimum the friction on the top speed, and none of the gear was in mesh or any gear wheels revolving when on the top speed. It practically came to the engine driving with one through shaft straight to the back axle. This car, although very effective for racing and wonderfully efficient on its top speed, was hardly, I think, so efficient on the other speeds as an ordinary chain-driven car, and I could only consider it a success looked at as a purely racing vehicle."

The Storage of Petrol.

UNDER the Petroleum Acts, 1871-1881, it is provided that no petroleum as there defined, the flashing point of which is below 73 degrees Fah., shall be stored for sale without a licence from the local authority. Judging from the case reported last week, it is clear that the regulations are not universally known; hence the following information may be of value. In the case of motor-cars the subject is specially regulated by the Locomotives Act, 1896, section 5, under which the Home Secretary has made regulations dated 26th April, 1900, "as to the keeping and use of petroleum for the purpose of light locomotives." By these regulations the

provisions of the Petroleum Acts are rendered applicable to "all petroleum kept or used or sold for the purposes of light locomotives." The effect of this is to bring under regulation all volatile oils, such as petrol, benzoline, etc., whether stored for sale or not. By section 7 of the Act of 1871 the keeping of petroleum, to which the Act applies, is prohibited except under licence, which, by section 9, the local authority is empowered to grant, and the Acts control the keeping of petroleum for sale. The regulations above referred to are supplemental to the general law as to storage for sale, and "apply only to petroleum spirit which is kept for the purpose of, or is being used on light locomotives." The apparatus which a local authority must use for testing must, according to the "Local Government Journal," be verified by the Board of Trade, under the Petroleum Act, 1879.

Furious Driving Cases.

ALTHOUGH some motorists have expressed their disapproval of the publication of reports of cases of furiously driving motor-cars, we have continued to catalogue these, feeling sure that such a course would eventually prove of real value to the automobile movement. Such a view finds confirmation in last week's *Field*, where we read:—"The lengthy list of prosecutions for exceeding the legal limit is having an effect other than was anticipated, for it is becoming obvious to everyone that it is absurd to suppose that all those who are summoned can have been doing the slightest harm, and that consequently they are being heavily fined for a purely technical offence, and to make up for the sins of others. There is, therefore, to some extent a revulsion of feeling in favour of the motorist, and comments on the folly of the proceedings are constantly heard from those who are not themselves interested in either the pastime or the industry. With the close of the year there will naturally be a cessation in the number of prosecutions; otherwise it might be expected that the force of public opinion would influence the authorities to put a stop to a senseless persecution."

Motor-Cars for Country Houses.

IN an article on motor-cars for country houses it has been suggested that a practical car is a nine or ten horse-power vehicle which can be a phaeton, a wagonette, a dogcart, or a station 'bus as the owner wills. As a phaeton, it can be used for a party of guns. If it be a small party that has to be carried, the back can be let down, a cross-seat inserted in place of the side seats, and there will be accommodation for four or six people, with the dogs safely tucked away behind the cross-seat in the interior of the car. Bringing the cross-seat closer up converts the car into a dogcart; to change it again into a station 'bus all that need be done is to remove the seats and use the back as a well for luggage. After this will come, probably, an eighteen horse-power car—a wagonette to carry, say, fourteen persons or for estate work. Such a demand has arisen for this class of car that one firm of manufacturers makes a speciality of what it terms a "beaters' car." This class is also very useful where the host is in the habit of entertaining generously. It is a necessity for country-house work that at least one car shall offer complete protection against inclement weather. This is provided by the fitting of a closed back. If only for the protection of feminine toilets, a closed back is necessary; under more prosaic circumstances it is conceivable that the owner may wish at times to be driven in comfort, secluded from the storm, and no car on which a country house depends would be complete without some provision to this end.

A Suggested New Racing Car Class.

A SUGGESTION has been made among the members of the Rhode Island Automobile Club that a class be established by the American Automobile Association, to be built to by the different motor-car constructors in the same way as classes are built to in yacht racing. A specified weight would have to be allowed, and horse-power and gears made to certain specifica-

tions. The cars, in this way, would be much as the yachts built under yacht racing rules, of very nearly the same capacity, and one would differ from the other in the strength of its construction, and the reliability of its propelling power. The driver of the car would then hold the same position as the captain of a yacht, as skill, good judgment in using his power, and steering the car, would decide the race, and there would be close finishes which would be exciting and interesting to all spectators.

Direction Posts on Main Roads.

AN interesting and practical discussion arose the other day at the Branston Rural Council, which meets at Lincoln. A circular letter had been received from the County Surveyor of Notts., asking the councils to co-operate in a scheme for the improvement of the system of guide posts in the district. The Highways Committee had resolved not to accept the suggestion, but Mr. W. G. Marshall moved that Mr. Hooley's offer be accepted. There were, he said, many strangers now passing over the roads, and he thought the Council should bear part of the cost of improving the direction posts. The Council discussed the question whether the liability lay with them or the County Council, it being stated that at present the posts only showed the direction along the main roads, and not the

The Automobile Mutual Protection Association.

A MEETING of the General Committee of this association was held at the registered offices, 88, Chancery Lane, W.C., on Friday, the 3rd inst., and several members of the Committee were present. The secretary (Mr. George R. Helmore) reported that a large amount of business had been done since the previous general meeting, and it transpired that much useful assistance had been rendered to several members. The secretary further reported that since the previous meeting of the General Committee several new members had been elected, including the Maudslay Motor Company, Mr. E. H. Arnott, Messrs. Horsfall and Bickham, the Langdon Davies Electric Motor Company, and the London Motor Garage Company, Limited. A financial statement showing a satisfactory condition of things was submitted and approved. The next meeting of the General Committee was fixed for Friday, November 7th.

The Use of the Highway.

MEETING for the ostensible purpose of discussing local taxation on Saturday, the members of the Boroughbridge (Yorkshire) Agricultural Society were not long in getting on to the highway, where they assailed motorists in figurative fashion. Various speakers urged that the roads were becoming more



Photo by]

THE MEET OF THE YORKSHIRE AUTOMOBILE CLUB AT HARROGATE. (See last issue.)

[O. Brooks.

rural roads. Eventually the Council resolved to accept the offer. Mr. Hooley's plan is to erect posts showing the principal towns and villages with the mileage calculated to a quarter of a mile.

A Question of License.

A DECISION which will no doubt prove interesting to our readers was given by the Portsmouth Bench of magistrates on Tuesday morning. The defendant was the manager to a firm of motor agents in Southsea, and was summoned at the instance of the Inland Revenue authorities for having neglected to take out a license for a two-wheel motor-carriage which, evidence was adduced to prove, he had been repeatedly seen riding. Defendant's contention was that the machine was the property of his employers, and as he was only a paid servant he was therefore not liable. He further explained to the Bench that he had frequently had machines sent for repairs, and after these had been effected it was his duty to try them and see they were all right. The Bench unhesitatingly dismissed the information, but the supervisor of revenue who conducted the prosecution intimated that he should advise the Board to appeal against the decision.

national than of local concern, and that motor-cars should be taxed. Mr. Miles Stapylton, who presided, referred to the improvement that had taken place during the last six years in the roads of the North and West Riding of Yorkshire, and he, too, seemed to think that automobiles should bear the financial burden. The Oxfordshire and Norfolk County Councils have also been discussing the subject, the former dropping it after hinting to the Watch Committee the advisability of issuing a warning to all drivers. Norfolk councillors, however, went further and passed a resolution in favour of numbering motor-cars.

Sticks for Motorists.

BUT the Norfolk and Oxford discussions are tame reading compared with the debate at a meeting of the Yeovil District Council, when a councillor declared that the local constables should be provided with sticks to be judiciously used on motorists. Similar proposals have been made in the United States, but we had never expected to hear them spoken of in this country. Verily there will be need of the Automobile Volunteers, and it is a piece of forethought to make it a condition of service that recruits thereto should be good rifle-shots and know how to handle a revolver.

"Motor-Car Accidents."

At the Warrington Coroner's Court an interesting case has just been heard, which shows that coroners are recognising even more keenly than members of the newspaper press the fact that horses are much more dangerous than motor-cars. The remarks of Mr. Brighthouse, the Warrington coroner, were called forth by an accident which occurred in one of the principal streets of the town, when a horse attached to a lorry carrying a heavy load became frightened by the noise of the "buzzer," a very familiar sound in all the great manufacturing towns of the North. In censuring the driver of the horse-drawn vehicle, the coroner said that the popular fancy was fond of fining motor-car drivers who could bring their inanimate steeds to a standstill almost immediately, but in this particular case there was a horse, which sometimes could scarcely be controlled with reins, being worked in the public streets without reins. He warned the driver to tell his employers to have reins on their horses in future, or they would be getting into trouble. There is no doubt that half the accidents that occur in the public streets with regard to horse-drawn vehicles are owing to the carelessness of the drivers in whose charge they are, or of those who send them out on their journeys. Mention of this case reminds us of an incident which happened last week near Stirling, when a motor-car belonging to the Earl of Mar and Kellie, and driven by the Earl of Lonsdale, was proceeding along Causeway Head Road. A horse yoked to a cart became frightened, and bolted, throwing its driver on to the roadway. The latter was unhurt, but this did not prevent the slight mishap being heralded throughout Scotland as a "Motor-Car Accident near Stirling."

The Yorkshire A.C.

ANOTHER meet of the Yorkshire Automobile Club took place last Saturday, when there was a good muster of the members and cars at the Royal Hotel, Boston Spa, for tea. At 3.30 the various cars began arriving at Harewood, and at 4 p.m. a start was made along the well-known Harewood Avenue and through Collingham. The roads were rather sticky from the recent rains, but fortunately side-slips were rare, and none of them caused damage. A plucky motor-cyclist turned up, and was the centre of attraction owing to his riding, and using non-slipping treads to the tyres, which seemed to answer admirably. Amongst the cars and members present were Mr. Kirk, 16-h.p. Panhard; Mr. and Mrs. Jackson, 10-h.p. Daimler; Mr. A. W. Roslington, 9-h.p. De Dion; Mr. A. W. and Miss Dougill, 12-h.p. Loidis; Mr. F. Asquith and party, 9-h.p. Korti; Mr. and Mrs. Whitaker, 10-h.p. Lanchester; Mr. Winn, 12-h.p. Gladiator; Mr. Armitage, 4½-h.p. Korti; Mr. and Miss Burrows, De Dion; Mr. Borland and Mr. Wharam, De Dion; Mr. Mortimer, 3-h.p. tricycle; Mr. Brookes, 2½-h.p. bicycle; and Mr. Dawson, 8-h.p. De Dion.

A Locomobile Petrol Car.

IN the last issue to hand of the Chicago "Motor Age" appear two illustrations of the Locomobile petrol car. Under date September 19th our contemporary states:—"Announcement was made to-day of the more than suspected and long expected Locomobile gasoline car designed by Mr. A. L. Riker. The new vehicles are being made at the Overman Automobile Company's factory at Chicopee Falls, Mass. 'We recognise the demand for gasoline cars for touring purposes,' said Mr. J. A. Kingman, 'and propose to meet it to the best of our ability. We still believe that steam machines are better adapted to all-round service, and especially city use, and shall continue to manufacture them in our present factories. All the gasoline cars, however, will be made at the Overman factory. The present cars are all of 2,000 pounds. We will also have a 1,500

pound model. To speak generally our engine will be a four-cylinder upright with 12-h.p., capable, however, of developing 18-h.p. The feature of the cars will be the flexible throttle control, whereby the speed may easily be kept down to the lowest city speed limit requirements."

The Tyre Trials.

DURING last week 705½ miles were run in the Tyre Trials, making a total mileage of 3,705½. The runs were to Winchester, Eastbourne, Chichester, Cambridge, and Folkestone, the roads to Eastbourne and Folkestone proving most kindly to the tyres—judging from the record of marks lost. Evidently the journey to Winchester was very troublesome. The marks lost to the end of the trial were as follows:—

	5th week.	Total to end of 5th week.
1. Dunlop	63	102
2. "	10	66
3. "	19	152
4. "	36	298
6. Maison Talbot	89	538
7. Collier	7	44
12. E. Midgley	3	69

Mr. Midgley has to make up three days' running, so that his record is not complete. His application to be permitted to submit his experimental tyres to a test over a patch of road laid with loose unrolled stones, broken flints, and glass bottles has been considered by the judges, who have directed that all competitors should be invited to accept or decline this test, which will be carried out in the presence of one or more of the judges to-day (Saturday) on an estate at Dollis Hill.

The M.M.C.

TUESDAY'S meeting of the Motor Manufacturing Company was a welcome contrast to the last gathering of the shareholders held at Winchester House, and from the statement of the chairman (Mr. W. B. Pritchard) it was clear that the financial credit of the new company has been considerably strengthened. The directors have decided to give attention to three classes of cars, of 8, 10, and 20-h.p. respectively. They have now sixty 10-h.p. vehicles in hand and are also making single-cylinder 8-h.p. engines, for which there is a ready market. During the past week an order for 100 2½-h.p. engines for motor bicycles has been received, and both the chairman and the works manager appeared confident as to future prosperity.

A Sensational Story Denied.

A SENSATIONAL story has been going the rounds of the papers relative to a collision between a motor-car and a motor-bicycle, near Shrewsbury, on Friday of last week. It is stated that the two machines were coming in opposite directions, and that they dashed into each other with alarming results. This is not correct—the car was passing the bicycle, both going in the same direction, when the two slightly grazed each other. The cyclist was thrown off and received severe abrasions on the face, and was of course greatly shaken. In a short time he was able to move about with assistance, and was at once taken in the car to the nearest doctor, afterwards returning home by train, and is now progressing favourably. Fortunately there was no fracture and no limbs broken. The motor-bicycle was but little injured. The owner of the motor-car in question regrets the occurrence, and in the interests of motoring has given us these correct particulars of the incident.

Light Motor Delivery Vans.

MANY leading firms have promised co-operation in the proposed trials of light motor delivery vans to be held next year, and already suggestions as to the requirements of trading firms are coming forward. The Patent Steam Carpet Beating Company, Limited, suggests that a useful delivery van would have a capacity of 1½ to 3 tons, the size to be equal to

that of an ordinary two-horse van. Messrs. W. H. Smith and Son, Limited, would require a vehicle to carry a maximum weight not exceeding two tons, and have a cubic capacity of 140 ft. to 150 ft. A large number of firms have agreed to attend a conference on the subject, and some have offered to give opportunities for practical business tests.

The Reliability Trials.

THIS week we give the results of the Reliability Trials, and in our next issue propose to deal with these at greater length. Suffice it now to say that the Wolseley Company has obtained two gold medals; the Locomobile Company, one gold medal for two good cars; and the Motor Manufacturing Company, the Humber Company, Friswell Limited (Peugeot), Panhard and Levassor, and Baron Henri de Rothschild have each won a gold medal. The Daimler Company, the De Dion Bouton Company, and the Motor Traction Company have each been awarded two silver medals, while the Century Engineering Company, the Speedwell Company, and the Maudslay Motor Company are also silver medallists. An extra silver medal was awarded in Class C, to the White steam car for novel features and general excellence.

THE RELIABILITY TRIALS.

IN previous issues we have given the total number of marks obtained by the various motor-vehicles in the recent Reliability Trials organised by the Automobile Club. The Judges' Committee have now made known their awards as follows:—

SECTION I.

CLASS A.—Vehicles, cycles or cars, declared at a selling price of £150 or less.

First Prize: Gold Medal, No. 1, the Humber Co.'s 3 h.p. Humber Motor Bicycle.

Second Prize: Silver medal, No. 4, the Century Engineering Co.'s 5-h.p. Century Tandem.

CLASS B.—Cars declared at a selling price of more than £150, but not more than £200.

First Prize: Gold Medal, { No. 10, the Locomobile Co.'s 5½-h.p. Locomobile Steam Car.
No. 9, the Locomobile Co.'s 5½-h.p. Locomobile Steam Car.

CLASS C.—Cars declared at a selling price of more than £200, and not more than £300.

First Prize: Gold Medal, No. 23, the Motor Manufacturing Co.'s 8-h.p. Voiturette.

Second Prize: Silver Medal, No. 24, the De Dion Bouton Co.'s 6-h.p. De Dion Voiturette.

In this class an extra Silver Medal is awarded to No. 29, 6-h.p. White Steam Car, for novel features and general excellence.

CLASS D.—Cars declared at a selling price of more than £300, and not more than £400.

First Prize: Gold Medal, No. 41, the Wolseley Co.'s 10-h.p. Wolseley Car.

Second Prize: Silver Medal, No. 47, the De Dion Bouton Co.'s 8-h.p. De Dion Car.

CLASS E.—Cars declared at a selling price of more than £400, and not more than £500.

No Gold Medal is awarded in this Class.

First Prize: Silver Medal, No. 59, the Motor Traction Co.'s 7½-h.p. Germain Car.

CLASS F.—Cars declared at a selling price of more than £500, and not more than £600.

First Prize: Gold Medal, No. 64, Friswell Ltd.'s 10-h.p. Peugeot Car.

Second Prize: Silver Medal, No. 63, the Speedwell Co.'s 6-h.p. Gardner-Serpollet Steam Car.

CLASS G.—Cars declared at a selling price of more than £600, and not more than £700.

First Prize: Gold Medal, No. 69, the Wolseley Co.'s 20-h.p. Wolseley Car.

Second Prize: Silver Medal, No. 74, the Motor Traction Co.'s 15-h.p. Germain Car.

CLASS H.—Cars declared at a selling price of more than £700, and not more than £800.

No Gold Medal is awarded in this Class.

First Prize: Silver Medal, No. 76, the Daimler Co.'s 12-h.p. Daimler Car.

CLASS J.—Cars declared at a selling price of more than £800, and not more than £1,000.

First Prize: Gold Medal, No. 84, Baron Henri de Rothschild's 20-h.p. Pascal Car.

Second Prize: Silver Medal, No. 82, the Maudslay Motor Company's 20-h.p. Maudslay Car.

CLASS K.—Cars declared at a selling price of more than £1,000, and not more than £1,200.

First Prize: Gold Medal, No. 88, Panhard and Levassor's 15-h.p. Panhard Car.

Second Prize: Silver Medal, No. 86, the Daimler Company's 22-h.p. Daimler Car.

SECTION II. (Parts of Motor-Vehicles.)

P. 2. The Roadway Autocar Company's "Dust Screen" on Car No. 70, 10-h.p. Mors.

The conditions during the trials not being satisfactory for proper test, so much dust being suspended in the air from other cars, it is suggested that the Roadway Autocar Company shall be invited to submit to a further careful test.

P. 4. Wilson and Pilcher's "Piston Rings" on Engine of Car No. 71.

A Certificate is awarded that Rings were in perfect condition after the trials.

P. 5. Wilson and Pilcher's "Commutator" on Car No. 71.

No award is made, as it is considered not of sufficient novelty.

A PUBLIC service of motor-cars is, we hear, shortly to be started between Brixton and Regent Circus, W.

A 20-H.P. MAUDSLAY car has been ordered by Mr. F. W. Webb, the chief engineer of the London and North-Western Railway Company.

THE Northwich Council has sent a petition to the Cheshire County Council, asking that body to comply with regulations to suit the pace of motor-cars on the main roads.

AT 33 and 35, King Street, West Manchester, a motor-car garage has been established by the Manchester Garage and Motor-Car Body Company. The company undertakes repairs and supplies petrol, lubricants, etc.

THE first car to complete the 4,000 miles in the Tyre Trials on Wednesday (the day fixed by the Automobile Club for the conclusion of the tests) was T 1, driven by Mr. A. Mosses, upon which Mr. H. Carmen, assistant secretary for the trials, acted as hon. observer, accompanied by a representative of the Maison Talbot. The car arrived at 10.59 a.m., followed by T 3 six minutes later. This was driven by Mr. George du Cros. At 1.30 p.m. the 10-h.p. Wolseley (T 4), driven by Mr. W. Bracewell, arrived. All these were fitted with Dunlop tyres. The other competitors have a considerable distance yet to run. So far the total number of points lost by the cars that have completed the 4,000 miles, including the time occupied in fitting a reserve cover in each case, are as follows:—T 1, 102; T 3, 152; T 4, 322. The car fitted with Collier tyres ran to Amersham on Monday, when it broke down and had to be sent on to the Napier works for repairs. It was expected to start again on Thursday morning to complete the mileage. As is recorded on a previous page, the Collier tyre had the first position (based on the loss of marks) up to the fifth week, and great interest is being taken in its last runs.

THE "WATSONIA" PETROL CAR.

A FEW days ago we had an opportunity of inspecting the chassis of a new 10-h.p. petrol car which is being introduced into this country under the name "Watsonia," and of which illustrations are given herewith. To begin with the frame, this is made of wood, reinforced by angle steel, mounted on artillery type wheels of equal size, taking 840 mm. by 90 mm. pneumatic tyres. The motive power is supplied by a two-cylinder vertical

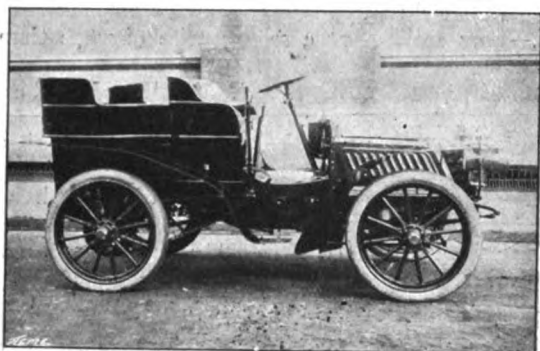


FIG. 1.—GENERAL VIEW.

engine, placed in the usual position under the bonnet. The governor, which acts on the admission, is itself controlled by a pedal, which regulates the engine speed between 200 and 1,100 revolutions per minute, the normal rate being from 700 to 900 revolutions. The two cylinders are cast in one piece, no water joint being used for the heads. The arrangement adopted for

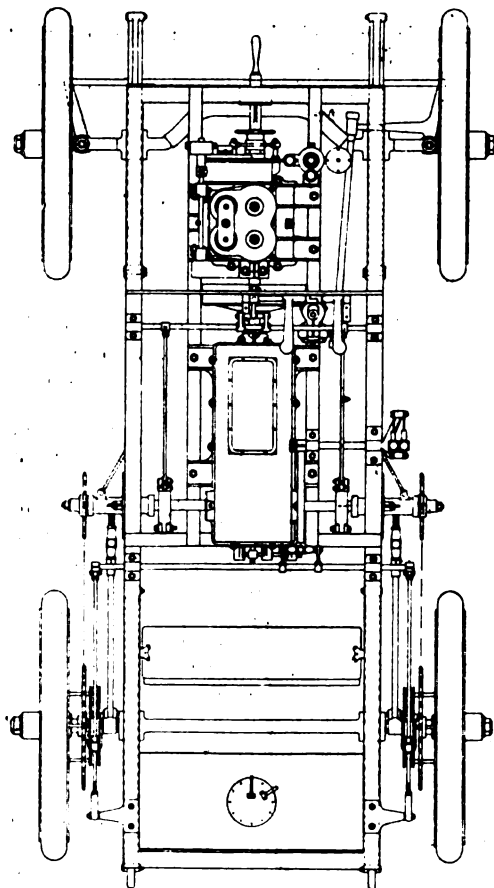


FIG. 2.—PLAN OF CHASSIS.

fixing the valves enables them to be withdrawn by removing a single nut. The crank chamber is made of aluminium, and is fitted with a drain cock, to let out any superfluous oil. Electric ignition is fitted, and this is timed by a small lever on the steer-

ing pillar. The carburettor is of the usual spray type. The water circulation is maintained by a pump gear-driven off the half-speed shaft, the gearing being entirely enclosed; a radiator is also fitted in the front of the motor bonnet. An interesting feature of the water circulation is the arrangement of the pipe in such a way that the driver can at all times see if the water is circulating. A pipe extends from the top of the radiator to a glass "tell-tale" mounted on a tube extending upwards from the head of the cylinders through a hole in the engine bonnet. This "tell-tale" is screw threaded so that it can be detached and additional water poured in when necessary.

Three forward speeds and a reverse motion, operated by a single lever, are provided. The power is transmitted through a friction clutch to the gear-box and thence by bevel gearing to a differential cross-shaft, which latter is in turn connected with the rear road wheels by two chains. The clutch between the motor and the transmission is broader than is usual, and is so shaped that it does not grip suddenly when started. Double-acting brakes are provided, there being two brake drums fitted on the countershaft close to the bearings on the frame in order to take the strain of the bevel gear. There are three pedals, the left one releasing the clutch, the right one withdrawing the clutch and applying the two band-brakes on the differential shaft; the third small one is the accelerator pedal, which, by pressing it down, prevents the engine from cutting out. A hand lever on the side of the car releases the clutch and puts on two band brakes on drums attached to the hind wheels: these brakes are mounted on a swivel to prevent skidding. Complete, the car weighs about 13 cwt. Fig. 1 shows the four-seated tonneau, but the motor and mechanism are so arranged that any desired type of body can be fitted. The Watsonia Motor Company, Limited, who have one of these vehicles on view at their depot, 94, Victoria Street, Westminster, inform us that they hope shortly to receive delivery of a 15-h.p. car on similar lines, but fitted with a four-cylinder engine.

It is reported that the Diamond Rubber Company is to open a works at Glasgow, and that Mr. W. A. Smith, vice-president of the Diamond Match Company, is interesting himself in the venture.

MOTOR-CAR building is one of the objects for which the company of Woodhouse and Mitchell Limited, has been registered, with a capital of £30,000. The registered office is at Clifton Bridge Works, Brighouse.

THE British Automobile Commercial Syndicate, Ltd., are now introducing a new model of the Clement car having a 11-h.p. double-cylinder engine. The car is similar to the 9½-h.p., with, however, the following alterations, viz., circulating pump worked direct from the motor shaft, and nearly all water tubes suppressed; enlargement of governing mechanism; hot air to carburettor; and inspection opening to crank chamber.

MR. G. CROSSLEY, of Market Works, High Fisher Gate, Doncaster, has introduced a liquid composition, known as "D.S.R." for removing old scale in boilers and preventing the formation of new. The composition (in solution) acts on the water, and precipitates all heavy matter, which is got rid of by opening the blow-off cock once a day or at convenient times, and blowing out two or three inches of water. By its use chipping is claimed to be done away with, and by preventing the formation of scale on the tubes it effects a great saving in fuel. The composition can be pumped in with the feed water.

KINGSTON is familiar ground to southern motorists, for whom, in common with other users of the King's highway, Dr. W. E. St. L. Finny has written, and the Homeland Association has published, a useful little guide to the town. Of modern interest is the Surrey County Hall, from whence have been issued many documents of importance to owners of automobiles. Dr. Finny has much to say about the old parish church and other notable buildings, while local celebrities find lengthy mention throughout the pages of the book. There is also a good chapter devoted to Richmond Park, and Surbiton and other adjacent localities are not overlooked.

O'ER HILL AND FELL.

MR. WALTER CREBER, of Barrhead, sends us an interesting account of a ten days' holiday trip he recently enjoyed on his Albion car, the party being completed by his wife and daughter. Their itinerary was as follows:—

	Miles.
From Glasgow to Penrith	106½
Over Shap Fell by Kendal, Lancaster, Preston, Chorley, to Horwich	87
Via Manchester to Ashton and Altrincham, Northwich, Chester, Wrexham, and Minera Mines	85
By Llangollen, Corwen, Capel, Cerrig, Bethesda, Bangor, to Llangefni, where four days were spent with friends	83
Carnarvon, Beaumaris, Llangefni	64
Portlancorwich, Holyhead, Beaumaris, Llangefni	92
Mona, Bethesda, Llangefni	44
Valley of Pentraeth, Beaumaris, Bangor, Llangefni	43
Left for home by Carnarvon, Beddgelert, Bala, to Llangollen	107
To Kendal by Chirk, Warrington, Wigan, Preston, and Lancaster	133
Through English Lakes by Windermere, Ambleside, Grasmere, Keswick, Bothel, Carlisle, Annan, and Dumfries	98½
Home by Thornhill, Slengar, and Kilmarnock	74
Total	1,017

Petrol was easily obtained, and only once did he find it lacking. In that case the store had only 2 gallons in stock. The prices ranged from 1s. to 1s. 9d., and the consumption averaged 1 gallon for 23½ miles—which, considering the state of the roads and the load carried, must be regarded as very satisfactory.

The roads were heavy owing to the rain as far as Abington, but on to Penrith there was a very fair surface. Over the fells an ingenious surveyor was having the sides of the roads cut up, and the material was thrown into the centre of the road. Beyond to Preston, the roads were good, but when the Lancashire cobbled road surface was encountered very unfavourable opinions were expressed. Cheshire roads were very different. The roads best provided with finger-posts were in Cheshire, while the worst were in the portion of Merionethshire crossed, where they were conspicuous by their absence.

Avoiding the beautiful Clyde fruit valley, and passing over Douglas Moor, there was little of interest till the fine agricultural plains were reached beyond Lockerbie, though they all indicated a backward season. Little change was noticed till Penrith was passed, when the wildness of Shap Fells began to grow on the party till when the summit was reached, it became appalling. Nothing in sight but moor and mountain, not even a solitary sheep, but a few miles beyond, after getting through the fearful dip at Banisdale Bridge, the beautiful Kendal valley came in view, with the town standing out beautifully on a slope of the hill. Hence, through the busy district of Carnforth on to Lancaster and Preston the scenery was very tame. Leaving Manchester by Old Trafford, there was a continuous change of pleasant surprises, the road all the way to Chester being fringed by beautiful villas and pretty cottages with pleasant gardens. Large halls with their meres or fertile fields made an endless picture, till just above Tarvin the whole valley of the Dee around Chester burst into view—a really delightful picture. On to Wrexham the road skirted the beautiful policies of Eaton Hall, where the old English cottages were seen at their best. Around Minera Mines the country was the bleakest possible, though many fine views were obtained from its elevated position. Here Mr. Creber's was the pioneer car. Continuing through Ruabon, of terra-cotta fame, the Vale of Llangollen was struck, and then the road for eight miles towards Corwen was decidedly the finest bit of scenery

on the whole journey, giving an endless variety of pictures at every turn. Then came the wild moorland round Curig-y-Druidion, the highest point on the London and Holyhead coach road, with a nine miles' descent into the fine Conway valley at Bettws-y-Coed, deservedly famous as a quiet resting-place. Crossing Waterloo Bridge, the road took up a fine pass by Swallow Falls and on to Capel-curig, a wild, mountainous district, when a fine view was had of Snowdon, shortly after which a wild pass led to the renowned Penrhyn slate quarries, and on to Bangor, a convenient centre from which to tour North Wales. Over the Menai Chain Bridge, with a splendid view of the Straits and Stevenson's far-famed tubular bridge, landed the party in Anglesey, a quiet agricultural country, with little of importance save Holyhead, the connecting link between London and Dublin. The homeward journey was over the mountains and by Beddgelert, nestling in a hollow, and out by the wildest pass on the whole journey to Bala. Then again through beautiful Cheshire by Chirk, Warrington, Wigan, to Kendal, where the Lakes road was taken. Passing through Dumfries, the beautiful valley of the Nith was followed through Thornhill, and past the lovely Drumlanrig estate, when beauty ends, and gives place to bleak and backward moors to Kilmarnock.

On the whole of the journey only eight motor-cars were seen.



MR. WALTER CREBER, ON HIS ALBION CAR, FORDING THE RIVER GRYFE BETWEEN HOUSTON AND CLIPPENS, N.B.

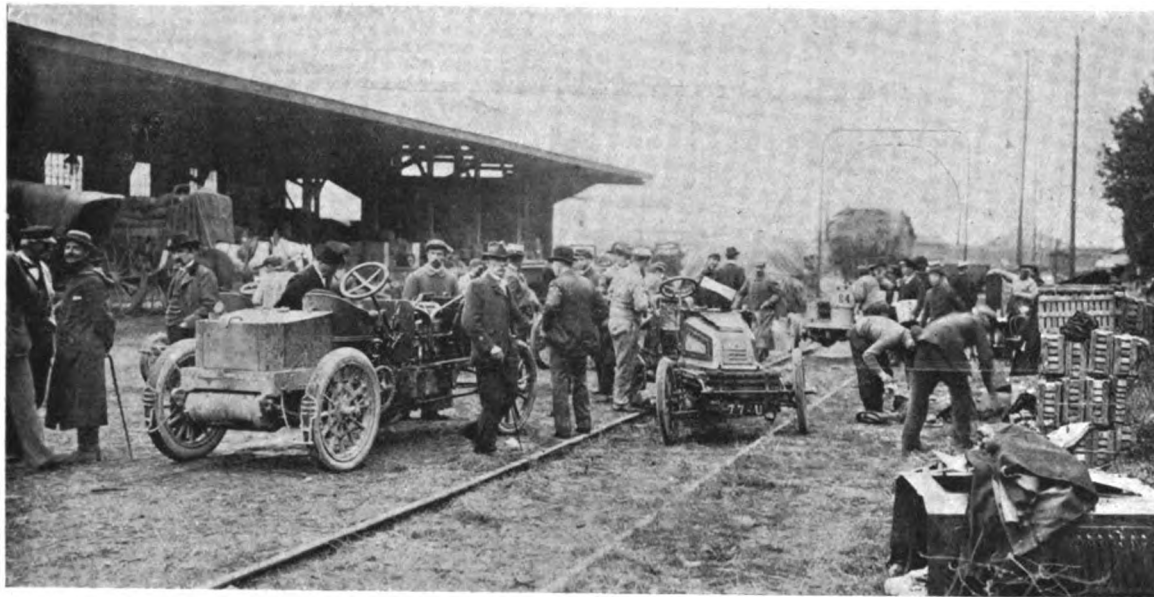
Some interesting incidents were naturally observed in the course of such a long journey. At one point a shepherd was driving his sheep from the saddle of a bicycle. On another occasion, coming suddenly round a corner, were several vans delivering aerated waters; one of the van horses took fright and started down the road. Mr. Creber immediately stopped, and after waiting some time got the driver out of the public-house, and, taking him aboard, started in pursuit—or, rather, followed slowly on—fearing that the noise of the engine would startle the fugitive. The driver meantime enjoyed the whole scene, and declared that the old mare would run to Chester. Several times in passing other carts it became a question as to whether she would get clear or not, but after a couple of miles the driver opined that the "Red Lion" would hold her, and so it did, for use and wont were too much for the quadruped, and she drew into the accustomed place as usual, much to everyone's relief.

The Albion, upon which the trip was taken, has been constantly used by Mr. Creber since July, 1901, and its mileage now stands at 14,052—a reliability test that reveals its British workmanship.

CONTINENTAL NOTES.

BY AUTOMAN.

NEXT year's *Circuit des Ardennes* will differ in many ways from the recent event. It is probable that the tourist section



THE HILL-CLIMBING COMPETITION AT GAILLON.—WEIGHING-IN AT THE RAILWAY STATION AT VERNON.

will be entirely eliminated, and that the heavy and light-car classes will be run off at separate times, the one in the morning and the other in the afternoon.

MESSRS. BENZ AND COMPANY, of Mannheim, have not quite so satisfactory a balance-sheet to present to their shareholders for the past year as usual, the net profit being only £9,945, as contrasted with £22,618 in 1900-01. A dividend of four per cent. is being declared, as against eight per cent. in the preceding year.

FINANCIAL and industrial circles in Austria are just now greatly agitated owing to the discovery of the defalcations to the extent of over four and a half million crowns, of an official named Jellineck, of the Austrian Länderbank. One of the concerns which has been brought to the ground by the frauds is the Oesterreichischen Electromobilwerke (Lehner Dauber and Co.) of Vienna. At a meeting just held, Herr Pollack, in announcing the unfortunate position of the company, stated that the outlook this year had considerably improved. Among the orders secured had been one for fifty electrical cars from a London garage concern, to whom delivery of two vehicles had been made.

As briefly announced in last week's issue of the *Journal*, *La Passe-Partout* has at length reached St. Petersburg. One was almost beginning to think it had disappeared from the road, and one of the French motor journals had even suggested to re-christen it the *Passe-nul-Part*; however, it seems that it required nine whole weeks to pass through Berlin, which city

was left behind on August 31st. After leaving the German capital very good progress was made as far as the Russian frontier, where the party were detained five days on account of their having crossed the boundary line at a point which was not that originally intended. The Custom House authorities required five days to communicate with their superiors and get instructions to allow the car to pass.

In a letter to the *Auto-Velo*, Dr. Lehewess and Mr. Cudell recount their adventures on the Russian roads, on which it seems

the great difficulty is the crossing of streams and morasses. The bridges are primitive, and as *La Passe Partout* weighs $3\frac{1}{2}$ tons in running trim, the travellers had many misgivings in confiding themselves to the half-decayed wooden structures. In some cases the bridges are undergoing repairs, and the road traffic was allowed to find another way of crossing the stream, with the alternative of turning back. The writer of these lines can sympathise with the travellers as far as the Russian roads are con-



THE HILL-CLIMBING COMPETITION AT GAILLON.—THE CLEMENT STAELE.

Photos by]

[Branger-Doye.

cerned, as he has travelled over them, not in a motor-car, it is true, but in a native cart without springs, drawn by a little Russian pony. The morasses are very common in western Russia, which is to a great extent made up of forests with stunted pines

growing on the sandy islands of immense morasses. Where the road passes through the morass, the Russian idea of repairing it is by felling a number of pines and piling them across the road until they sink level. All this does not sound like going well with motor-cars and pneumatic tyres.

WARSAW, the capital of Poland, claimed La Passe Partout and the accompanying Argyll for a week, and then, after taking a wrong turn in the road, two days were lost in crossing ploughed fields; villagers with teams of horses seem also to have had a hand in the game. However, on September 26th, at night, the two cars arrived in St. Petersburg. There seems to have been a very cordial reception in St. Petersburg, and no doubt a few weeks will be spent there, but the intention of the travellers seems to be to push on to Siberia, passing by Moscow, to winter in Siberia, and to continue their journey in the spring.

THE Mercedes motor-car, from becoming the favourite of the millionaire, has passed into the Courts of Europe. The Emperor of Germany has, of course, had one for a long time, but that may have been for patriotic reasons, but the King of the Belgians has placed an order for a 40-h.p. Mercedes, which has been forwarded to him at Luchon. Fournier is going there specially to hand it over to the King and take him for his first drive on it.

TALKING of the Mercedes car, it is reported that Jenatz has been engaged by the Daimler Motoren Gesellschaft, and is going to drive one of the racing cars next year. I am rather inclined, however, to doubt the truth of the report. The Daimler Company are, I believe, experimenting with a new clutch in which electro-magnetism plays an important part, and Jenatz's presence at Cannstatt is, I think, to be accounted for in connection with this apparatus.

THE Gaillon hill-climbing competition did not come off last Sunday as was expected. The hill was found to be guarded by the gendarmerie, who warned off all comers under the instructions of the Prefet of Police of the Department of l'Eure, in which the hill of Saint-Barbe-sous-Gaillon is situated. Spectators, organisers, competitors, journalists, and photographers were present, and even the weather, which had been abominable the day before, looked up, as it seemed, expressly for the race. Everything was ready but the veto of the Prefet held good, and there was no race.

I SHOULD not have alluded in these columns to the feud which exists between the two sporting papers, the *Velo* and the *Auto-Velo*, if it had not been rendered necessary by the events of last Sunday. Some years ago the *Velo* was the only sporting paper in France, and it was particularly active in the early stage of automobilism in organising races and hill-climbing competitions. But the proprietors worried with alarm the increase in the speed of motor-cars, and began to be afraid lest accidents should happen. They therefore decided to discourage racing, and began to write against it.

THE A.C.F., or rather some influential members of it, then organised an opposition journal, the *Auto-Velo*, and it received the official sanction of the A.C.F., and strongly advocated racing and organised contests. Several members of the staff of the *Velo* went over to the new paper.

THE *Velo* in return promoted a new club, called l'Union Automobile, and M. Leon Serpollet became its first president. Later on, however, this club fell to the ground, and the *Velo* withdrew its opposition to racing. The *Auto-Velo*, however, remained and began a keen rivalry to the other journal.

THE hill-climbing competition of Gaillon originated with the *Velo*, but last year the *Auto-Velo* slipped in before the usual date, and got the authorisation and held the contest. This year the *Velo* took the same course, and the *Auto-Velo* determined to show its strength of following by holding a second contest, and the entries were very plentiful.

JUST how or why the race was stopped at the last moment without any warning, after it had been duly authorised by the Government, it is not for me to say, but I saw a bonfire of copies of the *Velo* lighted in the main street at Gaillon, and everyone present consigned his copy to the flames. It seems that the Minister of the Interior was communicated with by telephone and M. Serpollet went off to Evreux to see the Prefet, but the latter had gone out shooting and there was nothing to be done, and at three o'clock everyone turned homewards in disgust; but before the crowd dispersed a committee was formed, and it was decided to apply to the Ministry for authority to hold a competition a week later, that is to say to-morrow—*qui vivra verra*.

THE question of the *carrosserie* to be used on racing cars in the future is occupying the attention of the racing committee of the A.C.F. Of late the seats for the chauffeurs have in some instances been of such a flimsy nature as to constitute a great discomfort and a real danger, and yet there was nothing to be done if the car chanced to be just about the weight limit. It is fairly certain that a new rule will be made and that the *chassis* only will be weighed, and perhaps the reservoirs for petrol, too, will not be counted in the weight, so that it will be possible for a proper seating capacity to be given to the car irrespective of any considerations of coming within the limit. Of course, it virtually means increasing the weight limit, but the increase is very slight.

A CONGRESS of the Automobile Clubs in South-Eastern France is to be held at Marseilles towards the middle of next month.

SIGNOR MARCONI, of wireless telegraphy fame, is reported to have designed an electric car, the first example of which is being constructed at Leghorn. The new car will, it is stated, be able to attain a speed of thirty-eight miles an hour.

It has been known for some time that the De Dion Company were at work on a new voiturette with the motor under a bonnet in the fore part of the frame. The engine is of 6 h.p.; there are two speeds provided—10 and 28 miles per hour—the transmission being by a universally-jointed shaft and bevel gear. Steering is controlled by an inclined hand-wheel. The little car complete weighs under 7 cwt.

DURING October the Liverpool Motor Cycle Club will hold an interesting series of club runs. To-day (Saturday), Hawarden will be the destination; next Saturday the High Leigh Farm, and on the 25th the run will be to Beeston Castle, *via* Chester.

FOR some time past the John Dixon Crucible Company has been devoting attention to the question of a suitable graphite lubricant for the chains of motor-cars. At first it was thought to provide a pan containing a hard graphite lubricant, the idea being to put the pan on a stove and when the lubricant had melted sufficiently to immerse the chain, which had previously been cleaned. After the lubricant in its heated condition had thoroughly penetrated all the bearing points, the chain was to be removed, wiped comparatively dry, the pan removed from the stove, and on cooling the lubricant would harden to its original condition. On looking around for information relative to the proper size for such a pan, the company found that chains vary so greatly that they would be obliged to have pans ranging from 12 inches to 2 feet in diameter. This idea was therefore abandoned, and they have now brought out a chain lubricant in pails. The lubricant is not quite so hard as they desired to have it, but the idea now is that the owner of the motor-car shall obtain a pan of the required size, put as much of the lubricant in it as he desires, melt it, and then follow the methods outlined above. The reason given by the company for adopting a hard lubricant is that as it cools on the bearings of the chain it makes a better bushing than anything soft could possibly make; also one not liable to so readily retain dust and dirt. They are therefore putting up the lubricant in a cake which will melt at about 180 deg. Fahr.

CARRIAGE BODIES FOR TOURING CARS.*

BY LEON AUSCHER.

(Concluded from page 584.)

FROM the preceding we arrive at the conclusion that the touring car should belong to one or the other of two classes—the canopy top vehicle or the limousine. The choice between the two should be determined by the nature of the trips it is proposed to make—that is to say, the kind of touring one wishes to indulge in.

The canopy top, it is true, is less protecting in case of per-

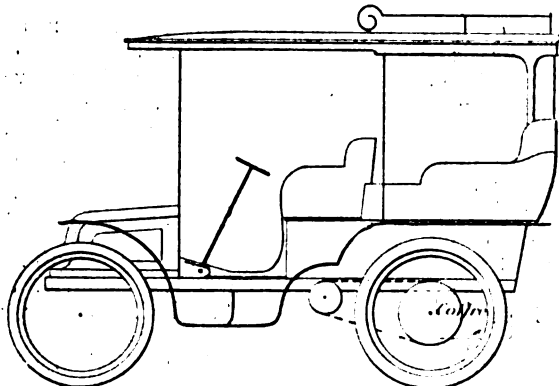


FIG. 16.

sistently inclement weather, in cold weather, and when nights are passed on the road. It is, however, more easily detached; the occupants have a freer view in all directions and greater facility for communication with each other; and, finally, the weight is less. On the other hand, the limousine insures complete protection in its rear closed seat. Invalids and ladies may travel in it with comfort over long distances. One may even sleep in it if necessary. It resembles, at least as far as its enclosed part is concerned, the *coupe* of the old diligences. It is heavier,

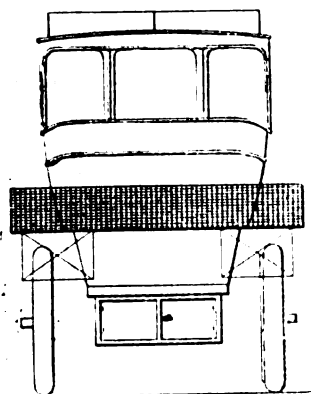


FIG. 17.

but it presents the advantage that it may be used not only as a touring vehicle, but for winter use in town as well. Although one is in a limousine more enclosed, and sometimes too much so, it owes its popularity to its diverse advantages.

The tourist who only uses his vehicle during the summer does not meet the same conditions as the one whose leisure permits him to travel at any season of the year. He who only covers a district of limited radius, without ever venturing too far from a fixed point of supplies, is led by different considerations than the globe trotter, who continually visits new countries. Finally, young men would consider exaggerated the provisions for comfort and protection against weather which elderly people would consider a minimum. Each case, then, has its own solution.

One thing I cannot recommend to the tourist in any case, and that is a compromise called a detachable body or combination open and closed body. They are of no use to the tourist. With

* Abstract of Paper read before the Automobile Congress at Dijon.

a limousine in which the top part can be removed this possibility could not be taken advantage of when on tour, as one would not know what to do with the top except, perhaps, despatching it back home by rail. If, on the other hand, one has started out without the cover and the weather turns bad, so that it is required, one must frequently have it sent—always by rail—a great distance.

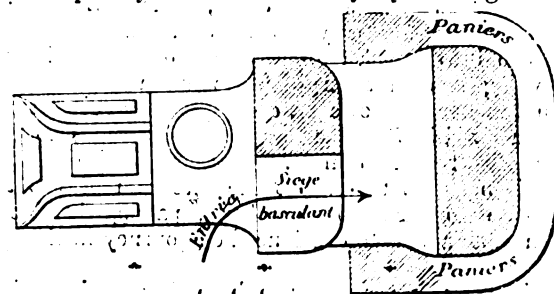


FIG. 18.

Finally, experience has taught us that with detachable tops the joints between the detachable and fixed parts become loose, and this produces a most undesirable effect; and if by chance the tongue part of the joint should swell under the influence of moisture the joint will bind, and the detachable feature becomes questionable. Let us, therefore, leave out of consideration

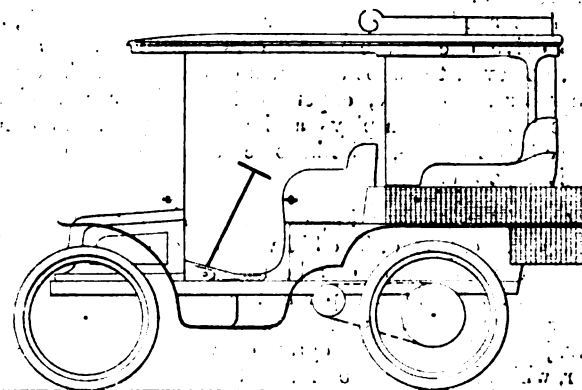


FIG. 19.

city vehicles in which it is sought to combine suitability for both summer and winter use.

I think it advisable, before completing this paper, to indicate by an example the majority of the details which complete the touring car. I shall assume in this example that the type decided upon is a double phaeton with front entrance (Fig. 16),

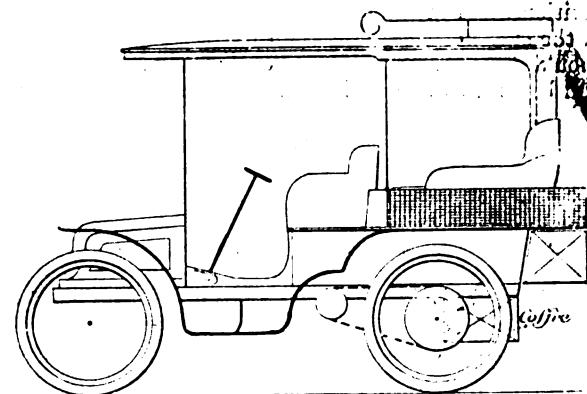


FIG. 20.

I have decided on this type because, first, the entrance being in front, only a single person (the one occupying the left front seat) is ever disturbed by entering; second, the three persons in the rear have a very comfortable seat and are seated close to each other; third, there being no door in the rear of the body, a luggage carrier may readily be affixed there.

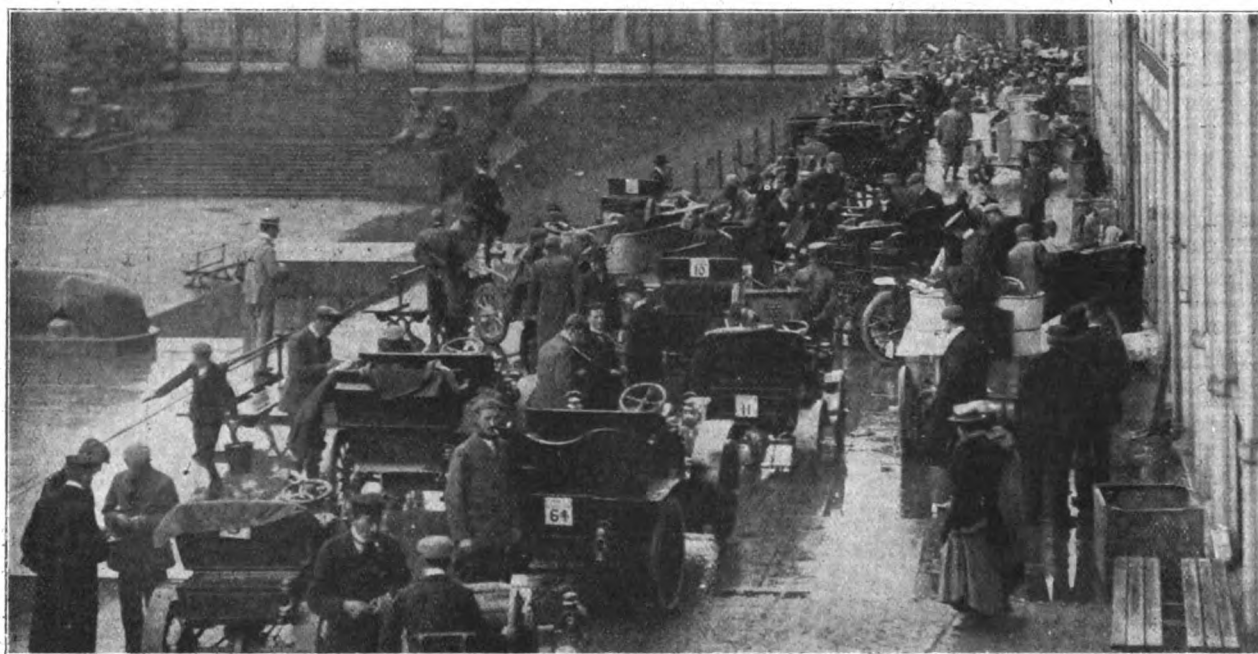
The front seat I shall give the ordinary profile of the back seat of a *tonneau*, by following the lines already laid down. The rear seat, on the other hand, will be widened and raised; its height will be 24 inches; its width 50.8 inches at the seat board, which is sufficient for three occupants; its depth 22 inches.

The canopy top will be affixed permanently. In this manner a rear panel of the entire height of the body may be used, without any joints. This panel will be fitted with three windows in separate frames covering its entire surface, and will extend forward a short distance on the two sides. The occupants of the rear seat can thus see in every direction and are completely protected from dust.

The canopy extends forward over the front seat, which may be further protected by means of a glass front extending up to the canopy. A second glass, similarly mounted, separates the front seat from the rear seat, if desired. Curtains of impermeable cloth or thin leather, arranged on the sides and buttoned to the edge of the body, permit, in certain cases, protecting the rear seat completely and the front seat sufficiently. A space for luggage is railed off on the top of the canopy, and by judiciously distributing the luggage 125 lbs. to 150 lbs. can be carried there. So far regarding the *ensemble*; now for the details.

is no free space the manufacturer may be asked to locate his water tank or silencer elsewhere. We may then suspend there, by means of two rods, a trunk with two doors, opening to the rear, to serve as our tool-box. It will generally be 32 by 14 by 14 inches, or about $3\frac{1}{2}$ cubic feet. Further, the mud-guards of the rear wheels may be developed as luggage carriers (Figs. 17 and 18). To that end they are made flat and are solidly attached to the body by forged brackets; and, in addition to what is done habitually, we will let them pass around the rear of the body. On this platform, which forms an inclosure round the rear seat, we may arrange baskets, hamper, or valises made to order. Supposing their height to be 10 inches, we gain here a carrying volume of approximately 6 cubic feet. These various carrying spaces combined usually suffice for long trips. Nevertheless, if found necessary, we may still add (a) two square boxes stowed away under the rear end of the rear mud-guards (Fig. 19); (b) a large trunk fixed by straps to a special luggage-carrier, hinged to the *chassis* and arranged like a grid to the rear of the rear seat box (Fig. 20). In the latter case the trunk carried may be 34 by 12 by 18 inches— $4\frac{1}{2}$ cubic feet.

By adding up these various spaces, leaving aside what may be carried on top of the canopy, we find we have a total available



A REMINISCENCE OF THE RELIABILITY TRIALS.—THE EARLY MORNING SCENE ON THE TERRACE AT THE CRYSTAL PALACE.

Photo by

[Argent Archer.]

Leaving aside the questions of painting and trimming, which are decided according to individual tastes, we would remark in passing that the use of leather for the seat cushions and backs is imperative and that a cover of impermeable cloth saves the cushions very much in wet weather and when it is extremely dusty.

We now arrive at the important question of spaces to be provided where the tourist may store away all that he needs to carry along with him. The front seat encloses the petrol tank and can therefore not be figured on for this purpose. There remains the rear seat, the internal dimensions of which are approximately 34 by 12 by 20 inches, making nearly five cubic feet. This is little for five persons, but, of course, there is the luggage space on the top of the canopy. However, in general nothing is carried there except the spare outer covers and one or two valises at most. Consequently, as there is no more room either within or on top of the vehicle, we have to look for it on the outside. In this connection it will be noticed that below the body in the rear there is nearly always a free space. If there

space of 18 cubic feet. And allowing a weight of 25 lbs. per cubic foot, we have room for 450 lbs. of tools and luggage. This is an average of 90 lbs. per passenger, assuming five passengers to be carried, and it is therefore more than sufficient.

In addition to the various luggage spaces here enumerated, several others must be provided for special purposes, such as carrying road maps, etc. But here again individual taste determines the arrangements, which vary for everyone. One never has too many little corners to store away the thousand little things which are the joy of the tourist. But, I would always recommend to reserve each receptacle for the same class of articles, to prevent confusion and loss *en route*.

It is also very practical to affix to the dashboard, at some place left free by the lubricating and sparking devices, a good, strong watch and a cyclometer. The lamps must be very efficient in the case of a touring vehicle—more so than on other vehicles. Two acetylene searchlights in front will serve to light up the road, but two paraffin lamps should be carried in reserve on the dash-board for use in case the carbide should give out.

HERE AND THERE.

PRINCE HENRY OF PRUSSIA has just purchased a Locomobile.

A TRACK for testing motor-cars and cycles will form part of the new works erected at Beeston, Notts, by Messrs. Humber, Limited.

THE Philadelphia postal authorities are considering the advisability of using motor-cars for the delivery of mails to the various railway stations.

MR. J. H. KNIGHT, of Farnham, who is well known in automobile circles, has invented a bricklaying machine capable, it is said, of dealing with 600 bricks an hour.

SHERIFF LEE, of Forfar, says that the worst offenders with regard to the speed of automobiles are "members of Parliament and members of the Government who passed the law."

THE Wolseley Tool and Motor-Car Company, Limited, have had a turn-over of £120,000 during the past year. The works have been recently enlarged, and so organised that they hope to nearly double the output next year—a turn-over of £200,000 in 1903.

TWO of the vehicles used at the wedding to which we referred last week were supplied by the Electric Landaulet Company; a handsome phaeton by the British Electromobile Company, and another landaulet by Mr. Carl Oppermann were also present. The appearance of a quartette of electromobiles on such an occasion is somewhat of a novelty. We thank our contemporary, the "Electrical Times," for permission to reproduce the accompanying illustration.

THE Red-Grey Rubber Tube Company, Limited, has been registered with a capital of £5,000, to adopt an agreement with Mr. A. T. Collier, to acquire certain patents, rights, and privileges for improvements in air-tubes for pneumatic tyres, and to carry on the business of manufacturers of air-tubes for pneumatic tyres for motor-cars, etc. There will be no initial public issue.

HERR KRESS, of Vienna, who last year made some experiments with an air-ship, which eventually fell in a lake, has just completed a new model of flying machine.

THE Swiss Automobile Club will hold a hill-climbing competition on the hill known as the Corselle la Tcurne, on October 19th. The hill is 10 kilometres ($6\frac{1}{4}$ miles long), and the average gradient is 6.3 per cent.

A MOTOR-CAR repairer at Bloomfield, N.J., U.S.A., has a rather novel plan for aiding motorists who meet with accidents. He keeps an emergency bicycle, fitted with a two-gallon petrol tank, a stock of lubricating oil, jacks, tools, and repair materials, which can be sent immediately to any disabled car. Motorists have only to telephone to the depot and a mechanic is sent at once on the repair bicycle.

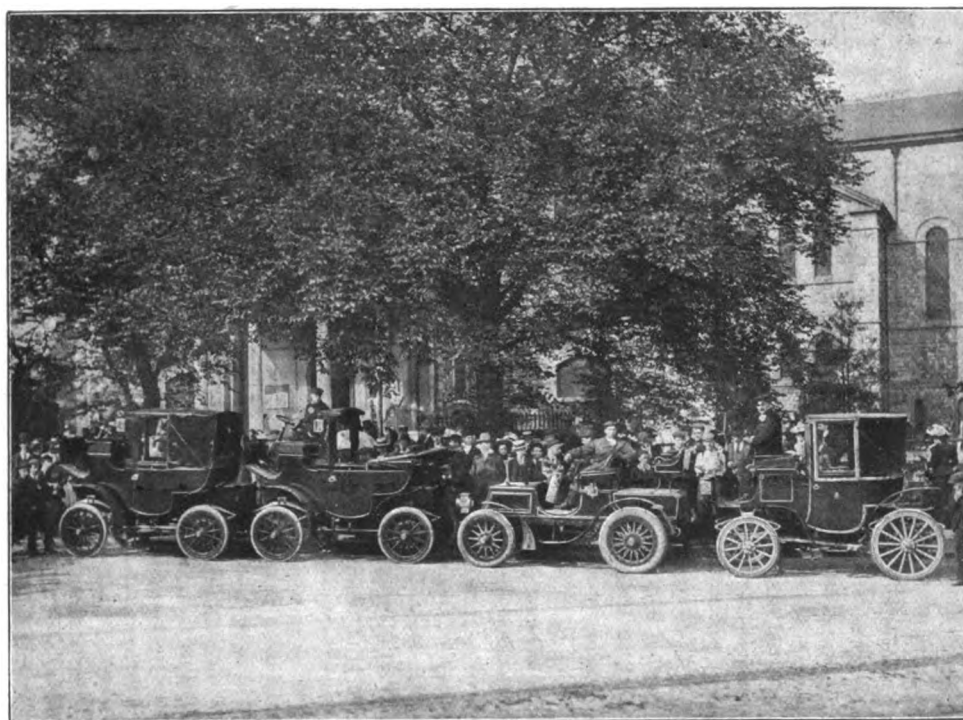
At their Manchester depot, at 271, Deansgate, Messrs. Brown Brothers, Limited, are now keeping a large stock of every description of motor parts and accessories.

THE Fife County Council have decided to erect a new bridge over the Eden at Guardbridge. The present historical bridge is to be retained and reserved for cyclists and pedestrians.

ON the Great North Road, just south of Buckden village, the police have a measured mile. They are also reported to have established telephonic communication between Buckden and Norman Cross.

FROM Les Ateliers de Construction Mecaniques L'Aster, of St. Denis, France, we have received a letter asking us to point out, in order to correct rumours to the contrary, that their sole agents in this country are the Begbie Manufacturing Company, of Willesden Junction, N.W.

TWO airships, handled respectively by Mr. Leo Stevens and Mr. E. C. Boise, made ascents from Long Island, U.S.A., on the 30th ult. Mr. Stevens used a machine of his own construction, while Mr. Boise used the Santos Dumont No. VI. Both travelled a distance of about two miles.



AN ELECTROMOBILE QUARTETTE.

A NEW hood for motor-cars and trailers is being introduced by Mr. Charles Ashford, of Essex Street, Birmingham. The principal advantages claimed for the hood are simplicity of construction, durability, and lightness. It can be put up, down, or halfway up by the driver while the car is running. When down it is claimed to present no wind resistance; when fully up it gives the utmost shelter available by a hood, while the designer states that when half-way up it makes the best possible dust screen.

THE starting handle of a New Orleans car has been found on the road between Sandgate and Margate. The owner can have same by applying to Mr. Checkley, 33, Rackham Road, Ladbroke Grove, W.

MR. ARTHUR HERSCHMANN, the mechanical engineer of the Adams Express Company, New York, is at present visiting Europe to inspect the latest models in steam wagon engineering, and to visit the Mytholm Steam Wagon Company, of Hebden Bridge, and the Hungarian Wagon Company, Limited, of Raab, Hungary, licensees under the Herschmann patents.

A NUMBER of motorists in Lisbon are taking steps to form a Portuguese Automobile Club. It is also proposed to organise a race between Figueira da Foz and Lisbon—a distance of 130 miles.

FROM the *Pull Mall Gazette* we cull the following item, which will be news to all connected with the Automobile Club:—The season has its remnant sale, like that of the other periods of the year. The oddest of them all is the automobile sale at the Automobile Club. An assortment of Panhard's, Mors, Peugeot's, Delahayes, and Columbias are offered because their owners are buying new types.

AN up-to-date milk dealer at Racine, Wis., U.S.A., has adopted the motor vehicle for delivering his milk.

THE Wolseley Tool and Motor-Car Company, Limited, have now arranged to supply the Wolseley float-feed carburettor to the trade.

NEXT Tuesday, at the City Garage, 34, Queen Street, London, E.C., the sale will take place of the 4½-h.p. Benz car which Mr. Hewetson recently drove 5,000 miles in fifty consecu-



tive days—Sundays excepted. The proceeds will be devoted to King Edward VII.'s Hospital Fund, and the auctioneers are giving their services gratuitously.

MESSRS. BULLEN BROS., of Boscawen Street, Truro, stock Pratt's motor spirit.

MESSRS. HAYWARD, WILKINSON, AND FOX, of Norwich, have patented a motor of which great things are expected. The engine is a double-acting one, and will work either as a steam or internal combustion motor. Its size and power, according to reports, are practically unlimited, as are the purposes to which it may be applied. We await further details with interest.

A NEW ignition accumulator for use on petrol motor-cars is being put on the market by Mr. J. T. Niblett, Electrical Engineer, Stockwell Street, Greenwich. The new battery is practically of a mechanically-solid character, while the active material is of a stone-like, yet highly porous nature. Bending, warping of the plates, and disintegration of the active material are almost impossible, there being no clear liquid space between the elements. It is claimed to be the smallest and lightest battery on the market, and to withstand very high rates of discharge without in any way injuring the elements. Another feature which renders the battery suitable for working ignition apparatus lies in the fact that should a cell or cells become fractured owing to accident, and all the liquid escape, the discharge will still go on quite uninterruptedly for a considerable period. This peculiar feature is due to there being no clear liquid space between the elements, and the active material being of such a porous nature, sufficient electrolyte is retained to do all the chemical work necessary to allow the discharge to continue. The new battery is made in sizes from 20-h.p. to 60 ampere-hour capacity, the weight of the latter being 20 lbs.

ON the day of the annual Automobile Club run, viz., November 8th, the Scottish Club will have an organised trip to Luss, Loch Lomond.

SHOULD the Gordon Bennett race of 1903 be run in Ireland, Mr. John Horan, county surveyor of Limerick, has promised his assistance.

THE Duchess of Marlborough has now an electrical automobile, purchased from the Electric Vehicle Company, of Hartford, U.S.A.

THE Automobile Club of Halle, Germany, is holding a fete to-day (Saturday) and to-morrow. The programme includes a run to Bad Neu-Ragoczy.

MOTORISTS crossing from Dieppe to Newhaven will be glad to learn that Mr. B. French, 37, High Street, Newhaven, is keeping a stock of petroleum spirit, lubricating oils, spare parts, etc.

MESSRS. S. F. EDGE and C. Jarrott will be the guests of the Nottingham Automobile Club at the opening meeting of the winter session on the 17th inst. Eight days later Mr. A. R. Atkey, the hon. sec. of the Club, will leave England for a trip in South Africa. Mr. M. Ross Browne will act as hon. sec. during his absence.

At a recent meeting of the Cleveland Automobile Club Mr. Alexander Winton announced that he would be pleased to accept the captaincy of the American team to be formed to go to Europe to compete for the Gordon Bennett Cup, and that he hoped that it would be brought to the United States.

At the last meeting of the Lancashire Farmers' Association, held at Preston, Mr. T. Ibison announced that a scheme was shortly to be applied for the adoption of motor traction for the collection and distribution of produce. There is no doubt that in this connection the North is making greater headway than the South.

HEREWITH we are able to give an illustration of the plaque which has been adopted by the A.C.G.B.I., and which has already been sent out to five hotels and fifty-two motor-repairers.



LEWIS'S, of Market Street, Manchester, have lately opened a motor-clothing department, a large stock of the latest styles of motor-coats, &c., being kept on hand.

MR. J. WELLER, of West Norwood, has designed two new cars of 8 and 20-h.p respectively, which will be placed upon the market by Messrs. Weller Bros. Ltd. This is the title of a company which has been formed with a capital of £3,000, subscriptions for which are now being invited. The office is at Thomas Place, Norwood Road, West Norwood, and a new motor-bicycle will be among the specialities of the company.

CORRESPONDENCE.

STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In your issue of the 13th ult. I notice two letters asking for information respecting water-tube and flash boilers. The former are, in my opinion, mostly troublesome on account of the narrowness of the tubes, which soon become choked with scale, also mud, if there is at times any mud in the water. A flash boiler never requires washing nor blowing out, but when it happens to get fed with water containing mud or any fine grit, then all this sediment is rushed along with the steam into the engine, there to cut and grind the inside of the cylinders and the circumference of the pistons, which is not the case with any other class of boiler, except when most grossly neglected. In all boilers, except the two kinds above named, the mud (where there is any) sinks to the bottom, so that pure steam is obtained on the top or upper surface of the water.

I advise "Anxious" and "Steam Car" to adhere strictly to the fire-tube boiler, with the water round the outside of the tubes. The simplest and best is the upright (or vertical) boiler, full of upright narrow fire-tubes, like those in the American steam-cars. This class of boiler has been made in England for many years, and is a rapid steam generator. In it can be got the necessary heating surface, with less weight and in less space than with any flash boiler. The fire-tubes should not be narrow, nor too wide, in proportion to their length. When too narrow they do not make steam as fast as if they were of a reasonable diameter for the heated gases to pass through. When unnecessarily wide in diameter, they are extravagant by letting too much heat escape into the chimney.

Water should be free from all greasy and animal matter, and should



COUNT EMIL KULMER AND FAMILY ON HIS 9-H.P. BOCK CAR.

(Allgemeine Automobil Zeitung.)

not be contaminated by any animal excrement. Stagnant water, when used as a pond for geese and ducks to swim in, is especially bad, causing a heavy rush of water along with the steam in the cylinders, which is called "priming." In making one of these boilers (as with other boilers) it is necessary to allow a sufficient depth of steam space above the surface of the water for steam to occupy when the water is at its highest level in the glass gauge; otherwise "priming," as before named, is specially liable to take place, even when using the purest of water. Again, a boiler will always make steam faster when there is sufficient steam space above the water. From the letter by "Steam Car" I judge that he is troubled with a boiler which is short of steam space. If I had his name and address I could probably show him a way out of the difficulty, without necessitating a new boiler.

In the illustrations of steam cars, I notice that none of them have got a funnel or chimney, but in some makes of cars the funnel appears to me to be fixed with its opening downwards, so as to be out of sight, and discharge heated gases downwards on the ground. It could not be in a worse position. All heated gases have an upward tendency, therefore the best and proper position for a chimney is an upright one, on the top of the boiler, so as to discharge all heated gases and sulphur (if any) upwards. This position gives by far the most powerful draught on the fire, and produces steam much more rapidly than if the chimney were fixed upside down. Steam is an old and faithful servant, and when the engine and boiler are rightly constructed and properly used there is nothing to beat it in the long run, and often in the short run too.—Yours truly,

MECHANICAL ENGINEER.

TYRE QUERIES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reference to your correspondent's letter signed "T. T." I can, as a surveyor, fully endorse his opinion as to the constant worry and trouble of pneumatic tyres—in fact, so much so that I began to despair until I went fully into the matter of solid tyres. I am so satisfied that I am having a car built specially with wooden wheels, iron tyres with rubbers similar to cab wheels but of much heavier section; the car to have double-cylinder, slow-speed engine, and to travel up to twenty miles per hour only at its maximum, which is quite fast enough, in my opinion, on the best of roads, and perfectly dangerous in our English lanes. I require my car for business and pleasure. Yours truly,

R. G. B.

IGNITION TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should feel greatly obliged if any of your numerous readers could help me in the following ignition trouble. I possess an Ariel motor-tricycle, which from the date of purchase until quite recently never gave me any trouble, although thousands of miles have been covered. The trouble began when I was persuaded to substitute accumulator for dry battery. The difficulty took the form of continual misfiring, and this became far worse when the slightest hill was attempted; finally the machine stops altogether. Sparking plugs, tremblers, and screws have been tried, adjusted, and readjusted without success. This is the second attempt at using accumulators, and I now believe that the current is not so continuous as with dry batteries. I begin to say, "Enough of accumulators!" when I have to bring back my trike from a corner of North Wales (as I did recently) by train. I may say that the accumulator is a 4 volt 20 amp., and one of the best made. It also registers good capacity, 4.2 volts. I have replaced the battery, and away goes the machine for forty miles up and down hill without a hitch.—Yours truly,

I. BREESE.

THE NOISE OF CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In the exhaustive trials which have just been completed under the auspices of the Automobile Club, no comparison or analysis has been tabulated as to the noise made by the various cars. An argument might be forthcoming that it would be impossible to gauge such points with any accuracy; but it is certain that the Committee who have so ably conducted the trials could give us an unprejudiced comparison, allotting marks in the same manner as other sections. (1) Approximate distance the car is heard from; (2) quality of the noise, derived either from engine or gearing. There is no doubt that the noise a car makes affects the senses in an adverse ratio, and the pleasurable sensation of a long run is certainly increased if it is travelled with as little noise and vibration as possible. It would have been very interesting and instructive if remarks had been made respective to noise, vibration, and handling. Let me make a sensible request that these points, which are very great determining factors to intending buyers, will have more weight attached to them in future trials.—Yours truly,

MEMBER OF MANCHESTER AUTOMOBILE CLUB.

COMPRESSION IN MOTORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The highest compression I have known was 110 lbs. to the sq. inch—this in an air-cooled motor, and worked splendidly. I think that still higher compression can be used with increased efficiency, but am afraid that premature ignition will occur.

In Clerk's "Gas and Oil Engine," p. 310, two gas engines are described, the compression pressures being in the one case 31 lbs. above atmosphere and the explosion pressure 125; in the other case 48 lbs. for the compression and 200 lbs. for the explosion. Further, p. 321, with compression 60, the explosion was 230, but in the same engine with compression at 90 the explosion was 270 lbs. With the low-compression the engine consumed 19 cubic ft. per h.p. per hour, with the higher compression only 17.6 cubic ft. of gas.

The power to be obtained from an engine (two cylinders 120 by 120), at 500 r.p.m., would be about 6-i.h.p. If there were no faults in the design—low compression, small or badly working valves, throttled inlet and exhaust, and if the ignition were kept up to its work, then 10-i.h.p. would be obtained. To my mind the best designed engine is the one that can run slowest and also fastest when running free.—Yours truly,

E. W. WALFORD.

UTILISATION CURRENT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Would it be possible to utilise the current generated by a small dynamo worked by a wheel running on rim of motor-cycle wheel (when not used for lighting purposes) as a means of ignition, if current was passed through coil? If current was first passed through accumulator, would it charge up accumulator and the overflow fire the charge? Would voltage at high speed injure coil or battery? Is there such a dynamo on the market at present?—Yours truly,

W. W.

POLICE TRAPS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having recently been to Scotland and back on "Sir Charles," I beg to substantiate the warning issued in your paper as to the condition of Yorkshire. The whole county appears one vast net-work of traps and ambushes. What with measured quarters, halves, and whole miles, police on bicycles, police in uniform, and police in plain clothes, with stop watches galore, the careful motorist stands no better chance than the imprudent one; in fact, the fast cars being harder to catch, the slow are made to pay the penalty. Policemen bounce out at you from behind hedges, and lay ambushes in solitary cottages on the most deserted looking roads. The inaccuracy of their timing is simply ludicrous. They informed me that they had instructions to stop every car, and certainly they acted accordingly.

Surely county magistrates should not encourage these men to draw upon their imagination, or order them to perform mean, underhand, dirty, unmanly work, which, in the long run, must inevitably destroy not only the manners, but also the *morale* of the force?—Yours faithfully,

MRS. M. E. KENNARD.

MALBY'S MOTOR WORKS, of Sandgate, write as follows:—"In reference to the paragraph on page 594 in your issue of the 27th ult., regarding a new dust shield, will you allow us to inform your readers that the dust shield there described is by no means new. Some months back we fitted shields made in the same way (a light frame-work covered with canvas) to the public service cars of the Folkestone Motors, Ltd. Since then we have fitted the shields to private cars—phaeton, tonneau, and wagonette. We fit so that the door is opened in the usual way when entering or leaving the car, the part of the shield on the door opening with it. We also cover the framework, in some cases, with patent leather, leather cloth, or wood, the latter being painted to match the car, making a good finish, the back of the car not looking unsightly, as it sometimes does with canvas. These shields have proved perfect dust preventers to the occupants of the cars; even after all-day runs over dirty roads passengers come back with no perceptible dust on their clothes."

NO LIGHTS.

At Aylesbury Petty Sessions, on Saturday, Mr. W. H. Kitto, of Chiswick, was summoned for being the driver of a motor-car on a certain highway at Aylesbury, and not carrying a lighted lamp attached thereto, so constructed and placed as to exhibit a red light in the reverse direction in which such car was proceeding. The police evidence showed that, although there were small red lights in the backs of the ordinary lamps fixed in the usual place on the car, these lights were not visible when the car was travelling, as they were hidden by the rear of the car. Mr. Kitto was called, and, after stating that he considered he had complied with the Act, remarked, when the constables had spoken to him, he at once purchased a cycle lamp, which he attached to the rear of the car, thinking by this means to satisfy the police and avoid further trouble. The Bench decided to convict, the chairman stating that they considered the small red lights on the car were not of sufficient size or so placed as to comply with the regulations. Defendant would be fined £1 9s. 6d., including costs.

In the Inverness Sheriff Court, Mr. James L. Breese was charged with a contravention of the Locomotive Highway Act, in respect that he ran a motor-car at a greater speed than twelve miles an hour on the public road in the vicinity of Kingussie, and also with travelling without lights. Accused pleaded guilty to the latter charge, and this plea was accepted by the Procurator-Fiscal. The Sheriff imposed a fine of 21s., with 42s. of expenses, with the alternative of three days' imprisonment.

THE MOTOR MANUFACTURING COMPANY, LIMITED.

THE statutory meeting of the Motor Manufacturing Company, Limited, was held on Tuesday. Mr. William B. Pritchard presiding, supported by his colleagues on the Board and Mr. Alfred Burgess, the Secretary. The Chairman said that the reconstruction had been successfully carried through; the assets had been written down to a valuation which was well within their actual worth. The Board had been strengthened by the accession of Mr. Arthur C. Cory-Wright, who, they hoped, would accept the office of chairman. The company now stood with all its indebtedness cleared off, with the exception of the September accounts. They paid cash, taking the best discounts obtainable, and were supplied without difficulty by the best makers at the best prices. With regard to the turnover, whereas in June, July, August, and September, 1901, the output at selling prices was £21,713, the corresponding amount for the past four months was £36,762, an increase of 75 per cent., and as the expenses had increased only by 50 per cent., it was evident that they were working more economically.

Mr. G. Iden, the works manager, referred to the success of the company's voiturette in the recent Reliability Trials. He had run a 20-h.p. car a distance of 1,150 miles during the last fortnight; it had also run in the Trials, and had made three journeys from Coventry to London and back, and had not cost more than a sovereign for repairs. He said that if they continued with the three types of cars now being made there was no reason why the shareholders should not get the return for which they had so long waited. Mr. Stroud proposed a vote of thanks to the chairman and directors, which was carried unanimously. The proceedings then terminated.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Leamington	C. R. Welch, Coventry	30 m. p. h.	£5, etc.
Banff	E. M. C. Instone, Coventry	25 m. p. h.	£7.
Birmingham	G. Cornwallis West, London	—	20s., etc.
Arundel	M. R. Lawrence, Moseley	16 m. p. h.	£7 10s.
"	A. Clarke, London, S.W.	28 m. p. h.	£5.
"	C. Dowra, London, N.	22 m. p. h.	—
Scarborough	P. Riley, Scarborough	—	£5, etc.
"	H. Johnson, Bradford	—	—
"	A. H. Marriner, Keighley	—	—
"	W. Maugham, Sunderland	—	£10, etc.
"	F. Cosse	—	10s.
Cowbridge	A. Pritchard, Swansea	20 m. p. h.	£1.
"	E. T. Sutton, Swansea	20 m. p. h.	—
Canterbury	S. Studd, Beckenham	19 m. p. h.	Dismissed.
Blofield	A. Stimpson, Roade	18 m. p. h.	£1.
Windsor	J. F. Viola—a Hungarian engineer	17 m. p. h.	—
Doncaster	E. T. Wright, Worksop	—	£5, etc.
Torquay	S. Fleming, Plymouth	20 m. p. h.	£3, etc.
"	"	—	£5, etc.
Richmond	H. Nesbit, Putney	—	10s.
*Wath (near Ripon.)	T. Andrews, Knaresborough	24 m. p. h.	£1 etc.
"	H. E. Gambling, West Hartlepool	—	£2 etc.
"	S. W. Farr, Reading	25 m. p. h.	£5.
Otley	T. J. Stevenson, London	25 m. p. h.	Dismissed.
Chelmsford	F. C. Bell, Piccadilly, W.	—	£5, etc.
"	A. Tritton, Great Leigh	—	£5, etc.
"	E. Capon, Poplar, E.	—	40s., etc.
*Northampton	F. Arnott, Northampton	15 m. p. h.	£3, etc.
Dorking	A. Pike, Epsom	20 m. p. h.	Dismissed.
"	J. Mitchell, London, W.	—	£1, etc.
"	E. Ower, Hampstead, N.W.	—	£3, etc.
"	W. Hardman, Sutton	—	—
"	H. Whitfield, Holborn	—	—
Worthing	G. Wilder, Emsworth	—	See p. 638-
Sale	H. S. Buckley, Audenshaw	—	20s.
Beaconsfield	J. Goody, Cookham	—	£5, etc.
Thirsk	G. Brooke, Market Harboro'	—	£10, etc.
"	A. Wylie, Newbury	20 m. p. h.	£10, etc.
Perth	L. Carr, Carlisle	20 m. p. h.	£5
"	C. Baker, Stanley	—	£7 10s.
"	"	—	£2 10s.
"	H. Coates	—	£5.
"	Hon. C. Forrester, Berkshire	16 m. p. h.	—
Aldershot	W. Gerard, London	—	—
Slough	W. Bramson, Dulwich	25 m. p. h.	£6.
Norman Cross	L. Fleischmann, London	—	£5.
"	V. Burnage, Luton	—	—
Oxford	J. W. Stocks, London	20 m. p. h.	£2, etc.
"	M. White, London	—	—
"	L. Himy, London	21 m. p. h.	—
"	J. S. Chinery, London	24 m. p. h.	—
"	A. Macdonald, London	21 m. p. h.	—
"	E. Wade, London	24 m. p. h.	—
"	E. Purchase, London	—	—

Where no alleged speed is given it is understood to be above the legal limit.

MOTOR CYCLE CASES.

AT the close of the Petty Sessional business in the Kesteven Court at Lincoln Castle the other morning, the Chairman (Mr. G. E. Jarvis), addressing the reporters present, said: "It has come to our knowledge that motor-cars on the Newark Road have been a nuisance to the public, and if complaint is made by the police to us we shall take serious notice of it."

MR. ALFRED STIMPSON, engineer, Roade, Northamptonshire, was summoned at the Blofield Petty Sessions for driving a motor-car on the highway from Arle to Norwich at a greater speed than twelve miles an hour. The defendant read a letter from the Rev. Mr. Smith, Vicar of St. Paul's, Canonbury, London, stating that the gentleman who was charged with driving a motor-car more than twelve miles was not driving more than eight or nine per hour when the police-constable stopped him. He was very sorry that the case did not come on for hearing before he left the neighbourhood. Mr. Stimpson said he gave him his card, and was a total stranger to him. The Bench retired, and on returning said they had carefully gone through the evidence before them. The case was a rather weak one, and therefore it would be dismissed. The defendant asked the Bench to grant him his costs, which they refused.

FRANCOIS COSSE, who has just been fined £10 and costs at Scarborough—it being his second offence—is the Earl of Lonsborough's driver.

FRANK ARNOTT, of Northampton, has been summoned for furiously riding a motor-cycle in Fish Street and St. Giles' Street, Northampton, on September 20th, and under the Highways Locomotives Act with furiously driving a light locomotive along Fish Street and St. Giles' Street at a greater speed than was reasonable and proper on September 20th. Mr. C. C. Becke defended. The Chief Constable asked that the case should be dealt with under the second summons, which was issued under the Highway Act. The penalty under that Act was £10, whereas under the Town Police Clause Act, under which the first summons was taken out, the penalty was only £2. Francis Tonsley (the Deputy Mayor) stated that about eight o'clock on Saturday evening he saw defendant coming down Fish Street on a motor-cycle at 15 miles an hour. He did not know that it was impossible to turn a corner at that rate. Mr. Becke: You'll have to learn to ride a cycle, Mr. Tonsley, and then you'll learn these things. Witness said no horse could go at the rate defendant was going. Mr. W. Tomes, J.P., corroborated, and said defendant was going quite 15 miles an hour. The defendant was fined £3 and costs.

In giving judgment in the case against the driver, J. Frost, reported last week, Sir W. H. Ffolkes, Bart., who presided over the bench of magistrates, said he was one of those who thought the present speed limit for motor-cars was far too low. One of the reasons why it was fixed at 12 miles an hour was that the House of Commons would not have passed the Light Locomotives Act if the speed limit had not been put at a low pace. But since that time it had been realised that motor-cars could be driven at a much greater speed without injury to the public, and he had no doubt a Bill would be introduced very shortly to raise the speed limit. Having himself travelled a good deal in motor-cars, he could feel for defendant. But the law, as it at present stood, must be carried out. That 12 miles an hour should be the limit speed at which a car might travel seemed to him ridiculous. On certain parts of the road 12 miles an hour might be too great a pace for a car to travel in safety; on the other hand, it might in other cases travel at 30 miles an hour with perfect safety.

At the Worthing Petty Sessions, George Wilder, of Stansted Park, Emsworth, failed to appear to a summons charging him with driving a motor-car over twelve miles an hour at Broadwater, on the 21st ult., and in adjourning the case for a week the chairman asked the clerk to notify to Mr. Wilder that if he did not appear then a Bench warrant would be issued.

THOMAS J. STEVENSON, of London, who for the past few weeks has been staying at Ilkley, has twice during his stay at that health resort been summoned for furiously driving a motor-car. In the first case a fine was inflicted. The second, heard at the Otley Police Court, was dismissed. The evidence of two constables and two civilian witnesses was to the effect that the defendant drove at the rate of twenty-five miles an hour, although there was no timing. The defendant produced the gearing of the car, showing the high-speed gearing to be broken. He said the estimated speeds of the car, according to the three grades of gearing, were fifteen, nine, and six miles an hour, and he was using the nine miles gearing. Evidence bearing out this statement was given, the chairman remarking that the police had probably been mistaken.

SOME weeks ago John Heath, Gardenstone Hotel, Laurencekirk, appeared before Sheriff Henderson Begg, at Laurencekirk, charged with having driven a motor-car on the public road between Fettercairn and Laurencekirk at a speed of from fourteen to twenty miles an hour. The Sheriff then indicated that he thought a bye-law had been passed allowing cars to be run up to fifteen miles an hour, and the trial was adjourned. It is understood that his Lordship had ascertained that the limit of speed was still twelve miles an hour, and when the case was called a day or two ago accused failed to appear, and his bail of £3 was forfeited.

A QUESTION OF NOTICE.

At the Marylebone County Court (London) on Tuesday, before Mr. H. Stuart Sankey, acting as deputy judge, Mr. E. J. Marriott, 101, Euston Road, W., brought an action against the Automobilia Company, 532, Oxford Street, W., claiming £14 as a month's salary in lieu of notice. The plaintiff stated that on March 1st last he was engaged by Mr. Letellier and Mr. Fordyce, on behalf of the Automobilia Company, as manager and engineer, at a salary of £14 per month. There was some disagreement between Mr. Fordyce and himself on May 31st, and he then gave written notice to leave. Shortly afterwards a letter was brought to his house suggesting that he had previously given a verbal notice to leave. On the following Monday morning, knowing that he had not given a previous notice, he went to the shop to work out the month, but after taking a motor-car to pieces he was not allowed to continue his work. For the defence, Mr. Fordyce said that the plaintiff was engaged as working foreman. Nothing was said about the hours of service. About a month before plaintiff left, when there was a little disagreement, Marriott said, "If you are not pleased with my work I will leave at the end of the month," and he (witness) replied, "Bon." On the day that the plaintiff gave the written notice he left the shop without asking permission.

The Judge said he did not think that a proper legal notice was given when verbal notice was given. A notice of such a kind must be understood by both sides to be legally binding. There would be judgment for the plaintiff for the amount claimed, with costs.

NOT STOPPING WHEN DESIRED.

MR. J. CHESTER, who was charged with furiously driving his motor-car at Wokingham, and was able to secure a dismissal of the summons, has also been charged with refusing to stop when desired by a police inspector who was in charge of a restive horse. For that offence he was fined £5 and costs.

MEASURED DISTANCES.

THE police are timing motorists between the fifth and sixth milestone, on the road from Edinburgh to Perth, and also between milestones on the Dunkeld and Pitlochry road. The cases heard in the Perthshire court, recorded in this week's list, are the result.

THERE are two marked points in the High Street, Slough, which have enabled the police to make a capture of one motorist during the last few days.

ON Bury Hill, near Arundel, there is a measured quarter of a mile, as Mr. Colin Docwra, F.G.S., discovered when motoring there recently. In addressing the Bench for the defence Mr. Wannop said he did not think it fair for the police to take a measured distance down a hill which had a gradient of something like one in twenty-two. To do a thing of that sort was straining the Act of Parliament very considerably. Superintendent White explained that the road in question was chosen because it was straight.

ON Saturday the Dorking bench had before them several summonses for furious motor-car driving, and convictions were obtained in all but one case. The exception was that in which Mr. A. Pike, of Epsom, was defendant. The evidence of Police-constable Fletcher was to the effect that the defendant covered a measured half-mile in ninety seconds, which worked out at just under twenty miles an hour. Mr. Mahon, for the defence, contended that as the statute had not been put in, the magistrates had nothing before them to show that it was unlawful to exceed twelve miles an hour. The Bench upheld this view and dismissed the summons. Mr. Scales, who appeared for Mr. J. Mitchell, of Upper Brook Street, London, said he had a like defence to raise, and asked for the dismissal of the summons against his client. Superintendent Alexander: "Oh, no; I'll put the statute in all right this time."

POLICE traps have been laid near Dorking, one between Burford Bridge and the railway on the road from Leatherhead, and the other just past the railway on the road to Horsham.

OBSTRUCTING MOTOR-CARS.

AT Ongar, Charles Pennington, of 23, James Road, Islington, N., was summoned for obstructing the free passage of the highway at Abridge on the 14th ult. Ernest H. Richardson stated that defendant was driving a large brake towards Ongar, and witness was driving a motor-car. Defendant would not let witness pass, but kept him five minutes amid the jeers of the occupants of the brake. Defendant said he could not hear the motor-car's approach. Fined 2s. 6d. and 6s. costs.

DISMISSAL WITHOUT NOTICE.

AT the Brighton County Court, G. H. Kelsey, of Bexhill, car driver, sued William Griffiths, of Brighton, motor-car proprietor, for £3 wages in lieu of notice. Plaintiff said that on the 10th August he went to work for defendant, who had engaged him some days previously. He happened to over-fill the petrol tank, and thus spill some of the petrol. Shortly afterwards he accidentally trod on a vesta match, and the light set fire to the spilt petrol. Mr. Griffiths then came in and told him to clear out at a moment's notice. He asked for a fortnight's notice, which defendant refused. Defendant said he gave plaintiff notice after he had over-filled the petrol tank. Witness then went across the road, and, looking round, saw the car shed on fire. Running across, he saw defendant putting the flames out with his (defendant's) clothes and his own. Considerable damage was done, and he (defendant) thereupon discharged plaintiff on the spot. Plaintiff also admitted smoking in the shed. His Honour held the defendant justified in his action, and gave judgment for him, with costs.

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COMMENTS.



DURING his recent visit to North Berwick the King experienced cold and dull weather and severe north-east winds, but, well wrapped in warm clothing, his Majesty enjoyed a thirty-miles drive with the Premier in the latter's motor-car, and planted trees to commemorate his visit. After signing the minute book of the North Berwick Council, the King started off with Mr. Balfour by Canty Bay, Whitekirk, and Dunbar, and thence by Swap Road to Whittinghame, the Premier's Scottish residence. Here a house party was assembled to welcome his Majesty. The

King remained at Whittinghame House half-an-hour and then drove on to Tynninghame, the seat of the Earl of Haddington, the Lord-Lieutenant of the county. After tea the King visited the famous Tynninghame gardens and planted an oak tree. Darkness had set in when the King and Mr. Balfour left Tynninghame for North Berwick in the motor-car. As his Majesty approached the town he enjoyed a fine view by night from the high coast headland east of North Berwick, which had by this time been illuminated. The drive occupied under four hours, including visits. Although the weather was somewhat severe for motoring the King stood the journey apparently without fatigue, and appeared greatly pleased by the hearty greetings he received from people at the decorated villages and farm places along the route, which was through the most picturesque portion of the eastern district of East Lothian.

For Charity's Sake.

AFTER running 5,000 miles under Mr. Hewetson's careful direction, a $4\frac{1}{2}$ -h.p. Benz car commenced a new career on Tuesday, when it was purchased by Mr. A. Lloyd, of Banstead, for £118. As already announced, the proceeds are to be handed over to King Edward VII.'s Hospital Fund, and the auctioneer, Mr. T. Horsey, of the firm of Fuller, Horsey, Sons and Cassell, gave his services in disposing of the car by auction at the City Garage, Queen Street, E.C. There was a fairly large company when Mr. Horsey began to expatiate on the merits of motor-cars in general and the vehicle under the hammer in particular. Starting at £50, the bidding went up £5 at a time to £110, and then rising in £2 offers it reached the sum already named. We believe that the purchaser has long driven a Darracq. and now makes his first acquaintance with a Benz car.

Motoring in Blackpool.

DURING the course of a recent visit to Blackpool we were surprised at the relatively small number of motor-cars in this popular seaside resort. The bad roads which connect the town with the large industrial centres are said to prevent both motorists and cyclists from visiting Blackpool, while the number of locally-owned vehicles does not probably exceed a dozen. A local firm that is catering for the wants of motorists is the Central Engineering Company, of Coup Street, Blackpool,

where not only are garage accommodation and an inspection pit available, but every facility for repairs. While quite close to the Central Promenade, the works are in somewhat of an out-of-the-way corner, and, for those who do not know the place well, not easy to find. Except that we know there is a difficulty in obtaining suitable premises, we should recommend the removal of the depot to a more prominent thoroughfare.

A New Main Road.

PROBABLY Blackpool will have more motoring visitors when the new main road to Preston is completed. This will, however, be some time yet, as Alderman Hulton, the Chairman of the Main Roads and Bridges Committee of the Lancashire County Council, has publicly stated that it will be the work of perhaps three years to bring this new road up to the standard of a County Council main road. When completed the new road will be $17\frac{1}{2}$ miles long, as against the $20\frac{1}{2}$ miles of the Freckleton and Lytham route, and it is estimated to cost from £15,000 to £18,000. Respecting the cost of roads Mr. Hulton has given some interesting figures. The up-keep of the main roads in the Hundred of Amounderness, for instance, costs on an average £119 per mile per annum; the cost of the secondary roads is £72, while other roads, not recognised as main or secondary ones, cost £27. It was in a speech at the recent ceremony of making the public free of the tollbar at Lea Gate, on the Preston-to-Blackpool road, that Mr. Hulton gave these figures. At the same time he reminded his hearers that the last tollbar under the Turnpike Trusts Act was removed from the Preston-to-Blackburn highway so recently as 1890.

Foolish Antipathy.

SEEING that Blackpool prides itself, and even advertises itself, on its modernness and enterprise, it is rather surprising to find that one of its journals, the *Blackpool Times*, prints ridiculous nonsense concerning the motor-car. "If there was no hope of an improvement in these machines," says our contemporary, "it would be a good thing to sweep them off the public roads entirely. At present they are a mere aristocratic fad, and a dusty, noisy, smelly nuisance. As microbe-raisers they have no equal. They are a terror to the horse and to human beings, and for unspeakable ugliness they are only matched by the hippopotamus. The Prime Minister, not content with his golf and his bicycle, has set up one of these nuisances, and his driver was fined £6 the other day for travelling 650 yards in fifty-two seconds. A Blackpool motorist got off with 10s. Perhaps the Blackpool Bench will 'buck up' and do its duty after the above example with the Prime Minister."

A Gentleman's View of Motorists.

MR. C. J. MILNES GASKELL, chairman of the West Riding County Council, has been giving his views on motor-cars in a way we should not have expected from one who has occupied a public position in the county for so many years. He has pointed out that the new Bill which Mr. Scott Montagu is to introduce into Parliament will authorise motorists to travel at any speed consistent with the public safety, and, more than that,

B 2

"If the magistrates convict any motorist, the Bill would provide for an appeal being made against their decision in a higher court." This latter clause seems to irritate Mr. Gaskell somewhat inordinately, and we fancy his feeling of surprise will be shared by many of the county magistrates who have come to regard themselves almost as infallible. During the discussion one member of the County Council hinted that motorists for the most part were not gentlemen, but remembered Dr. Johnson's dictum with regard to Scotchmen, "much might be made of them if they were caught young." Mr. Gaskell, however, said he had long despaired of such a possibility—in fact, he should far rather expect the Aire and Calder rivers to be stocked with salmon than expect motorists to become gentlemen. After such a confession nothing more remains to be said.

Motor-Cars in the Philippine Islands.

Manila, in the Philippine Islands, in which five motor-cars took



part. Mr. W. Jackson, to whom we are indebted for the photograph, remarks, "This may interest you, as it shows that even in this out-of-the-way place motoring is becoming popular."

Motor-Car Imports and Exports.

THE returns just issued relating to the British imports and exports of motor-cars and cycles during September last show, as may be expected, in view of the approach of winter and consequent end of the season, a decrease both as regards the imports and the exports. To deal first with the imports, 294 cars and cycles were imported into this country last month, the value of the same being returned at £85,481. The value of the "parts thereof" is given as £12,400, so that we get a combined total of £97,881, as compared with £141,883 in August last. Some of these imports were only of a temporary character, being re-shipped to foreign destinations. Thus last month the re-shipments comprised seventeen vehicles, amounting in value to £5,087, and £251 of parts, bringing down the net imports in September to £92,543. During the first nine months of the current year imports of foreign automobiles and parts into Great Britain have reached a net total of £802,831, representing over 2,900 cars and cycles. As regards the exports of automobiles of home manufacture, the shipments during the past month amounted to thirty-one vehicles of a value of £11,395. Of parts the exports attained a value of £1,387, making a combined total for September of £12,782, as compared with £21,577 in August last. It is satisfactory to find that, so far as the year has gone—that is to say, during the nine months ending with September—244 British-built motor-cars and cycles have been exported, their value being roundly £107,000.

Restrictions on Trade.

AGAIN the railway companies are seeking to harass the trade in petrol—in common with other inflammable spirits—and we understand that after the 20th inst. a new clause to the following effect will be inserted in consignment notes: "That I will indemnify the company against all claims to injury to persons or property arising directly or indirectly from the inflammable qualities of the said goods, through not complying with the above-mentioned regulations and conditions as to such goods, and will pay full compensation for all injury to their servants and damage to their property so arising, unless it can be proved that the injury or damage is due to the wilful neglect of the company's servants." As motorists well know, those who deal in petrol already take every precaution in the matter, as was apparent at the Motor-Car Exhibition at the Agricultural Hall in April. The various firms in the business have spared no expense in perfecting their cans and packages so that they may be regarded as absolutely efficient. The proposal of the companies that those who consign petrol should indemnify them against damage to servants and property seems unwarranted. The qualification, "unless proved as due to the wilful neglect of the company's servants," is very unsatisfactory, as it is practically impossible of proof. Carelessness on the part of the company's employees will have to be paid for by the consignors—if they are prepared to submit to such a hardship.

Common Sense Wanted.

IF the sellers decline to sign such a condition as the railway companies suggest should be imposed, the indemnification will have to be given by the consignee, and the prospect will not be enjoyed by those who buy. Those who have influence with the companies can now render a service to the industry by urging that a more sensible view of the situation should be taken by the railway managers.

The Reliability Trials.

LAST week's publications of the results of the Reliability Trials gave an added interest to the *Journal*, and we have now only to point out how nearly some of the cars that did not gain medals came to distinction. In Class A the Baby Peugeot secured 3,043 marks, while a Century tandem with 2,870 was given the silver medal. Class B was rather a limited one, but the Locomobiles showed an uniformity of performance that well entitled them to their awards. The M.M.C. 8-h.p. voiturette that won the gold medal in Class C did extremely well, while the 6-h.p. De Dion's silver medal was won with 2,906 marks. The White steam car obtained 2,863 marks, and all recognise that it well deserved the extra silver medal which was awarded. This should be of particular interest to the *American Motor World*, which a few weeks ago wrote, "While the perfect performance of the White steam carriage in the British reliability test is but a duplicate of what it has repeatedly accomplished on its native roads, it must nevertheless prove a gratification to all Americans. With 'win, tie, or wrangle' as the unwritten rule that governs English sport so far as foreign competitors are concerned, it is not strange that a protest should have been forthcoming." Possibly the fact that an extra prize was given this American car will silence such foolish observations in future.

The British Position.

IN the class for motor vehicles, declared at a selling price of between £300 and £400, the Wolseley and De Dion companies won distinction with 2,982 and 2,978 marks respectively. The third place—having regard to the number of marks—was taken by the 9-h.p. New Orleans with the 10-h.p. Brooke very close behind—a very good performance seeing that the car which was run in the Trials was a new one that had been driven up by road, with no opportunity for adequate over-

hauling before the trials. The Ariel was second to the Germain in Class E., the M.M.Co.'s 10-h.p. car also giving a good account of itself. A Gardner-Serpollet was the runner up to the winners in Class F., and the Wilson and Pilcher and the Humber cars did well in the next category. Thus it will be seen that, looking closely at the official records, the performances of the English cars appear really better than the first and second places seem to show. That was the great result of the Trials—to demonstrate the position which British manufacturers have won in the automobile industry.

Hooligans in Surrey.

If the police of Surrey are not careful the residents of that county will have something to say with regard to the neglect of their legitimate duties in order to play about in the country lanes looking for motorists and other users of the road. A glance through the various papers published within the area of the county shows that a large number of pedestrians and residents have lately been assaulted without any reasonable cause at all. Mr. Honey, a Ripley farmer, for instance, has just been ill-used by three London Hooligans for venturing to remonstrate with them for chasing his cattle, and trespassing on his enclosed land. They were merely a party of rowdy excursionists or beanfeasters who frequent some of the Surrey resorts during the autumn, and at the time of the assault the guardians of law and order were nowhere near. It is really scandalous that the police should be thus taken from their proper work in order to make up cases against motorists.

Lord Onslow's Resolution.

ON Tuesday, at the General Court of Quarter Sessions for the County of Surrey, Lord Onslow unsuccessfully moved:—
“That in the opinion of this Court it is in the interests of the public that the police should, in their efforts to secure the observance of the regulations as to light locomotives on the highways, devote their attention to preventing danger to passengers and traffic from the fast driving of motor-cars in villages and populous places and round sharp corners rather than to securing any fixed maximum of speed regardless of traffic and other conditions.”

Police Trapping.

IN moving his motion, which was seconded by Major Kingsley Osborn, the Earl of Onslow complained that the police did not use sufficient discrimination in dealing with motorists, and instanced a case in which a driver in the Reliability Trials went through Reigate at four miles an hour, and, advancing to fourteen miles an hour outside the town, was “trapped.” Such cases are too frequent to be creditable to the police. We have known motorists travelling not more than ten miles an hour stopped by the police, their names taken, and accusations of eighteen or twenty miles an hour unblushingly made. Where there have been witnesses for the motorist present no summonses have been taken out; but there is little doubt all have not escaped so easily. The latest methods of the men under Captain Sant are entirely demoralising—hiding behind hedges, dodging among trees, and similar devices being un-English and unmanly.

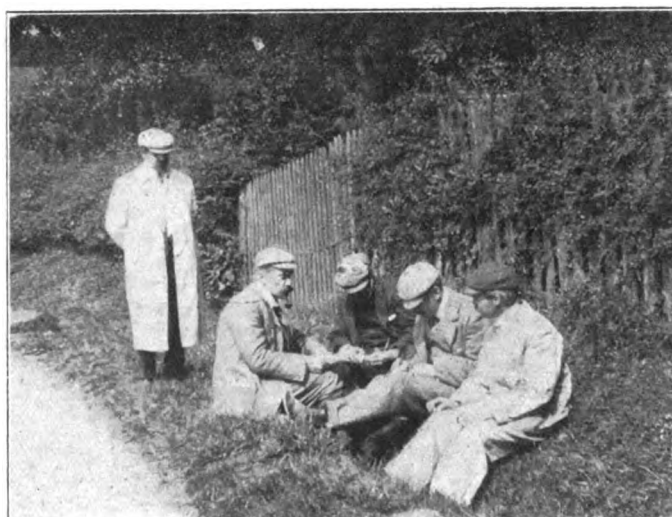
What is Wanted.

THE Earl of Onslow had a precedent for his resolution in the policy of the Hampshire County Council. It has there been agreed that the Chief Constable should not interfere with motor-cars going along clear roads at more than twelve miles an hour, but that he should watch for fast driving in villages and at dangerous places. What he (the Earl of Onslow) maintained was, that it would be quite sufficient for the protection of the public if in Surrey the constables, not in plain clothes but in uniform, were to be placed in towns and villages and at dangerous corners, and there look out for furious driving.

It took six policemen to set a motor trap. In his part of the county there was enough for the police to do without looking after motor-cars.

Save us from our Friends.

If the police were stationed at the beginning and end of villages, warning motorists, and seeing that they did not drive to the danger of pedestrians, the needs of the situation would be amply met. If some such suggestion had been made instead of all the clamour that has been raised for further legislation, the outlook for the future of automobilism would have been appreciably brightened. The growing number of motorists on county councils would soon have brought about a better condition of things—as they have in Hampshire—and we hope the ill-advised plea for numbering cars and harassing drivers will be recognised as such ere it is too late to avert an avalanche of public prejudice which has been brought upon motorists by fellow-sportsmen. In fact, the present agitation almost leads us to exclaim, “Save us from our friends.”



THE RELIABILITY TRIALS—MR. J. D. SIDDELEY RECEIVES REPORTS FROM OBSERVERS. (Photo by) (Mr. J. D. Hill.)

Mr. Chaplin's View.

As is well known, the author of the present regulations with regard to automobiles has acknowledged their unsuitability in view of the present state of the motor-car industry, and he has further expressed his opinions in a recent letter deprecating “the limit of speed for motor-cars by the hard and fast line which prevails at the present time, believing that the safety of the public may be more effectually ensured upon the high road by other regulations. I neither drive nor possess a motor-car myself, but I have often been driven on the motor-cars of others, and rarely, if ever, I should say, without the limit of speed having been exceeded and the law in consequence transgressed at some time on the journey. The law and the present regulations, which were fitting and perfectly appropriate when the Act was passed, are wholly unsuited to the entirely changed conditions which prevail to-day. They ought to be amended, in my opinion, and without delay.”

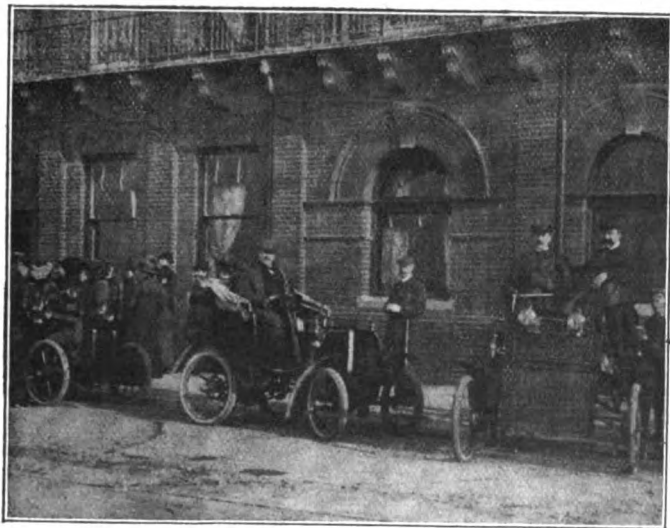
Rear Lights.

IF motorists want to discuss a useful subject, let them consider the neglect of owners of horse-drawn vehicles to provide rear lights on their traps and carts. Now that the days are shortening the suggestion is particularly opportune, and should not be long delayed in execution. To insist on such lights being provided would substantially minimise the risk of

accident, and it is a point upon which motorists ought to take action.

Police Traps.

FROM various parts of the country we continue to receive news of police traps which have been carefully laid. Mrs. Mary Kennard, the novelist, sends this week an account of an apparent case of persecution in Yorkshire, and a local correspondent at Crawley informs us of a new proceeding which has been adopted by the police in that town for dealing with motorists. The trap is laid just south of the railway line, and is only intended for those coming into Crawley from Brighton. The beginning of the course is noticeable by the change of colouring of the road, and is on the West Sussex County Council boundary marked by a post. On a recent Sabbath a very innocent-looking person was seen reading a paper at this particular point, but he signalled to a police sergeant hidden in a hedge 440 yards nearer Crawley whenever a motor-car came in sight. Thirty yards further on were a couple of constables in uniform hiding in the gateway of a small cottage. Our correspondent sent a friend as soon as he knew what was going on to give warning to the motorists who were out on the road that day. Fortunately there were not many, so that the police did not secure such a great haul as they had anticipated. In one case a motor bicyclist dodged the two constables, one of them trying to pull him off his machine. They also chased a car and actually kept up with it for some yards, but their big boots handicapped them, and probably, had they succeeded in getting on the vehicle, they would have been willing to swear that it was going at any rate between forty and sixty miles an hour.



A SNAPSHOT AT SOUTHSEA.

Patrols Wanted.

IN connection with this matter a Taunton reader informs us that there is another trap, on approaching Twyford, about three and a-half miles out of Reading. He himself recently experienced the procedure adopted by the police. The constable was hidden in a clump of fir trees on the right of the road where there was a very sharp corner, followed by a downhill gradient for half a mile. On Saturday as motor-cars approached this point he immediately stopped the drivers and took the names and addresses of those in charge, so that it is just possible we may have a good crop of summonses in that particular district. The correspondent who sends us this item of news suggests that the Automobile Club might arrange with local motor agents throughout the country, so that they could give information as to police traps to some central organisation,

which would then despatch some person to be employed in giving warning of such devices. He believes that there are a good many motorists who would gladly subscribe towards the expense of such a system of patrol, but there are many difficulties in the way, and we do not anticipate the suggestion will ever come to much. During the progress of the Reliability Trials several motorists helped those who were engaged in the tests by giving them warning of the police, and, as we related last week, other metropolitan motorists are rendering similar service. Probably in a few months the constant exposures we are giving, in common with other journalistic efforts, may do something to stop the persecution to which motorists are now undoubtedly subjected.

Sir Thomas Lipton.

An enthusiastic sportsman, it might easily be imagined that, having once tasted the delights of motoring, Sir Thomas Lipton would not be long ere indulging in its pleasures to the full. He has quite a stud of motor-cars at his house at New Southgate (Middlesex), his motor stable already containing nearly a dozen cars of various types and powers. Our photograph of Sir Thomas on his 22-h.p. Daimler is a capital likeness of the motoring knight, whose practical knowledge of automobilism only dates from the last Motor-Car Exhibition at the Agricultural Hall, when he ordered his first car. His interest and enthusiasm has developed rapidly since then.

"Only a Cabby."

HENRY QUINNEL, a cabman, whose only claim to distinction seems to have been that in his early days he drove the late Queen's pony carriage, has been summoned for driving recklessly in King William Street, within five minutes' walk of the London Mansion House. Had he been a motorist driving a car along some sequestered country road he would probably have been fined £5, and insulted by the bench into the bargain. But he was a cabman—one of those gentry who are allowed to do practically as they please in the public streets—and consequently was only ordered to pay two shillings costs. Comparing this with some of the summonses instanced in our list of furious driving cases, one wonders where justice begins and absurdity ends.

Municipal Work.

AT length the City of London Corporation has decided to come into line with some of the metropolitan boroughs with regard to the adoption of motor power for ordinary street work, a four-cylindered Maudslay car having just been decided upon for the conveyance of carcasses from the stores to the foreign cattle market at Dover. Last week we announced that the locomotive engineer of the London and North-Western Railway had also adopted a similar car. It is noteworthy that British makers are now well competent to meet the requirements of the various municipalities that are giving attention to this subject. The Liverpool and Portsmouth Fire Departments, the Borough Councils of the Strand, Westminster, and elsewhere in the Metropolis, have all adopted mechanical traction for municipal purposes, and it is gratifying to observe that British makers have in all these cases secured the orders.

Education in Scotland.

THE Right Hon. Sir J. H. A. Macdonald lately made it known in all the hotels of Auchterarder and Blackford, a neighbouring town, that a motor-car would be on a main stretch of road for some hours, and opportunity given for familiarising horses with the automobile. The town clerk took the matter up, and gave notice to the tradesmen of the place by the town crier. Sir John perambulated the road during the time notified, but not one owner of a horse made any response to the offer made.

He met about thirty vehicles on the road, and only three horses showed any alarm, two of them being very young farm horses. After a few minutes of passing and repassing, the horses stood quietly beside the motor-car, and allowed the Lord Chief Justice Clerk to stroke their noses from his driving seat. He regrets that owners of horses did not respond to the suggestion, but we are afraid his experience is only that of a large number of motorists south of the Tweed, who have similarly offered to undertake the education of quadrupeds, without their owners appreciating the thoughtfulness. If, however, the horses shy or otherwise misbehave themselves, causing possible injury to passengers, these people will probably be the first to complain.

Laying the Dust.

NOT only in Hampshire, but further north as well, experiments with regard to laying dust on the roads are in progress, and Mr. John A. Brodie, the City Engineer, of Liverpool, who has for many years taken an interest in self-propelled traffic, has been experimenting on portions of the Prescott Road, St. Oswald Street, Rathbone Road, and Derby Lane, Liverpool. The materials used are as follows:—Creosote oil (hot); creosote oil (cold); creosote oil mixed with small proportion of pitch; creosote oil mixed with small proportion of resin; creosote oil mixed with small proportion of tallow; coal tar (hot); cheap waste oil from coal tar; common petroleum; crude Texas petroleum. The cost varied from $\frac{1}{4}$ d. to $\frac{1}{2}$ d. per superficial mile, and the results have been equally diverse. That portion of the road coated with creosote oil mixed with tallow had the least odour; whilst that covered with ordinary petroleum was the first to show the dust subsequently to treatment. Unfortunately the weather was not favourable during the time the road was thus treated, so that a further series of experiments will doubtless be made. About three weeks had passed before dust was visible on the surface after the oil had been laid, and the experience thus gained serves to confirm that which has been shown in the Hampshire experiments. We understand that recently a second coating has been laid down. The result of this will be watched with interest.

Fast Times in America.

SEVERAL world's records were broken at the Narragansett Park races of the Rhode Island Automobile Club, on the 24th ult., in spite of heavy mud and the threatening clouds. Six cars competed in the two-mile race for electric vehicles, viz., four Waverleys, a Buffalo, and a Neftel. The last named proved itself faster than the rest, and had a long lead when it passed under the wire in 4 m. 23 sec. In the three-mile race for steam carriages, the winning vehicle proved to be a Toledo, with a Stanley and a Locomobile in second and third positions. The time was 5 m. 9 1-5 sec. Mr. Alexander Winton with his "Bullet" next essayed to establish a new ten-mile record. Every one seemed to know that the event of the day was about to take place, and the long, low car, with its rakish lines, was keenly watched. At the start it looked as if a sensational performance would be recorded. The mile was covered in 1 min. 6 1-5 sec., and the next was 4-5 sec. faster. From then on, however, the speed slackened, until, when six miles had been covered, the attempt was given up, owing to the roughness of the track and the difficulty of making the turns. As it was, however, the five-mile performance was better than any yet made—the time being 5 m. 30 3-5 sec. The next event, a five-mile race for light petrol carriages, proved almost a walk over for a Stevens-Duryea car, it winning easily in 7 m. 42 1-5 sec., an Oldsmobile being second. The steam car built by Mr. George C. Cannon, the young student, was next given a chance to distinguish itself against time, its two-man control barring it from the competition events. Manned by Cannon and a friend, it made the fastest mile of the day, 1 m. 5 1-4 sec., although its five-mile time in a subsequent trial was behind Winton's, being 6 m. 5 sec. The best race of the day was the one which brought together

five Winton touring cars for five miles. Mr. F. Tudor was the winner, he finishing almost an eighth of a mile to the good. The time was 9 m. 13 $\frac{1}{4}$ sec. A five mile race for heavy petrol cars limited to thirty horse-power gave Mr. Percy Owen a chance to bring out Winton's light racer, called the "Pup." He had against him two Wintons, a Stearns and a Darracq. Owen, however, proved an easy winner, in 6 m. 25 $\frac{1}{2}$ sec. Owen was again leader in a five-mile free-for-all race for petrol cars, in which the other contestants were Mr. Winton, with his big racer, and Mr. Harold Brown, on his Darracq. Owen's time was 6 m. 43 $\frac{1}{2}$ sec. He did better in the sweepstakes for winners, in which he was practically the only starter.

The Tyre Trials.

mileage:—

				Marks lost in running the 4,000 miles.
T 7.	Collier	...	...	45
T 2.	Dunlop	...	...	87
T 1.	"	...	...	102
T 3.	"	...	...	152
T 4.	"	...	...	322
T 6.	Maison Talbot	...	...	698
T 12.	E. Midgley...	...	...	199

Mr. Midgley has not yet completed his total run, so that the place of his tyre in the list cannot yet be fixed. The extra test over a course strewn with broken glass bottles, which was to have been held on Saturday, has been postponed, and the factors still to be taken into account in awarding prizes are—price, loss of weight, condition as shown by periodical examinations, by photographs taken during the trial and by examination at the end of the trial, resiliency, "resistance to road traction," facility of attachment and detachment, and rigidity.

THE "Tatler" is offering a motor-car as a prize in connection with a series of picture puzzles now appearing in its pages.

MR. PAGE, of the White Lion Hotel, of Banbury, contemplates making adequate arrangements for motorists passing that way.

REFERENCE to Captain Longridge's paper on the Oil Motor-cars of 1903, read at the Institution of Mechanical Engineers on Friday, the 17th inst., will be made in next week's issue.

A THOROUGHLY equipped motor school will shortly be inaugurated at the Polytechnic, Regent Street, W. In this an entire vehicle will be constructed, from the preliminary drawing to the finishing coat of varnish.

MR. BALFOUR drove from Mr. Leopold de Rothschild's country seat to Downing Street on Monday on his motor-car. Passing Buckingham Palace, where a crowd was awaiting the coming of Lord Roberts and Lord Kitchener, his motoring costume proved an effectual disguise for the Premier, so far as the general public was concerned.

THE AUTO-LUBRINE COMPANY, Fairfield, near Manchester, inform us that they have made arrangements with Messrs. J. Hutton and Sons, 115, Summerhill, Dublin, and the Northern Motor Company, Montgomery Street, Belfast, to hold stocks of Auto-Lubrine both for cylinders and gears. At present these are the only two places in Ireland from which Auto-Lubrine can be obtained.

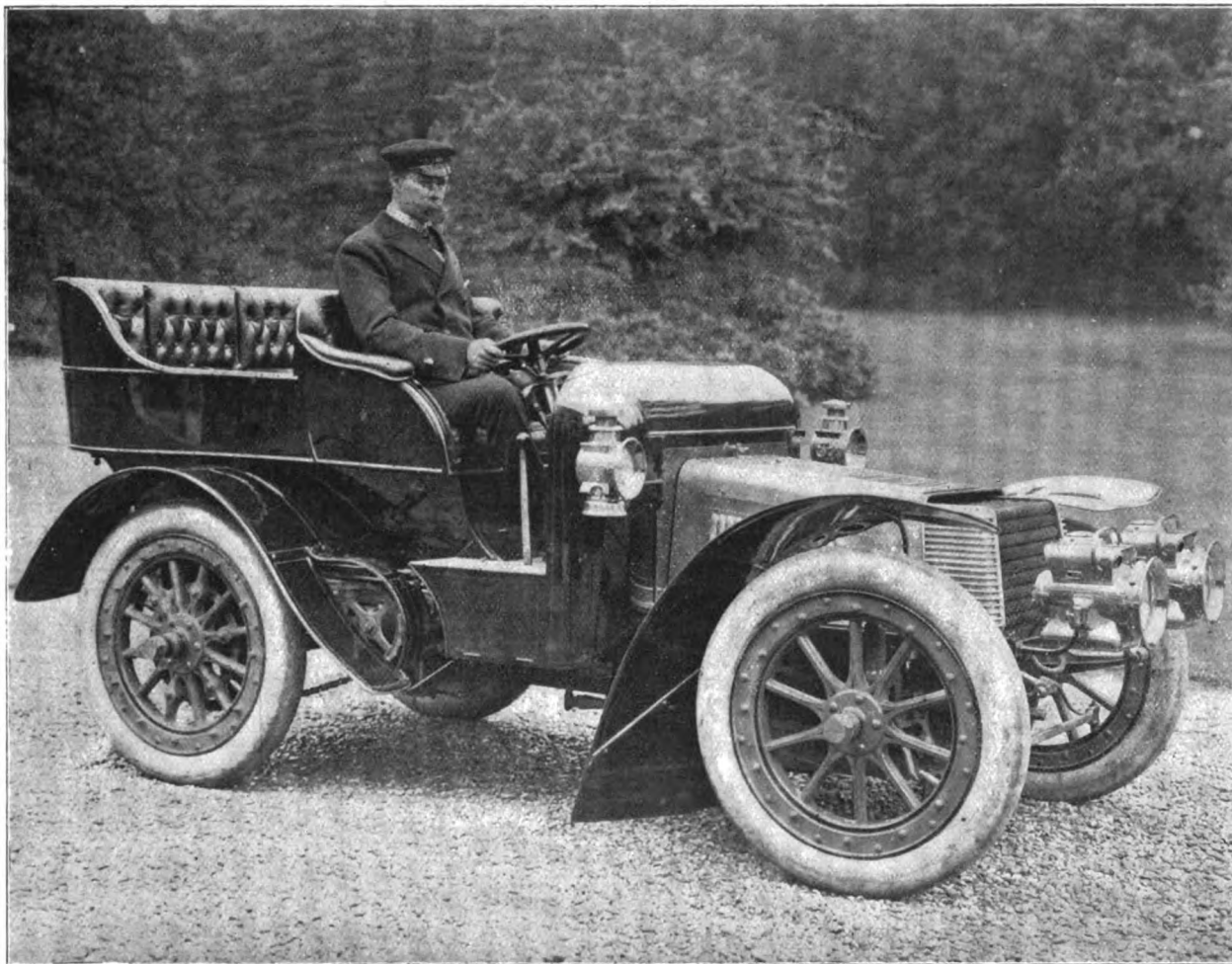
ON Wednesday the adjourned case against Mr. G. Wilder, referred to in our furious driving cases on another page, came before the Worthing Bench. Mr. Staplee Firth, who defended, asked that Colonel Wisden, chairman of the Bench, should retire, and quoted the chairman's reported observation that it would be a good job if the motor-car industry were destroyed. Colonel Wisden, however, remained and the defendant was fined £10 and costs. Mr. Firth intimated that he should go to the High Court in order to quash the proceedings.

THE TRAPPER AND THE TRAPPED; OR, A LAND OF LAW AND EN- LIGHTENMENT.

BY MRS. MARY E. KENNARD.

ON the 16th of September, 1902, that gallant veteran "Sir Charles" (Napier) undertook her third journey to the North. We were bound for Falkirk, and the party consisted of my husband, self, and *mecanicien*. Owing to a defect in the pump, which necessitated a spare one being sent for from London, we were somewhat late in effecting a start. We did not take the road until half-past eleven. One turn of the handle, and "Sir Charles" fired with his usual alacrity and responsive-

ness. anon its pulsations died away and threatened to cease altogether. All the symptoms pointed to the fault lying either with the carburettor or the supply pipe. The astute Brooks hunted about for the seat of trouble like a ferret in a rabbit hole. He removed the offending pipe and blew down its entire length. There was no obstruction, however, neither was one apparent in the carburettor. After some delay we renewed our journey, but, alas! the same intermittent strokes of the pistons greeted our ears. We laboured along to Northallerton, and here my husband cried a halt for luncheon. The day was a Sabbath, so we repaired to the principal hotel, where a sumptuous cold collation was laid out in honour of passing cyclists and motorists. After refreshing the inner man and woman, my husband vowed he must have some exercise. He, therefore, walked on ahead, telling us to follow



SIR THOMAS LIPTON ON HIS NEW 22-H.P. DAIMLER.

Photo by]

[The Biograph Studio.

ness. The day was fine and we were all three in the best of spirits. A pleasant, uneventful journey brought us to Doncaster towards six o'clock, and here my husband elected to remain for the night. As most motorists furnish accurate accounts of the number of meals they partake of *en route*, and the various dishes of which they are composed, I will not enter into more gastronomic details than are indispensable to my narrative. Suffice it, that the human being fed and rested after the manner of his kind. The following morning we got off betimes, but had not gone twenty miles before "Sir Charles" commenced gasping and gurgling in a mysterious fashion. At first we attributed this to a fit of wheeziness, but when we found our trusty conveyance showed a tendency to jib at the hills and to crawl along the level we knew that all was not quite as it should be. Sometimes the engine ran merrily,

with the car. It appears he met a policeman about a mile from the town, and, overflowing with the milk of human kindness, entered into a sprightly conversation with this official. He offered him some tobacco, which the gentleman accepted, although he said he was not permitted to smoke on duty. Upon this, my better half jocularly asked him if he were there to catch motorists. "Not particularly," was the answer. My husband then remarked that his motor-car was coming along in the rear, and expressed a bantering hope that the officer would not bring its occupants to a standstill for exceeding the legal limit. He wended his onward way serenely, and shortly afterwards we followed all unsuspecting in his tracks. Brooks had spent the interval in tussling with the carburettor, and, being anxious to ascertain if he had effected an improvement, I resigned the helm

to him. Good "Sir Charles" was still in a refractory mood, however. Somewhat despondent at the non-success of our endeavours, we were travelling at a compulsory slow rate of speed when, all of a sudden, a policeman shot up from behind a hedge exactly like a Jack-in-the-box. He waved his arms peremptorily and ordered us to pull up. I was so utterly astonished that I exclaimed, impulsively: "Why, what on earth are you stopping us for?"

It took several seconds to din into my head that we were being brought to on a charge of furious driving. The absurdity of the accusation was patent. We had been struggling along under difficulties all the forenoon, depressed in spirit, tried in patience, and now we were accused of driving at a speed injurious and dangerous to other users of the King's highway. It really would have been ludicrous save for the annoyance. As it was, I laughed out loud, with a laughter, however, that was mirthless. We were ordered to remain in a standing position until the inspector arrived on the scene. This individual shortly turned up on a bicycle, panting and breathless, having travelled considerably faster from North-allerton than ourselves. He was perspiring, but civil. I explained the state of the case to him and he listened with scornful incredulity. His was evidently a prejudiced mind. His orders were to trap the road vermin, and the more he succeeded in catching, the higher he stood in favour with the county authorities.

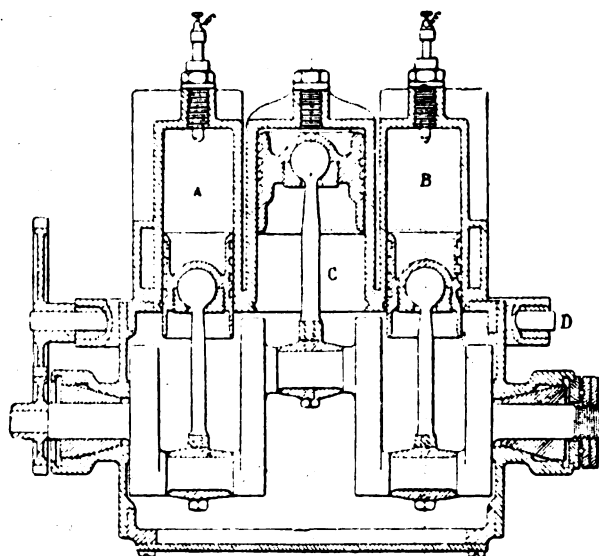
"Well!" I ejaculated at last, in tones of exasperation, "it is clearly useless speaking the truth. Take our names and addresses by all means. I do not blame you, but I pity you from the bottom of my heart for having such horrid, mean, sneaking, unmanly work to perform. I wonder what our country is coming to when fair play and justice give way to traps and ambushes!" To my great surprise both policemen heartily endorsed my observations. They confided to me that they disliked the work exceedingly, but the mandates issued by their superiors were so peremptory they dared not disobey them. They explained that so many fast cars passed through the neighbourhood on their way to Scotland, the farmers had insisted upon the county magistrates putting a check on their advent. Yorkshiremen were a horse-loving people, opposed to everything injurious to the equine interest. After some further conversation—for it was useless losing one's temper with mere tools of an ignorant and prejudiced bench—the inspector consulted his stop-watch, and magnanimously declared that we had only very slightly exceeded his legal limit. Indirectly, he gave us to understand he would deal indulgently with our case. Judas of the hedge confirmed his statement, and we went on our way, not rejoicing, but soberly. A few seconds later, and within full view of our friends, "Sir Charles" came to another stop, as if to emphasise our arguments. We coaxed him to renew his labours, and after a little picked up my husband, who wondered at our non-appearance. We explained to him into what a nice trap he had fallen, and how we had been the victims of his guilelessness. Ere long we put up in a yard and took the whole carburettor to pieces, only to find nothing amiss. To cut a long story short, it eventually transpired that a piece of corroded metal was blocking the orifice from the petrol tank to the supply pipe. My hat pin remedied the mischief. By the by, motorists would do well to carry one or two of these useful articles with them. It is wonderful how frequently they prove of service. "Sir Charles" now perked up splendidly and carried us in customary form to Newcastle. Owing to the delay, however, we did not reach that town until half-past eight at night.

(To be continued.)

It is reported that on Sunday a new service of motor-omnibuses was started running from New Cross Station (S.E.R.), to Forest Hill, via Lewisham High Road, Brockley Road, to Forest Hill Station. The vehicles carry twelve inside and fourteen out. The fare for the whole journey is 3d., with intermediate 1d. rides. A motor char-à-banc is also running from Lewisham Junction Station to Eltham, via Lee Green, the fare being 4d. the whole distance.

THE ROSER-MAZURIER BALANCED PETROL MOTOR.

AFTER the working stroke of a petrol motor is completed the ignited gas, which in the ordinary engine is cleared out through the exhaust valve, still possesses a certain degree of expanding pressure. With the view of utilising this pressure, and at the same time of obtaining a well-balanced engine, Messrs. Roser and Mazurier, two French engineers, have recently devised the motor illustrated in section herewith. As will be seen, it is a three-cylinder vertical motor; the two outer cylinders, A B, work with petroleum spirit or with petroleum in the usual way. Instead of the burnt gases from these passing to a silencer they are conveyed into a third central cylinder C, which is twice the size of the others, where air, previously compressed to avoid loss of work due to the sudden expansion of the burnt gases, is heated, this cylinder C working like a hot-air motor. The small cylinders are water cooled, and the big one air cooled. The two outer cylinders work on the four-cycle principle, but with a difference of two periods one to the other; that is to say, although there is only one explosion in each cylinder for two revolutions of the crank shaft, the latter receives an impulse at each revolution; the hot-air cylinder gives, however, one effective stroke per revolution, so that the crank shaft



really receives two impulses at each revolution. To the left of the motor shaft is a gearing which drives at half speed an intermediary shaft with seven cams acting on as many valves arranged in a line at the rear top part of the cylinders. The burnt gases pass alternately from the outer cylinders into the central one, escaping finally by a large valve. This escape occurs only during a part of the return stroke of the piston in the cylinder C; the valve shuts prematurely, and the rest of the gases is then compressed into the end of the cylinder C, being reheated at this moment by the burnt gases admitted from one or other of the outer cylinders. A governor controls the admission by means of a butterfly valve. The crank-case, hermetically sealed, contains an oil bath into which the cranks dip. M. N. Roser, of St. Denis, Paris, the maker of the new motor, not only claims steadiness of running owing to the balancing of the impulses, but a great economy in fuel. He is, we understand, anxious to arrange for its construction under licence in England.

PRETORIA is to have a public service of motor-cars, a company with a capital of £15,000, called the Pretoria Motor-Car Company, Limited, having been formed for this purpose.

THE Town Council of Johannesburg, South Africa, are contemplating the employment of motor-vehicles in the sanitary department.

THE RAIL RING TRACTOR.



As mentioned in our issue of the 4th inst., the War Office Committee on Mechanical Traction has recently been carrying out some trials with a novel vehicle known as a Rail Ring Tractor. The wagon, which was illustrated in our issue of March 24th, 1899, is the invention of Carl Keller, of Laggenbeck, Westphalia, and some time ago was brought under the notice of Mr. Chas. T. Crowden, of Leamington, who was invited to proceed to Germany to inspect its working. For the weight of the tractor, he found it excellent as regards pulling power and travelling over obstacles; it would, in fact, run where there were no roads at all. The tractor first tested was fitted with a heavy oil engine, and the consumption of fuel was exceedingly small for the work done. Seeing there would be a great future for such a machine in South Africa for military purposes, Mr. Chas. T. Crowden approached the War Office authorities, and laid his results and particulars of this tractor before them. These were afterwards verified by an expert deputed by the War Office to go out to Germany and test the vehicle. The expert's report was of such a character that Mr. Crowden was asked to design a tractor to meet their requirements, one weighing 7 tons and the other 13 tons, to be capable of running twenty-four hours without replenishing with fuel or water. Before finally



iron sleepers. Directly the tractor was attached it started away with the load to the weighbridge, and the tractor was detached from the load and weighed. The truck was next weighed and found to be 6 tons. For comparative tests this was reduced to 5 tons.

On the next day the tractor left the Army Service Corps' Yard at 8 a.m. for a thirty-mile run with a 5-ton truck load, Lieutenant Anderson, R.E., acting as observer. The route taken from Aldershot was over Hale Hill into Odiham, thence to Hartley Bridge, where a stop was made for lunch. Some difficulty was occasioned here by the low-tension sparking arrangement of the paraffin engine. The tractor was, however, soon on its way again, mounting the hill on to Hartford Bridge Flats, where it did a mile in 8 min. 15 sec. on the level, and Bagshot, without using the low speed. Here the vehicle returned to Aldershot, through Frimley and Farnborough, the Army Service Corps' Yard being reached at 4 p.m. The consumption of oil was about 5 gallon per ton mile.

On Wednesday, the 1st inst., the tractor left the Yard at 7.15 a.m. for a forty-two mile course with the same load. Captain Kennedy, R.E., acted as observer. The route taken was from Aldershot to Alton, through South Wansborough, to Odiham, thence to Hartley Bridge, Hartford Bridge Flats, Blackwater, Camberley, and then on to Farnborough and Aldershot, arriving at the Yard at 5.30 p.m. After deducting stoppages through



A 34-H.P. DE DION VOITURETTE ON THE STELVIO PASS, IN THE TYROL, AT A HEIGHT OF OVER 9,000 FEET ABOVE SEA LEVEL.
(La France Automobile.)

deciding, however, to order these machines, it was decided to bring over one of the machines for a six days' trial at Aldershot. The vehicle brought over by Herr Keller was a light one, weighing only about 5 tons, and provided with two speeds—5 and 10 kilometres per hour. It was also fitted with two benzine motors, each having two cylinders, one of which was converted to use paraffin, to show it was possible to burn paraffin when required. These engines ran at a speed of about 600 revolutions per minute, and developed 14-h.p. each, or 28-h.p. collectively. On a level road one of the motors can be stopped when not required. The tractor would not in any way comply with the requirements of the War Office, but was merely brought over to demonstrate the practicability of the Rail Ring system.

On Monday, 29th September, the tractor was inspected, empty, by several officers and the Committee on Mechanical Traction, including Colonel Crompton, R.E., Colonel Nugent, Captain Kennedy, Colonel Templar, and Major Lindsey Lloyd, R.E., &c. Mr. Crowden was called upon to describe the construction and principles of the Rail Ring Tractor. An order was then given to fill up and measure the oil and water tanks. The tractor was next started up and driven over the Army Service Corps' yard, which was in a rough and broken condition. The tractor was manoeuvred over this ground, and trials were also made of the smallest radius in which it would turn. It was then attached to a Fowler traction engine truck, loaded with rails and

horses and vehicles, lunch, and electric ignition troubles, a uniform speed of 4.6 miles per hour was obtained.

On Thursday, the 2nd inst., the tractor left the Yard at 9.30 a.m. for an eight-mile run with a 5-ton truck load round the Long Valley, with Mr. Bagnall Wild as observer. The course was a very difficult one, having very steep hills, the roads being sandy and loose, and almost impassable for motor-vehicles. At the end of this course the tractor was met by Major Lindsey Lloyd, R.E., General Lord Elmslie, General Wace, and others. The vehicle was then directed into the road leading to the Long Valley. After ascending and descending almost impossible hills and places, the tractor was detached from its load and sent through a sandy chasm very much like an empty canal or river, which it did in a creditable manner. This concluded the trials for the fourth day, the motor-car being then attached to the 5-ton truck, which it took back to the depot.

On Friday, the 3rd inst., the tractor left the depot at 10.30 a.m. for the entrance to the Long Valley, where its capabilities were inspected by Colonel Holden and other military authorities. On this occasion the vehicle was sent right across country, ignoring all roads, over grass, furze, bushes, &c. The machine left Aldershot on Saturday morning, the 4th inst., under its own power, for St. Katharine's Docks, London, whence it was shipped back to Germany.

Throughout the whole of the trials no breakdown of any

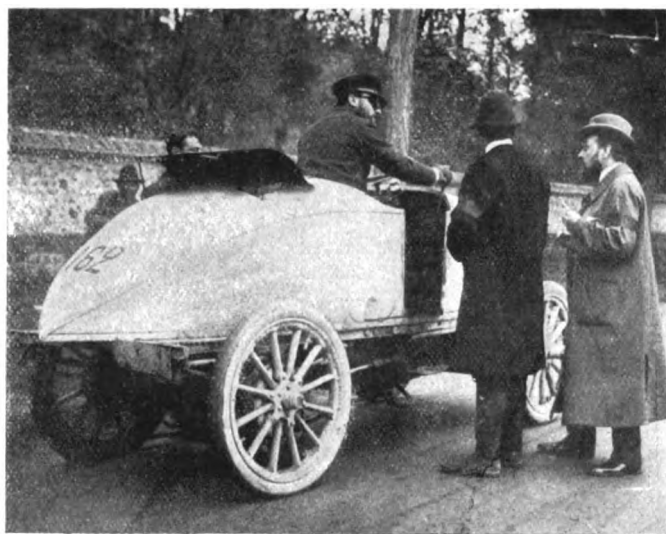
serious character was experienced, with the exception that a small fan for cooling the radiators came adrift. A certain amount of trouble was experienced with the low-tension sparking, especially on the paraffin engine. The vehicle proved that it is applicable not only for low speeds, but for speeds up to thirty miles an hour, as on several occasions during the trials the tractor travelled at this speed in descending some of the hills.

CONTINENTAL NOTES.

BY AUTOMAN.

THE organisers of the hill-climbing competition at Stelvio, in the Tyrol, are leaving no stone unturned to make the meeting one of the important events of next year's motor-racing calendar. The month of August has been chosen for the competition, and as there remain about ten months in which to complete the arrangements, the public, and likewise the trade, may expect everything to be in perfect working order.

IN addition to the hill climb, there is to be a speed contest on a level road seven miles long and without any villages en route. It is even proposed to hold races for motor yachts on Lake Como, which is not far distant.



M. SERPOLLET ON THE "WHALE."

THE GAILLON HILL-CLIMBING TRIALS.

THE Swiss Automobile Club held its annual hill-climbing competition on Sunday, the 5th inst., on the road between Trelex and Saint-Cergues. It consisted in a stretch of $6\frac{1}{2}$ miles with a 5.3 per cent. climb. There were two sections, one for racing and the other for touring vehicles. The following are the best times for each of the different categories:—

RACING CLASS.

Motor-cycles—				
Benoit (Zurcher et Luthi) ...	...	h.	m.	s.
			19	5 1-5
Light Cars—				
Perrot (Rochet-Schneider) ...	...	1	24	17
(Stopped on the way by an accident.)				
Heavy Cars—				
Mauthen (Mercedes)...	...		25	0

TOURING CLASS.

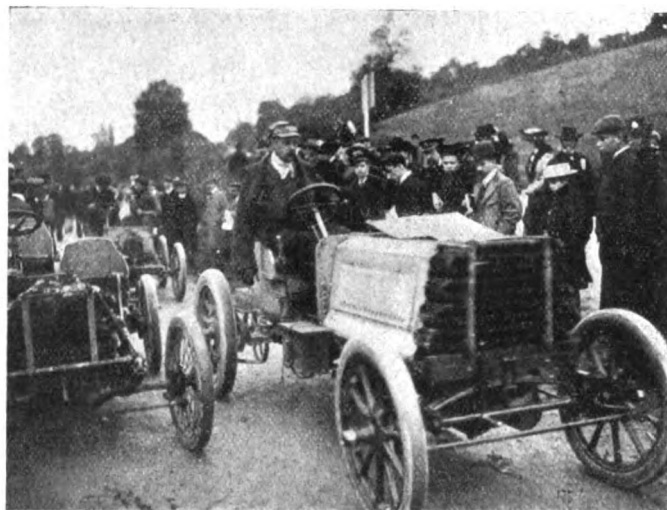
Voiturettes—				
Masing (Darracq) ...	...		35	52 1-5
Light Cars—				
De Ville (Georges Richard)...	...		28	11 1-5
Heavy Cars—				
Kitabji (Panhard) ...	...		28	2

THE question of the use of alcohol for the propulsion of motor-cars is exciting the attention of the authorities in Italy, and an exhibition is about to be held at Conegliano, during which there will be a race meeting on the roads between Conegliano and Padua. Alcohol will be the only fuel used, and it will be supplied free to the competitors.

THE competition for delivery vans, omnibuses, and lorries, which was to have taken place from the 23rd to the 29th inst., has been postponed until the end of November, and a judging committee is to be formed, half of the members being elected by the trade, and the other half by the Race Committee of the A.C.F.

AS I mentioned some weeks ago, the timekeepers at Deauville found at the end of the meeting that their watches did not agree. The A.C.F. has therefore declared the meeting null and void, and Vanderbilt's record of 29½ seconds becomes the official time for the kilometre on the Continent. Jarrott's record at Welbeck stands as the world's record, with the proviso that the course at Welbeck is slightly down hill.

THE "Auto-Velo," commenting on the Deauville mistake, gives the opinion that the error was not a gradual one, but a sudden error just between the arrival of Rigolly and the start of



M. HEATH ON THE RACING PANHARD.

They, who expected to do the kilometre in 37 seconds, and who was quite surprised when his time worked out at 30 seconds. If this opinion be taken as correct, Regal did the best time at Deauville—28½ seconds.

IT is most disappointing to the manufacturers of automobiles who went to the expense of going to Deauville to see the results of the meeting rendered invalid, and it points to the necessity of some mechanical means of timekeeping. With a view to accomplishing this the "Auto-Velo" has put itself into communication with Messrs. Hanger and Pescheuse, who have invented a self-registering chronometer which has just been experimented with by Mr. Robert Ball before the Royal Institution in London, and which, after forty-five minutes' working, did not show a variation of one-twentieth of a second.

THE mystery of the fiasco at Gaillon last Sunday week has been cleared up. It seems that the organisers of the competition never asked leave of the Prefet of Police of the department in which the trial was to be held. Instead of this they went to the Ministry for their authorisation. The law, however, requires

that the Prefet of Police shall give his consent, and this official was naturally furious that he had not been consulted.

He was also annoyed that it had been said that he was a friend of the organisers of the first hill-climbing trial, which he had duly authorised, and that he had been influenced by them to stop the second event. Fortunately for the organisers of the second event, M. Leon Serpollet was with them when they went to make their peace with the Prefet, and as M. Serpollet explained that a great injury would be done to the trade should the meeting not be held, the Prefet gave his consent to the trials taking place as last Sunday. The official document was, however, pointedly addressed to M. Serpollet and the automobile manufacturers who were therein duly authorised to hold the meeting.

SUNDAY last broke with a dull, cloudy sky in Paris, and the roads were wet and muddy. A heavy shower about 8 a.m. did not improve matters, and it was with all precautions and many misgivings that Paris automobilists set off for Gaillon, decked for the most part in "umbrellas," which are truly the only garments in which motorists can brave the weather with impunity.

GAILLON is just about sixty miles from Paris, and after passing through Saint Germain the roads are excellent. The



THE GAILLON HILL-CLIMBING TRIALS—OSMONT TESTING HIS DE DION RACER.

weather, though it did not improve much, as we neared Gaillon got no worse; the rain, fortunately, kept off and rendered the competition possible and interesting.

AT Gaillon M. Leon Serpollet was, by special order of the Prefet de l'Eure, put in supreme command as organiser of the competition, and particular instructions were given to the police and military that they must obey his orders only. The Prefet de l'Eure is a man not to be trifled with; he knows his rights and the law better than the Minister who is above him, and all those who come into his district must bear it in mind if they want to be successful in their undertakings; thus it was that M. Serpollet stepped into the breach and saved the meeting by assuming the post of organiser and giving passes to the press and orders to the guardians of the law.

AT 10.30 a.m. the competition commenced with the motor-bicycles, and from that time until about 3.30 there was a constant succession of rushes up the Gaillon hill. It will be remembered that Gaillon starts at once with the steepest pull and then eases off towards the summit, the average gradient over the kilometre being 9 per cent.

THE winner of the day was Le Blon on a Serpollet, who established the wonderful record of a speed equal to 100 kilometres (a little over 62 miles) an hour up the hill. Serpollet, therefore, holds the record for public competitions, both on the level and up hill, and curiously enough his times are exactly 120 and 100 kilometres per hour. A Serpollet, with Rutishauser driving, also won the category for light cars.

THREE categories fell into the hands of Clement, for Derny was the winner of the light motor-bicycles and Holley of the heavy bicycles, on the new Clement four-cylinder bicycle, on which, by the way, after the competition, Holley in another trial established a wonderful record, doing the kilometre in 37 seconds, just one second more than Le Blon, and attaining a speed of over 97 kilometres per hour. Volatum on a Clement voiturette was the winner of his class.

IN the heavy-car class, after Le Blon came two Panhards driven by Heath and Teste, and then Gabriel on a Mors, who, although he did not succeed in carrying off the day's victory, still remains the champion hill-climber, for his results for the two events, Chateau-Thierry and Gaillon, add up to the best time for the double event.

THE following is the official classification of the two events, Chateau-Thierry and Gaillon:—

Driver.	Make.	Chateau-Thierry.	Gaillon.	Total.
MOTOR-CYCLES (Under 30 kilos).				
		M. S.	M. S.	M. S.
1. Derny ...	Clement ...	1 3½	1 2½	2 5½
2. Coudert ...	Lurquin et Coudert	1 37½	1 20½	2 57½
3. Barre ...	Bruneau ...	1 40	1 24	3 4
MOTOR-CYCLES (Over 30 kilos).				
1. Lamberjack	Griffon ...	0 55½	0 49½	1 45½
2. Demester ...	" ...	1 1½	0 58½	1 54½
3. Barre ...	Bruneau ...	1 0½	0 59½	1 59½
MOTOR-CYCLES (from 50 to 250 kilos).				
1. Loste ...	Buchet ...	0 49½	0 41½	1 31
2. Holley ...	Clement ...	0 51½	0 40½	1 32
3. Osmont ...	De Dion ...	0 55	0 44½	1 39½
QUADRICYCLES (two places occupied).				
1. Osmont ...	De Dion ...	1 1½	0 52½	1 53½
VOITURETTES (from 250 to 400 kilos., one place occupied).				
1. Thellier ...	Passy-Thellier ...	0 58½	1 2	2 0½
2. Volatum ...	Clement ...	1 14	1 0½	2 14½
3. Harriot ...	Passy-Thellier ...	1 19	1 14½	2 33
LIGHT CARS (from 400 to 650 kilos, two places occupied).				
1. Rigolly ...	Gobron-Brillie ...	0 52	0 46½	1 38½
2. Baras ...	Darracq ...	0 54½	0 46½	1 40½
3. Thery ...	Decauville ...	0 59½	0 44	1 43½
HEAVY CARS (from 650 to 1,000 kilos, two places occupied).				
1. Gabriel ...	Mors ...	0 48½	0 43½	1 32½
2. Heath ...	Panhard ...	0 53½	0 40½	1 33½
3. Teste ...	Panhard ...	0 52½	0 41½	1 34½

IN connection with the projected competition of the famous Stelvio Pass in the Tyrol, it will no doubt be of interest to mention that quite recently a German motorist—Herr Wolfgang Vogel—succeeded in making the ascent on his 3½-h.p. De Dion voiturette. This is not the first time the Stelvio has been climbed by a motor-car, but for a vehicle of such a small power the feat is noteworthy.

THERE is every prospect that the next exhibition at the Grand Palais here in Paris will far and away eclipse those hitherto held. Among the latest list of exhibitors issued I notice the name of the Wolseley Tool and Motor Car Company, Limited. If I recollect rightly this is the first time English-built motor-cars have been exhibited in France.

THE flying machine made by M. Bradsky was for some time awaiting favourable weather to make its trial trip from the balloon works of Lachambre at Vaugirard. On Monday morning last, the weather being most favourable, he started off soon after

seven o'clock, together with an electrician named Morin. The machine was on somewhat similar lines to that of Santos Dumont, and was propelled by a Buchet four-cylinder motor; it had, however, a special fan placed underneath the car for the purpose of raising or lowering the machine in the air.

It had been the intention of the aeronaut to go to the manœuvring grounds at Issy-les-Moulineau to make his evolutions and test his aerial craft, but a southern current of air carried them over Paris, and at 8 a.m. they were over the Opera House at a height of 400 metres. It was then quite evident that they had lost control over the craft, for it turned round and round and described circles in the air, and finally swept away sideways towards St. Denis. At Stains, while preparing to descend, the keel of the car seemed suddenly to detach itself from the balloon, and, lurching forward, it plunged to the earth with the unfortunate aeronauts clinging to it. They were dashed in pieces and instantly killed, whilst the balloon shot upwards and then sailed away over Paris.

SHORTLY after the accident I drove out to the scene and found the remains of the flying machine in a turnip field beside the road. The motor seemed practically uninjured, and even the glass lubricator was intact; the keel, of course, was bent into all shapes. What really happened will never be known, but either the piano wires which attached the car to the balloon were not strong enough for their work, or else a part of the machinery caught some of the wires and caused a breakage which put too much strain on the other wires. There is a sad similarity between this fatal accident and that which occurred to M. Severo in May last. Both took place on a Monday, and each was steering for Issy-les-Moulineau. There were two in the balloon in each case, and also both accidents have nothing whatever to do with aeronautics, and are clearly avoidable.

THE 1903 Nice week programme has been issued. On Sunday, the 29th March, there will be a decorated motor-car competition. Races will be held on the following three days. The Nice-La Turbie race will be held on the 2nd April, while the mile competitions on the Promenade des Anglais will be run off on the 5th April.

I HEAR that the 1903-model Benz car will comprise some striking departures. A new 12-h.p. car is being introduced, with a two-cylinder vertical motor and a water-cooler on the lines of the Mercedes. The transmission will comprise neither belts nor chains, and on the top speed the drive will be direct.

THE hill-climbing competition on the road between Spa and Malchamps under the auspices of the Belgian Automobile Club duly came off on Monday last. The course was over a distance of 5,300 metres (3½ miles). Appended are the fastest times in each class:—

Class.	Make.	Time.
		m. s.
Light motor bicycles ... Prudhomme ...	Red Star ...	6 2½
Heavy motor bicycles ... Vand den Born ...	Antoine ...	9 58½
Motor tricycles... Joostens ...	Korn ...	6 54½
Voiturettes ... Oury ...	Clement ...	5 39½
Light cars... Roland ...	Gobron-Nagant ...	4 32½
Racing car (1,000 kilog)... Hautvast ...	Pipe ...	5 33½
Touring cars ... De Bron ...	De Dietrich ...	6 46

The best time of the day was made by Roland, whose speed up the hill works out at nearly forty-four miles per hour.

THE success of Mr. Archibald Ford's School of Motoring at Liverpool is now beyond doubt. This week a clergyman from Leeds, and other gentlemen from Malpas and Sidcup, in Kent, are amongst the pupils. Not only are driving and management taught, but lucid instructions are also given as to the necessary procedure should the car from any cause break down.

THE MOTOR-CAR INDUSTRY IN THE UNITED STATES.

FOR the first time the bulletin reports of the U.S. Census Bureau statisticians contain a chapter devoted to motor-vehicles. The bulletin itself is on the special subject of the manufacture of locomotives in the United States during the year 1900, with a section devoted to motor-vehicles. This latter term, the report states, is intended to "embrace all classes of self-propelled carriages, wagons or trucks used for the conveyance of passengers or the transportation of merchandise." Of such vehicles, according to the report, 4,192—1,575 electrical, 1,681 steam, and 936 petrol—were constructed in the United States during the census year 1900, and their aggregate value, as reported by 109 manufacturers, was £979,888, an average of about £230 per vehicle.

A comparison of the relative popularity of the three motive powers, steam, electricity, and petrol, conclusively shows that conditions two years ago were not as they are to-day. Petrol undoubtedly leads in the total output of the three different classes of motor-vehicles at the present time, and has led throughout the past year, but in 1900 it was a very poor third. The total value of the electric vehicles turned out in that year exceeded the combined total values of the other two powers, was three times as great as the total value of the petrol-car output, and almost twice that of the steam vehicles, although the number of steam vehicles manufactured was greater.

The report concludes:—"Notwithstanding the large number of motor-vehicles constructed during the census year the industry was only in the experimental stage, and its development promises to be as remarkable as the expansion of the bicycle industry. Few industries involving such a degree of mechanical skill and ingenuity, and presenting so many new problems for solution, have developed so rapidly, both in ideas and in commercial results."

COLONEL LOCKWOOD, M.P., is a motorist, having a 9-h.p. Renault.

SIR ARCHIBALD MACDONALD, BART., is having his 22-h.p. Daimler fitted with Collier tyres.

A PETITION in favour of the Registration of Motor Vehicles Bill is to be presented to Parliament on behalf of the Scottish Trade Protection Society.

THE office staff of the Daimler Motor Company held their annual outing on Saturday, journeying to the Swan's Nest Hotel, Stratford-on-Avon, on a Daimler wagonette.

THE DUMFRIES COUNTY COUNCIL is petitioning Parliament in favour of the Registration of Motor Vehicles Bill, despite the protest of Mr. Brooks, the only one of its members who is a motorist.

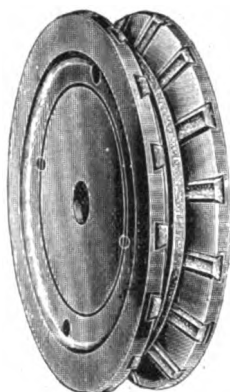
THE success attending the recent trials, made by the Postal Authorities in the E.C. district, with the "Oppermann" electrical mail van, has induced them to further test the suitability of this type of motor-van on another and more difficult route in the Battersea district. The trials started on Tuesday last.

THE AERONAUTICAL INSTITUTE AND CLUB held a meeting at St. Bride's Institute, Fleet Street, E.C., on Friday, the 10th, Dr. F. A. Barton, the President of the Institute, in the chair. There was a large attendance of members and their friends. Mr. P. L. Senecal gave an interesting paper on a somewhat novel flying machine, a parachute with flapping wings. Mr. Senecal stated that he considered the project quite feasible, the parachute being built upon a frame to prevent it collapsing, and the wings being used to guide the machine when gliding. Mr. Aug. E. Gaudron followed with a short lecture on modern balloon manufacture, in which he explained the details of construction. A lantern lecture by Mr. Gaudron wound up the evening, some very fine pictures being shown.

MOTOR-CYCLING NEWS.

A SUGGESTION has been made that trials for motor-cycles should be held independently of the car trials which will probably be organised by the Automobile Club next year.

MR. E. LYCETT, of the firm of Messrs. Edward Lycett, Limited, Cycle Saddle Manufacturers, Deritend, Birmingham, is introducing the new pulley for motor-bicycles, illustrated herewith. The pulley is V-shaped, and takes either a round or V belt; the sides of the pulley are grooved with dovetailed slots, compressed leather blocks being inserted in the slots. The bottom of the pulley is also covered with leather. Mr. Lycett, who has given the pulley an extended trial on his 2½-h.p. Excelsior motor-bicycle, informs us that although he runs with a loose belt, the grip appears to be as positive as a chain drive, the motor running as smoothly as can be desired.



MESSRS. WERNER BROS. are about to build new and more extensive works in Paris, and have also removed their show-rooms from 40, to 10 bis, Avenue de la Grande Armée, Paris.

NEWS of the resuscitation of the Motor Cycling Club comes in the announcement that on Sunday, the 19th inst., there will be a run to Dunstable, the meet taking place at the Marble Arch at 10.30 a.m.

MESSRS. A. W. GAMAGE, LIMITED, of Holborn, E.C., have been appointed sole agents for the United Kingdom for the Red Star motor-cycle, which has just won the Belgian Hill-Climbing Competition at Spa.

THE Rex Motor Manufacturing Company, Limited, of Earlsdon, Coventry, have completed a 3 h.p. water-cooled motor-bicycle. We hear that an attempt will be made shortly by Tessier to create a new world's record on this machine.

MESSRS. SALSBURY AND SON, the well-known motor lamp makers, have just introduced a new pattern horn for the use of motor cyclists. It is claimed for the new pattern that it is better suited to the shape of the cycle handle-bar, and as the clip is on a turntable, the horn can be placed in the position most convenient to the user.

TO-DAY (Saturday) the Motor Cycle Union of Ireland will hold a meeting at the Ashtown track, Dublin. The programme comprises a ten-mile motor-bicycle handicap, one mile motor-bicycle scratch race, and a petrol consumption trial for motor-bicycles, in which each rider will be allowed a specified quantity of petrol. The rider covering the greatest distance will be adjudged the winner. Minimum speed, fifteen miles per hour.

THE Fabrique Nationale Company, of Herstal, Belgium, are introducing a new model of their now well-known F.N. motor-bicycle. The new machine, which will make its appearance next month, will be fitted with a 2-h.p. motor, and will embody several important structural improvements. Messrs. W. R. McTaggart, Limited, 102, Grafton Street, Dublin, inform us that they have been entrusted with the sole agency for these motor-bicycles for the United Kingdom, and are about to open a large distributing store in London.

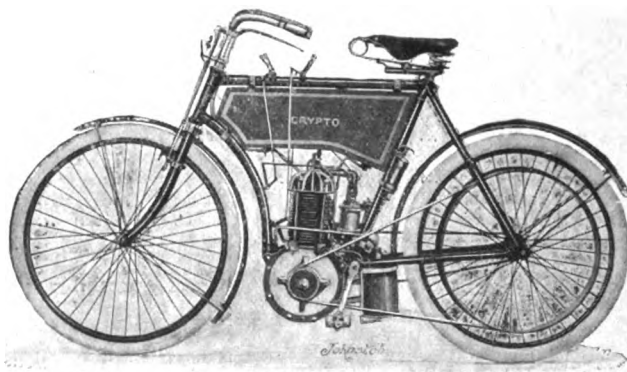
THERE has been on view at a motor and cycle depot in Hobart, a new motor-bicycle, which has been specially

constructed by Mr. A. M. Campbell for Tasmanian roads. It is fitted with a 1½ Hobart "L'Universal" engine, and the total weight of the machine is 65lbs. A distance of 125 miles is said to have been covered by this motor-bicycle at a cost of 2s. The machine being the first motor-bicycle turned out in Hobart has given Mr. Campbell the distinction of being the maker of the first automobile built in Tasmania.

INCLUDED in our list of furious driving cases are some summonses of interest to those who ride motor-bicycles. At Birkenhead, Mr. Robin Hill was summoned for having ridden a motor-bicycle to the danger of the public. Police-constable 385 stated that the defendant was riding a motor-bicycle, pulling behind him a basket carriage in which was another man. It was very dark, and he was going at a speed of twenty miles an hour. The defendant, however, said he absolutely denied having ridden the bicycle, and after a long hearing the Chairman of the Bench said it was possibly a mistake with regard to the identity. Referring to the police officer's statement as to the speed, he said exaggerated views did not do such a case any good. The case would be dismissed. What a good thing Birkenhead is not in Surrey!

AMONG our American visitors lately was Mr. C. A. Persons, the chief of the Royal Motor Works in New York. Mr. Persons, who is interested in the Royal motor-bicycle, has since his return been giving his views on the movement on this side. "Motor-bicycling in England and France is," he says, "far ahead of America, and this despite the fact that the best machines all bring prices close to £50, and are comparatively complicated in their construction. In one afternoon I passed in a stretch of twenty-five miles, between Kingston and Guildford, five motor-bicycles to which trailers carrying passengers were attached. For such work their motors seemed surprisingly small, yet they were invariably doing the work required of them on the level and up fair grades. The average efficiency impressed me as being higher than Americans would get from the same machines, and I was again compelled to admit the value of the Englishman's characteristics of method and thoroughness. The Englishman knows his machine, and he keeps it right—'fit,' as he would say. In many miles of touring through the open country, out of the scores of motor-bicycles, tricycles and quads met I did not see a single rider 'stuck.'"

THE Crypto Works Co., Ltd., of Clerkenwell Road, E.C., have just introduced a new motor-bicycle, of which an illustration is given herewith. Motors of either 2 or 2½-h.p. can be fitted as desired, the former being Continental made, while the latter are M.M.C. engines, which have lately met with so much



success. The cycle part of the machine is made entirely in the Crypto works to special design. Unlike the first of the Crypto motor bicycles, the belt drive is now used instead of the chain, a triangular belt being employed with the 2-h.p. machine and a 1-in. flat belt with the 2½-h.p. A spray carburettor furnishes the mixture, while an exhaust valve lifter is fitted.

HERE AND THERE.

THE motor-car was the cause of *Punch* breaking forth into poetry last week.

MR. BEST, the county surveyor of Brecon, uses a motor-car when on his tours of inspection.

THE Irish agency for the James and Browne car has been entrusted to the Automobile Agency, of 3, Cope Street, Dublin.

THE Aberdeenshire and the Perthshire County Councils are petitioning the Secretary for Scotland with regard to the speed of motor-cars.

A CORRESPONDENT wishes for the experience of motorists as to the best road from Liverpool to London. We shall be pleased to hear from readers on the subject.

THE Massachusetts Automobile Club is installing a turntable in its garage to facilitate the handling of the long cars, which are displacing the short wheel-base vehicles of one or two years ago.

"THE LIGHTNING CONDUCTOR" is the name of a new book by Mr. and Mrs. C. N. Williamson, to be published almost immediately by Messrs. Methuen and Company. It is a novel, but not a novel on ordinary lines. Apart from the interest of an amusing story, it is a romance of automobilism and travel, containing vivid descriptions of the most beautiful parts of France and Italy, in which the adventures of the hero and heroine—a young Englishman and an American girl—take place. Mr. Williamson is an expert automobilist who has driven his own car across the whole Continent; and the book, which is the first of its kind, deals largely with the delights and difficulties of motor-car touring.

HIS EXCELLENCY the Governor of the Cape Colony, Sir Walter Hely Hutchinson, G.C.M.G., K.C.B., etc., has, we learn, accepted the position of President of the Automobile Club of South Africa.

THE accompanying illustration shows one of the latest types of Scotte steam tractors, so largely used in France, hauling a locomotive, weighing $16\frac{1}{2}$ tons, on a trailer. The total load to be moved by the tractor, including its own weight, was $25\frac{1}{2}$ tons, and the task of conveying the engine to its destination was accomplished without trouble, notwithstanding that the route included gradients of one in sixteen. It is estimated that at least twenty horses would have been required to have hauled the locomotive had not the Scotte vehicle been available.

THE simple word *garage* has not yet become universally known in this country. Mr. H. M. Penneman, of the Motor-Car Supply Company, writes as to an incident which came under his notice on the occasion of the cars in the Reliability Trials visiting Brighton. A labourer, who was somewhat awestruck with the trade a certain firm was doing in petrol, volunteered the following:—"They wer'n't half doing a trade in petrol down at Brighton, and nearly all the cars went to that chap 'Garage' to be filled up, as they kept going in and out and backwards and forwards to get more."

CAPTAIN J. E. LYALL, of Grantham, has joined the Lincolnshire Automobile Club.

MR. A. HARMSWORTH suggests that the Automobile Club should hold an investigation into the question of side slip.

THE first annual cycle and motor carnival in aid of the Coventry and Warwickshire Hospital took place at Coventry, a few days ago.

FURTHER developments with regard to the employment of motor traction in place of horses may be expected in connection with the London Fire Brigade.

A GERMAN contemporary gives publicity to a report that the Cannstatt Daimler Company is building a 15-h.p. 1903 Mercedes car for King Edward.

IN the course of the correspondence now proceeding in the columns of the *Times*, Lord Ribblesdale says that "a man should be able to adapt his horsemanship and accustom his back to changing conditions of traffic, whatever they may be. If he cannot, let him give up riding."

A 100-MILE trial will be held during the present month by the Automobile Club if there are entries.

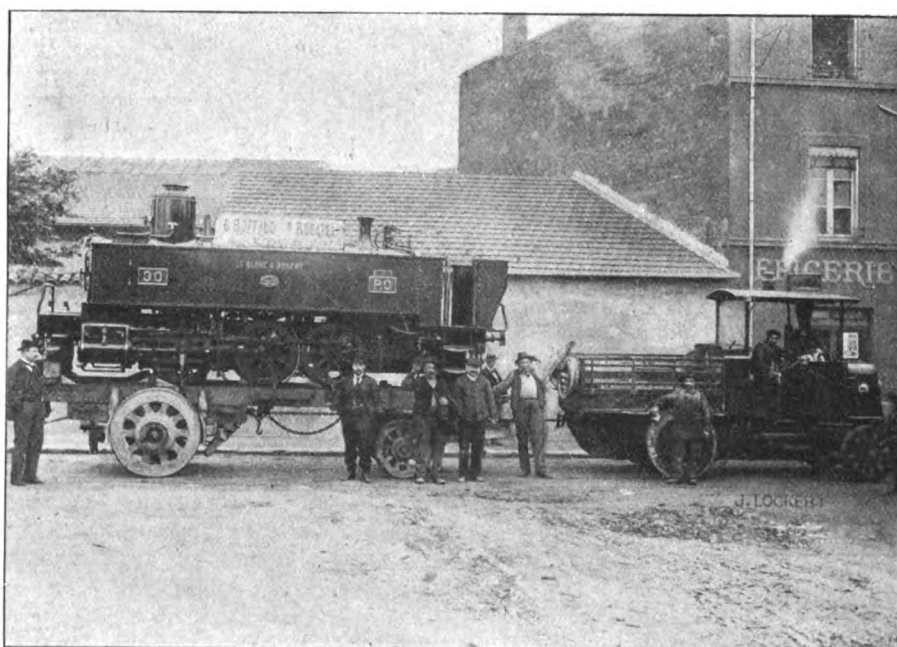
THE title, "How to Buy a Camera," is perhaps the least happy phrase in the whole of Mr. H. S. Shelley's book just published by Messrs. George Newnes, Ltd. The difficulty with most people is "how to use a camera"—to say nothing of the variable-ness associated with development and the subsequent processes necessary for perfect prints. But in giving a concise account of the principal features of the many cameras now on the market Mr. Shelley has done well, and the result is the production of a useful little manual

which should be carefully read before purchase of a camera is decided upon. Photography adds to the pleasures of motoring, and this little book will facilitate progress in the art.

A SUGGESTION has been made that a badge should be adopted by the Automobile Club, which could be utilised for the various provincial clubs by the mere addition of the name—Nottingham, Manchester, etc.—of the particular local organisations. The idea seems to be a good one, and possibly those who are interested may be inclined to urge it upon the Club Committee.

THE Auto-car Construction Company, Limited, has been registered with a capital of £25,000, to adopt an agreement with Mr. T. Pollock and Mr. C. W. Milne for (*inter alia*) the acquisition of the business of the Pollock Engineering Company, and to carry on the manufacture of motor-cars, etc. The first directors are Messrs. C. W. Milne, J. M. Hewitt, W. J. Davy, and J. L. Altham.

RECENTLY we recorded some experiments in the Midlands with regard to the conveyance of fruit from producer to consumer. An echo of this comes from the Worcester Bankruptcy Court, where the creditors of a market gardener of Evesham met to hear a statement of affairs showing a loss alleged to have happened in regard to the delivery of produce by motor-car. It appears that the debtor hired a motor-car for conveying tomatoes but bad weather intervened, the crop was spoiled, and the result was that he suffered financial loss.



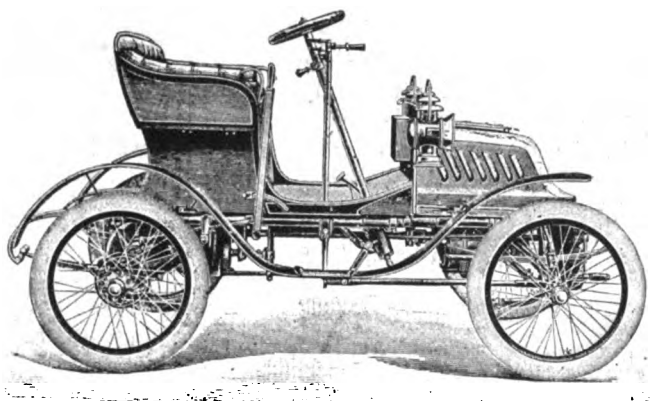
A SCOTTE STEAM TRACTOR HAULING A LOCOMOTIVE.

Le Chauffeur.

THE Chief Constable of Cornwall has promised to give special attention to motor-cars passing through Wadebridge.

THE Perth County Council is about to memorialise the Secretary for Scotland in favour of new legislation with regard to motor-cars.

MR. GEORGE BONFIELD, of 39, East Street, Bridport, is keeping a stock of petrol, and has also facilities for the charging of accumulators.



THE NEW 6-H.P. DE DION VOITURETTE.

THE Ormonde Motor Company have just completed a new racing motor-bicycle. It is built very low, with saddle well back, duplex front forks, and a novel-shaped handle-bar. The motor is a $2\frac{3}{4}$ -h.p. Kelecom, and is placed in the usual position.

At the annual conference of the National Union of Conservative Associations at Manchester, a resolution has been adopted, on the motion of Sir Howard Vincent, M.P., in favour of legislation for the adequate control of motor-car locomotion on the high roads, and especially in the direction of affording means for the identification of motorists driving to the common danger of vehicular and pedestrian traffic, and the licensing of motor men, as in all other countries. Mr. Wm. Glossop, of Rostrevor, deprecated any undue interference with a new and important industry, and contended that the present legal limit of speed was totally unsuitable.

THE standard Minerva motor for the 1903 season will have a bore of 66 and a stroke of 70 millimetres, and will develop 2-h.p. Among the new features are mechanically operated inlet and exhaust valves. By this device the inlet valve is automatically opened the moment the piston commences its descent in the charging stroke, with the result that a full charge of mixture can be taken. A further advantage is that the valve cannot stick, while the exhaust and inlet valve springs, being interchangeable, only one spare of each need be carried. The present surface carburettor will be replaced by a spray carburettor. An entirely new device will be fitted whereby one lever on the tank will operate the sparking, lift the exhaust valve, and cut off the electric current. As, however, many do not care to take their hands off the handlebar, the switch thereon will be retained. The cylinder and head will be cast in one piece without joints. The bearings will be lengthened, and the radiating fins on the lower part of the cylinder will be omitted, as, after exhaustive experiments, it has been found that they in no way assist the cooling of the motor. As regards the ignition, the fixing of the ignition cover will be improved; the platinum pointed screw will be fitted in a different position, whereby it becomes adjustable from outside; while the trembler blade will be made adjustable, and will be so fitted that the two platinum points will always be in their exact position. In order to meet the demands of those who prefer an engine designed for a vertical position, a $1\frac{3}{4}$ -h.p. set, comprising motor and accessories made at the Minerva works, will be put on the market, under the name of the "Romania" motor. The main lines will be as described for the Minerva, except that in this engine the new mechanically-operated valves will not be fitted.

THE number of motor-car drivers who have received the official *permis* in Turin, Italy, to date is 286.

THE Prefect of the Seine has made a grant of £20 towards the funds of the French National Federation of Motor-car Drivers.

AN evening class in motor and cycle construction, under the guidance of Mr. H. J. Taylor, has again been started at the Battersea Polytechnic.

THE exports of automobiles and parts from the United States during August last reached a value of £14,381, as against £11,260 in the corresponding month of 1901.

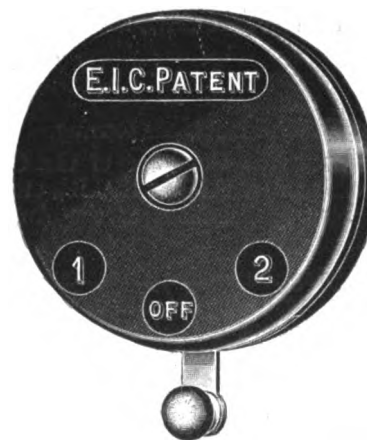
MR. ROGER H. FULLER has lately returned from a tour on his 10-h.p. Panhard from London to the Lakes, traversing Kirkstone Pass, High Stock, and the rough Yorkshire Moors.

THE syllabus of the Birmingham Association of Mechanical Engineers for the Winter Session includes a visit to the works of the Motor Manufacturing Company, at Coventry, on the 3rd prox., and a paper by Mr. Hygo Gibson on the Diesel Oil Engine, to be read at the monthly meeting on November 1st.

AT a recent meeting of the Committee of the Automobile Club of America the request of several manufacturers that the Club organise an endurance test for heavy lorries and commercial vehicles was considered. It was decided to reply that the matter would be discussed with the trade at the next automobile show, and the form and date of the test then determined.

THE West London Cycle and Motor Repository, the Broadway, Walham Green, S.W., have just placed upon the market a 2-h.p. motor-bicycle. The engine is placed vertically in the frame, power being transmitted to the rear wheel by means of a twisted raw-hide belt. The motor is equipped with a float-feed carburettor and exhaust valve lift. The petrol tank has a capacity sufficient for a run of 200 miles.

IN addition to their well-known sparking plugs, the Electric Ignition Co., of Unity Works, Birmingham, have now taken up the manufacture of switches or circuit breakers for use on motor-cars. Two patterns of the switches, a two-way and a three-way, are being made, an illustration of the three-way type being given herewith. This is intended for use with duplicate sets of accumulators, four terminals being provided, a pair for each battery. With the switch handle in the central position, the circuit of both accumulators is broken; by pushing the lever to



1 or 2, either one or the other of the batteries is connected up. The switch is useful at all times, for not only are the positions well marked, but, even in the dark, the driver can hear the click which indicates the correct position. The connection between the two terminals is made by an ingenious and positive contact maker, which, it is claimed, cannot be displaced by vibration or jolting when the car is travelling over bad roads. The two-way switch is identical in size and in its action to the three-way type, but is intended for use with a single accumulator, the wires having to be changed over when the reserve battery is brought into use.

CORRESPONDENCE.

TOURING ON SMALL CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It is quite evident that Mr. Peake is not getting full power from his engine, and the symptoms point to one of two things: either his carburettor is defective, or he runs his engine on too strong a mixture, or the waste gases do not get a free exit, either from insufficient lift of the exhaust valve or soot in the pipe or silencer; in fact, the engine is choked, and will, of course, only run, if at all, with the throttle partially open. To give its utmost power for long runs I find that a De Dion engine requires the weakest mixture that will explode, which also quite does away with dirty sparking plugs and explosions in the silencer.

I think too much stress is laid by the public on the nominal horse-power of the engine, usually estimated on the size of the cylinder, while the true horse-power of a car can only be measured at the road-wheels, and by the speed of a car on a given incline. So much power is lost nowadays in complicated transmission that even in well-known makes over 50 per cent. of the power of the engine is dissipated in this way. Small engines, when run at a very high speed, give far less trouble than larger ones under the same conditions, and where the transmission is exceedingly simple, as in the case of a Mabley, the results obtained are astonishing.—Yours truly,

H. M. W. BRIDGMAN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—After reading Mr. Peake's letter in your issue of the 4th inst., re lack of power in his $3\frac{1}{2}$ -h.p. De Dion engine, I should like to mention the one thing which I have found to be most necessary. Presuming that it is fitted with the ordinary trembler and platinum-tipped screw adjustment usual with these engines, from my own experience I should say that the screw was screwed too far in, i.e., too near the trembler, so that when the engine commenced to slow down at the beginning of a hill, the trembler had time to rest on the screw instead of vibrating on it, as it should and would have done if the screw had been a little further away.

The following may interest your correspondent. I have a $3\frac{1}{2}$ -h.p. De Dion voiturette, and my only troubles in the two years I have had it have been through not knowing how to adjust the sparking device. The other Sunday I ran down to Maidenhead, and from Marble Arch to the bridge over the river I took only 1 hour 35 min., which I do not consider bad running, the distance, I believe, being just over twenty-five miles, and there were four up.

The previous Sunday I went to St. Albans and only put on the low gear for the first time when about thirty yards from the top of Brockley Hill, just beyond Edgware. The twenty miles were done in 1 hour 22 min., and on a very hilly road, as everyone knows. My only regret is that I have not a higher gear for the level, as I could then do even better time. In conclusion, I may say that I was also told by a man who did a small repair for me that the engine was out of date, and that my carburettor was no good, as it was one of those old cork float things; but I have had nothing changed, and am more than satisfied that, originally, all I needed was more experience. Trusting I have hit the right nail on the head.—Yours faithfully,

HUMPHREY M. MYER.

IGNITION TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The reason of the trouble complained of by Mr. Breese, in his substituting a dry battery for a four-volt accumulator, is not that the accumulator is less constant than a battery, but that its voltage is different. A four-cell dry battery is something over six volts, and evidently his coil was constructed to be worked with this pressure, and so when losing two volts the spark is not sufficient to ignite the charge. This is the same as with the De Dion troubles mentioned in the letters published some few weeks ago, and was overcome by joining two accumulators in series, so giving an output of eight volts; but there is a danger of burning the insulation off the primary wire of the coil if the current be left on continuously for a short time. There is no danger if the engine is running, as the current is interrupted by the trembler. In a De Dion car, in which I am using two accumulators connected up as above, I have put in a small piece of lead wire, so that should the current be accidentally left on the lead melts, thus interrupting the current and saving the coil. What is wanted is a six-volt accumulator to work the coils of motors and constructed to work with four dry cells. Coils are made to work with current at four volts.—Yours truly,

GEORGE BONFIELD.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to Mr. Breese's letter last week re Ignition Troubles with Ariel tricycle, I should advise him to buy a 6-volt accumulator next time. His dry battery has a total E.M.F. of 6 volts, and it is easy to see the cause of misfiring when he changes it to 4 volts. The De Dion coil is made to work with 6 volts.—Yours truly,

J. B.

THE RIPLEY POLICE AND THE AUTOMOBILE CLUB.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Residing, as I do, near Guildford, I am surprised to see the number of motorists who go to London through Ripley, instead of the few miles further and safer, if rather hilly, road through Leatherhead, thus running into the arms of Sergeant Jarrett, who every Sunday regularly "bags" some half-dozen. I note that in the case of Mr. Savory, recently summoned there, his lawyer stated that he had measured the distance given as 176 yards, and found it to be 143, and he also stated that had the sergeant's watch been correctly timed, Mr. Savory would have been found to be driving at twelve and not eighteen miles per hour. As over forty motorists have been summoned and fined at Ripley, may I make, through your columns, the following suggestions to the Committee of the Automobile Club:—(1) That they send an independent surveyor to measure the 176 yards. (2) That next Sunday they send an "observer" with a tested stop-watch, to station himself opposite the police in Ripley, and to time and watch their proceedings, as I feel sure that if the Club can show that there has been any mistake in the timing or marking, the local magistrates will act fairly in the matter.

Various suggestions have been made in your columns with reference to motorists passing and warning one another of underhand "traps." May I make another, viz., raising by the driver of the left arm vertically and sounding one or more "toots" to signify per mile—look out so many miles ahead of you. Mine, like other suggestions, will be useless unless given out to be used, say, semi-officially by the leading Club. I hope you will allow me to ask that body to consider these suggestions?—Yours truly,

W. G. C.

CAR FOR TRAVELLERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am very desirous of obtaining what information I can about motor-cars, as I wish to substitute my horse by a car, if not more expensive, and as reliable, and possibly some of your numerous readers can enlighten me.

Let me say my business calls for, say, twenty-five to thirty miles per day, five days per week, in all weathers, in daylight and also at night. My horse and bicycle divide the journeys between them, but I want a mode of getting about to dispense with both, and yet not entailing more expense. The roads I pass over are mostly country bye-roads, narrow, dirty (in winter) and rough; part of the roads are through fields, where in three miles four gates have to be opened.

I notice in your *Journal* cars advertised at great prices, but I presume that the greatness of the price is regulated by the elaborate manner in which the car is got up, and such embellishments are not essentials to the working of the car. I am of opinion that, for my work, pneumatic tyres are out of the question; therefore I seek information about solid-tyred wheels.

1. Would a $3\frac{1}{2}$ -h.p. carry myself and another in all weathers safely?
2. Is there any danger in snowy, frosty weather in slipping down hill, and brakes useless to stop car?
3. What would be the original cost, annual cost of maintenance, and cost per 100 miles for petrol?
4. What would be the life of the tyres and the car if kept in order?
5. What is the difference between a Benz and other cars?

Any other information that would assist in arriving at a decision will be highly appreciated by—Yours truly,

W. J. S.

RE POLICE PERSECUTION.

TO THE EDITOR OF *The Motor-Car Journal*.

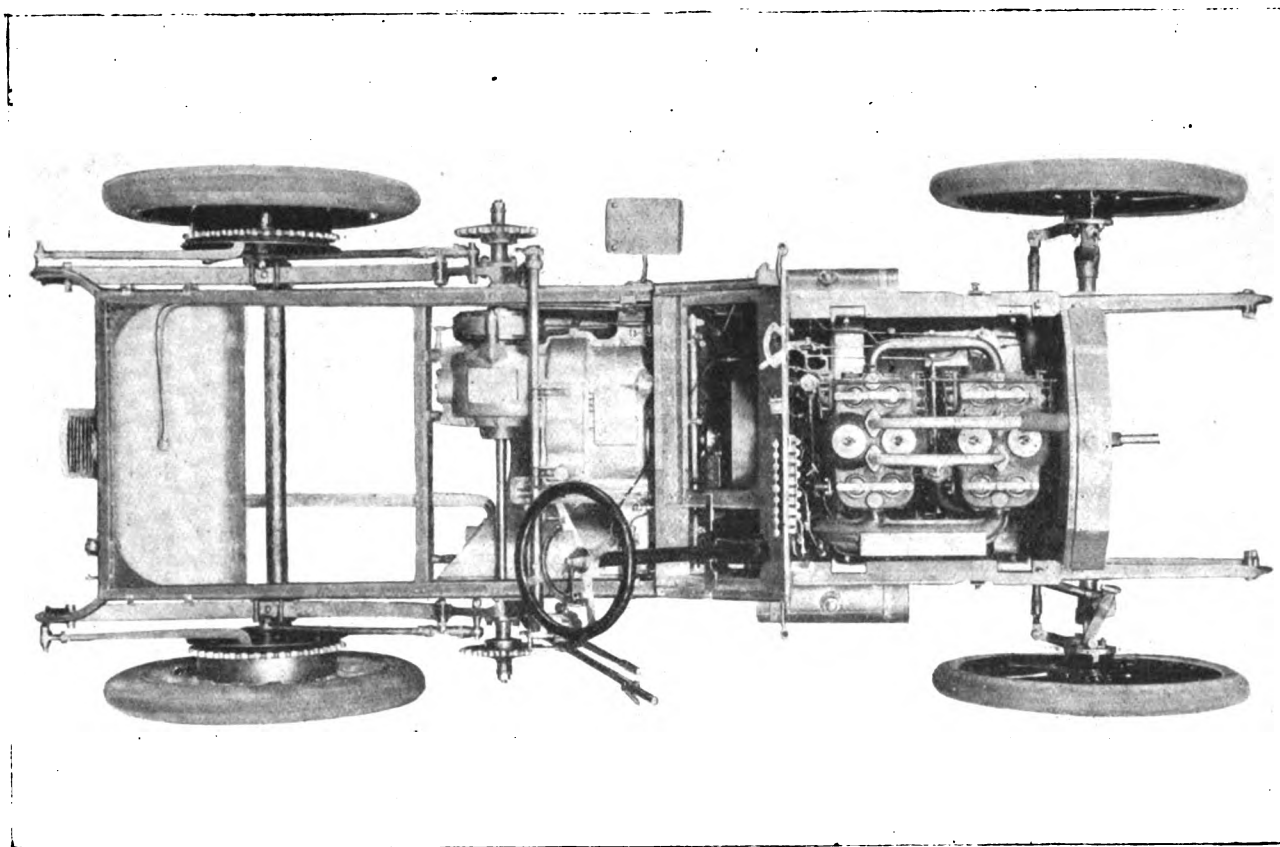
SIR,—I intend to continue my system of patrol every Saturday and Sunday on the Ripley and other roads, and should be most happy if one or two good sportsmen would be willing either to meet me on the Ripley Road, say, at the White Lion, Cobham, or at 4H, Portman Mansions, Baker Street, W., in order to co-operate with me in patrolling, as I find it a little difficult to be at both ends of a measured distance at the same time, and, as was the case last Sunday week, I was only able to warn motorists coming towards London, when, if I had had a little assistance, motorists coming from London would also have benefited. To show how vindictive the above persecution has become, last Sunday I was at the top of the hill at the entrance to Ripley (London side), where the police were doing all they knew to have a good catch in the town, and I placed pieces of blue paper in the road, and at the side of same. Having done so, I went as far as the end of the village, to patrol; when I returned in five minutes the police had actually gone to the top of the hill and collected every morsel of the warning paper. Surely this only proves that we as a body should be determined to outdo the persecution, and if one or two of us are willing to give up our long Sunday runs, surely it ought not to be a difficult matter to find a few others who are willing to do so, in the interest of the industry and sport, especially those who have an opportunity of using their cars every day in the week, and not on Saturdays and Sundays only. I intend to use no more blue paper, but I shall in future put down a quantity of powdered whitening or French chalk, mixed with water, and shall throw this in the middle of the road. This will not be quite so easy to deface as paper, and cannot be carried away.—Yours faithfully,

JOHN D. HILL.

Mr. J. NIELD writes:—"I have an 'Eadie' quad. (2½-h.p. De Dion engine), and find great difficulty in getting up hills, with one up. Can any of your readers advise me what to do; and would a water-cooled head improve matters?"

Mr. C. T. CROWDEN, Leamington, writes: "My attention has been called to a motor steam fire-engine, which has been constructed from the designs of Commander Wells, by the London County Council, at their repair workshop in Southwark. As early as 1900 I constructed a motor steam fire-engine for the Worcester Depot of the Norwich Union. The success of this led me into communication with the London County Council, and further to Commander Wells putting himself into correspondence with me, and in January, February, and March, 1901, I met Commander Wells to discuss the advisability of converting their existing steam fire-engines into motors. An engine was selected for the purpose, and I was asked to furnish designs and specifications for carrying out the work, which I did according to instructions. I also took him the plans and working drawings of the Worcester engine, which were examined both by himself and Mr. Gordon, his engineer, who communicated with me several times. The two designs submitted and chosen by Commander Wells were not quite the same as carried out by him, although in detail they closely resemble the principles I adopted on the Worcester engine. The motor fire-engine was not entirely

over by his motor-car. According to a number of witnesses who were called by the police, the defendant was driving a motor-car down Carrington Street on September 20th. A driver of one of the electric cars named Wigley stated that he was driving towards the Market Place and met the defendant with his car near the fountain. He was going about fourteen miles an hour, and was on his wrong side of the road. When he neared witness's car he swerved suddenly across the road and went "flying" past. The conductor of the same car said he saw the motor-car go past and looking back he saw a woman being knocked down by the vehicle. The defendant was sworn, and said he was proceeding down Carrington Street on this night, using the lowest of three speeds on his car—six miles an hour. He first saw the woman on the pathway, and when he was a few yards away she attempted to run across the road. Suddenly she appeared to trip and fall five feet in front of him, and although he promptly applied his brakes, the wheels passed over her before she could stop. He offered to convey her to the hospital, but she said she was not hurt, and that she lived close by, and some friends accompanied her home. Other witnesses gave similar evidence, and after hearing them the Bench observed that they did not wish to discourage the police in any way in this connection. The pace at which motor-cars were driven in Nottingham, in common with other large towns, was much too great for the public safety. Motor driver,



PLAN OF THE 40-H.P. MERCEDES SIMPLEX CAR (see issue June 14th last).

[La France Automobile.]

made at the County Council workshop, but is of an old standard pattern, which they have converted in a similar manner to the one I did for the Norwich Union Fire Insurance Company. I feel that after the considerable amount of trouble I took and the expense I was put to by Commander Wells, I have not been treated fairly in the matter."

FURIOUS DRIVING.

Mr. GEORGE WILDER, of Stansted Park, Emsworth, who appeared at Worthing in answer to an adjourned summons for driving a motor-car at an excessive rate of speed, was told by the chairman that he had treated the Court with the grossest disrespect. Had the defendant not appeared that day they would have issued a Bench warrant for his arrest. A magistrates' court was to be respected, and when they issued a summons they intended, whether the defendant was a county magnate or a pauper, that it should be obeyed. An adjournment was made to enable the defendant to prepare his case.

Mr. H. W. BARTLETT, a member of the Nottingham Automobile Club, has been summoned by the police for furiously driving a motor-car, and being concerned in an accident whereby a woman was injured by being run

were far too selfish, and had too little consideration for others. But, in view of the evidence which had been brought forward in this case, they had decided not to convict. After hearing the witnesses for the defence, they had decided to give the defendant the benefit of any doubt they might have in their minds as to the speed at which he was proceeding, and as to how far he was responsible for the accident. Mr. Page added that he considered six miles an hour far too great a speed for a motor to be driven down Carrington Street; the speed should be reduced to three miles an hour at the highest.

Mr. EDW. KENNARD, J.P., of Market Harboro', in paying a fine of £10 13s. imposed upon his motor servant, G. Brooks, for a first offence in exceeding the legal limit, by the Thirsk bench of magistrates, declared that the law was daily broken by the highest personages in the land, every time they mounted their motor-cars. He further remarked, "We hunting men of the Midlands always regarded Yorkshire county magistrates as sportsmen. He would be sorry to express his opinion on those who employ the police to set offensive traps for ladies as well as gentlemen. Mrs. Kennard was peacefully returning from Scotland on 'Sir Charles.' In other counties," he continued, "sensible magistrates (realizing that motor-vehicles are under complete control) did not go out of their way to interfere with automobilists who were doing no harm to anybody."

ERNEST PARKER, of Hartland Road, West Kilburn, has been summoned, at Marylebone police-court, for driving a motor-car to the common danger. Sergeant Meek, X Division, saw the defendant driving along Donaldson Road, West Kilburn. He turned suddenly into Hartland Road, and a girl who was crossing the roadway had a miraculous escape from being knocked down. The defendant would have escaped, but he stopped at the house where he lives. When asked for his name and address he refused to give them and continued to resist until he was taken to the police station. The defendant's reply to the summons was that he was going at eight miles an hour. Mr. Curtis Bennett fined him £2 10s. with 2s. costs.

ARNOLD STANCOMB WILLS has been summoned at the Long Ashton (Bristol) Petty Sessions for driving a motor-car at a greater speed than 12 miles an hour; also for driving a motor-car to the common danger of the public, on October 1st, at Clevedon. Police-constable Moxey stated that the car was driven along the Old Church Road at a rate of between 29 and 30 miles an hour. Sergeant Hayes said that he saw the motor-car, which was going at a furious rate. He was with Police-constable Moxey at the time, and, considering the speed very dangerous to the public, he instructed the constable to go and make inquiries as to the person driving it. Mr. Leach, for the defence, said that his instructions were that the two police officers and the other two witnesses were entirely mistaken as to the speed at which the machine was travelling. Mr. A. S. Wills said that he was the owner of the motor-car in question. He had been in possession of it since the 30th of last month. Charles Andrews said that he had been constantly driving motor-cars for the past three years. With regard to the car in question, he understood the whole of the mechanical arrangements. The engine ran better on some occasions than others. He was sitting at the side of Mr. Wills at the time, and thought the car was going between 8 and 10 miles an hour. In answer to Mr. Leach, witness said that at no point on the road where Mr. Wills was summoned did the speed exceed that rate. In reply to the magistrates, witness said that if the engine were going at the second gear it could average 16 miles an hour, and under favourable conditions 18 miles an hour. Charles Sparkes having also given evidence for the defence, the Chairman of the Bench said they had carefully considered the matter, and the magistrates had decided to convict on the charge of driving to the danger of the public, and inflicted a fine of 40s. and costs. They dismissed the other summons.

In the case of Maurice Capellen, Marylebone Road, W., it was stated that the speed was 25 miles per hour. This the defendant denied, saying that it was absolutely impossible for his vehicle to travel more than 12 miles per hour. He invited the magistrates to go a journey with him for 30 or 40 miles, and they would see what the machine could do. The Chairman asked if he would bring his car on the following Court day, and he consented. To this Superintendent Brice objected, as the defendant was a dealer in motor-cars, and could bring which car he liked. The case was then adjourned.

THREE drivers were each ordered to pay £7 on Monday by the Spelthorne magistrates for furiously driving their cars at Staines and Ashford

MR. W. E. ROWCLIFFE, the Chairman of the Manchester Automobile Club, appeared for Rupert Williamson in the case at Altrincham. He had two witnesses for the defence; but as the Chairman of the Bench had on the previous case declared that "motorists were simply on sufferance on the roads," he was probably not surprised to hear a fine of £5 inflicted on his client.

At Wokingham, on Tuesday, several owners of motor-cars were fined for excessive speed on the London road at Ruscombe, near Twyford, on October 2nd.

At the Huntingdonshire Quarter Sessions at Godmanchester, on Tuesday, the chief constable, Colonel Chichester, reported that since June 8th, 1901, there had been eighty prosecutions against motor-car drivers in the county; thirty had given false names, twenty had not stopped when called upon, and there had been five attempts to bribe the police. The sum of £405 had been paid in fines.

DURING the past few days the Crawley police have stopped twenty-two motor-cars, which they allege were exceeding the speed limit of 12 miles an hour on the main London to Brighton road.

At Arundel Petty Sessions, Mr. George Wilder, of Stansted Park, Emsworth, has been summoned for driving a motor-car at an excessive speed on the Chichester and Arundel road, at Walberton, on October 8th. Defendant did not appear, but was represented by Mr. A. H. Goodall, who informed the Bench that Mr. Wilder wished him to apologise for his absence. He had gone away to consult a solicitor about a case which was to come up at Worthing on Wednesday. He pleaded guilty in the present case, but he intended defending the one at Worthing. The full penalty of £10 and £1 costs was imposed.

SIDNEY SMITH, of the Public Service Motor-Car Company, Gravesend, was summoned for driving a car at an excessive speed at Hawkhurst, on September 14th. The police-constable stated that about noon he saw defendant driving a motor-car, containing fourteen men, and it covered a quarter of a mile in thirty seconds, which was at the rate of thirty miles an hour. Defendant was fined £2, and also ordered to pay 12s. costs.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Cranbrook ...	T. Paddon, Staplehurst.	30 m. p. h.	Dismissed.
Newmarket	J. Traveasa.	—	£10.
"	E. Violon.	—	"
St. Neots.....	W. R. Newcombe, Chelaea.	22 m. p. h.	£5.
"	S. Leuchters, Ben Rhydding.	22 m. p. h.	"
"	L. Fleischmann, London, W.	30 m. p. h.	£8.
Wetherby ...	E. H. Illingworth, Bradford	—	£5, etc.
"	L. Cerveau, Harrogate	—	"
Blackpool ...	J. W. Matthew, Manchester	20 m. p. h.	20s., etc.
*Bristol	C. Jones, Bristol	16 m. p. h.	40s., etc.
"	F. Lewis, Bristol	18 m. p. h.	20s., etc.
"	T. Roberts, Bristol	15 m. p. h.	"
"	H. Appleton, Bedminster	—	30s., etc.
"	J. England, Bedminster	—	10s., etc.
Huntingdon	G. Yardly, London, W.	24 m. p. h.	£5, etc.
Steyning	W. Wilkins, Effingham	30 m. p. h.	£10.
Malton	W. Rampling, London	25 m. p. h.	£5, etc.
Epsom	H. Downham, Wimbledon	—	£3, etc.
"	W. Hardman, Sutton	—	"
"	C. Welham, Brixton	—	£10, etc.
Enfield	C. Inslip, Stamford Hill	30 m. p. h.	£20, etc.
Altrincham...	P. Hockheimer, Ashton	18 m. p. h.	£5, etc.
"	R. Williamson, Chorlton-cum-Hardy.	19 m. p. h.	"
Bristol	A. S. Wills, Bristol	20 m. p. h.	Dismissed.
Horsham.....	A. E. Hurd	20 m. p. h.	£2, etc.
"	A. R. French	20 m. p. h.	£2, etc.
Beaconsfield	J. Goody, Cookham	—	£5, etc.
Reigate	E. Hutton, Chelsea	36 m. p. h.	£4, etc.
"	J. Ramioul, Birmingham	—	£2, etc.
"	A. Valegro, London, W.	—	"
"	R. Cane, Pimlico, S.W.	—	"
"	A. M. Harter, Long Acre	—	"
"	W.C.	—	"
"	R. W. Rouse, Tottenham Court Road, E.C.	—	"
"	G. Henson, Brighton	—	"
"	M. Capellen, Marylebone, W.	25 m. p. h.	Adjourned.
*Birkenhead	R. Hill, Bebington	—	Dismissed.
Lewes	R. Woodsmith	20 m. p. h.	£5, etc.
"	W. Bramson	18 m. p. h.	£2, etc.
"	W. Wickens, Effingham	30 m. p. h.	£10, etc.
Maidenhead	Sir G. C. East, Bart.	—	£2, etc.
Arundel	G. Wilder, Emsworth	30 m. p. h.	£10, etc.
Eastbourne...	J. Gilling	15 m. p. h.	Dismissed.

Where no alleged speed is given it is understood to be above the legal limit.
* Motor-cycle cases.

MEASURED DISTANCES.

WE shall be glad to hear by post, or by telegram on Wednesdays, of any measured distances prepared by the police. In our "Correspondence" columns is a reference to the subject so far as it relates to the Ripley road, and we learn, by telegram from Glasgow, that "Robert has a measured length on the Stockie Muir Road on the descent to Finnick Toll commencing from Glasgow."

At Cranbrook Petty Sessions, Mr. Paddon, who was driving a motor-car for Mr. Peck, of Iden Manor, Staplehurst, was summoned for exceeding the speed of twelve miles an hour. A sergeant of police stated that he had measured a quarter of a mile, at the commencement of which another sergeant was situated, who put up his arms when the car passed the mark. He then took the time by his watch, and he found that the motor-car covered the quarter of a mile in 30 secs., which was at the rate of thirty miles an hour. The second sergeant corroborated this evidence. Mr. Staplee Firth, who defended, called for the watches to be produced. The one produced by the first sergeant was a common watch with a small second hand, and the watch produced by the other officer was a stop watch. It was elicited, on cross-examination of the first witness, that he put up his hands to stop the car immediately it reached the end of the measured quarter of a mile. He admitted that the only calculation of speed that he knew was the one he swore to—namely, that if the car travelled over the piece measured in 30 secs., it was going at the rate of thirty miles an hour. After hearing Mr. Firth for the defence, the Bench dismissed the charge.

A MEASURED half-mile on the Snailwell road, near Newmarket, has resulted in the capture of two motorists by the local police.

THE police have a-measured quarter of a mile in the township of Sandhutton, situated in a favourable gradient for speed. They lie concealed in a cottage close to four cross roads, and about eight or nine miles this side of Northallerton.

HILL-CLIMBING IN THE MIDLANDS.

THE Midland Automobile Club held a hill-climbing competition at Gorcott Hill on Saturday last. Although the weather was very dull and threatening in the morning rain kept off; the roads were, however, muddy from the previous night's rain. The distance covered by the cars up the hill was a fraction over two-thirds of a mile. The following are the results:—

RACING SECTION.

Entered by.	Car.	Time.	Marks.
		m. s.	
1. Harvey Du Cros, Jr. ...	70-h.p. Panhard ...	1 3½	—
2. A. E. Crowdy ...	45-h.p. Wolseley ...	1 14½	—
H. Austin ...	30-h.p. Wolseley ...	1 24	—

CARS OVER £1,000 VALUE.
(Merit of car worked on formula.)

1. E. W. Lewis ...	22-h. p. Daimler ...	1 49	114
2. J. A. Holder ...	16-h.p. Napier ...	2 11	99.92
E. M. C. Instone*	22-h.p. Daimler ...	2 6½	65.7

* Stopped before reaching the top.

CARS VALUE £800 AND UNDER.

1. H. Austin ...	20-h.p. Wolseley ...	2 0½	183.4
2. G. Iden ...	20-h.p. M.M.C. ...	1 54	157.7
G. Sangster† ...	16-h.p. Ariel ...	2 16	70.6

† Missed speeds on hill.

CARS VALUE £600 AND UNDER.

1. G. H. Lanchester ...	10-h.p. Lanchester ...	3 2½	150.5
2. A. Millership ...	10-h.p. Lanchester ...	3 33½	128.8
3. — Dixon ...	10-h.p. Lanchester ...	4 24	113.2
4. J. D. Siddeley ...	—	3 38½	110.0

CARS VALUE £400 AND UNDER.

1. E. M. Iliffe ...	74-h.p. Wolseley ...	3 36½	204.3
2. — Yates ...	10-h.p. Wolseley ...	3 8	198.9
H. Sturmev ...	8-h.p. Duryea ...	3 31½	136.1

CARS VALUE £200 AND UNDER.

— Cox ...	Locomobile ...	2 30½	—
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(Only one entry, no award given.)

MOTOR-CYCLES.

G. D. Leechman ...	Singer Tricycle ...	2 10½	—
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(Only one entry, no award given.)

There was a very large attendance, and amongst those present we noticed the president, Mr. J. Broughton Dugdale, on a powerful Serpollet, Mr. and Mrs. C. Dixon, Messrs. F. Lanchester, Alfred Herbert, J. A. Holder, E. M. C. Instone, Alfred Bird, and many others. Owing to the success of the meeting, it is highly probable that another competition will be held next month.

LEAVING A CAR UNATTENDED.

Nor often is a motor-car left unattended, although such is frequently the case with ordinary horse-drawn vehicles. Albert Holloway—a motor-car driver in the employ of the Folkestone Motors, Limited, has, however, been summoned for leaving his car unattended, to the common danger of the public, at Cheriton, on September 14th. Police-constable Strand said about 8.55 p.m. on September 14th he saw a motor-car standing outside the White Lion Hotel unattended. During the absence of the driver the car started across the road and collided with the water fountain. There were three or four passengers in the car when it started, but they jumped out behind. As this was the first case of the kind to come before the magistrates, they imposed a penalty of £2 only, including costs.

CLAIM FOR DAMAGES.

JAMES CHAPMAN ANDERSON, Bengal Civil Service (retired), 8, Aikenhead, Blairgowrie, sued the Hon. J. D. Logan, Dalguise Castle, in the Perth Small Debt Court for £1 2s. 6d. as loss and damage alleged to have been done to the pursuer's carriage in the High Street of Blairgowrie, on July 30th last, through defender bringing his motor-car close up on to the pursuer's landau, thereby causing the pursuer's horse to take fright and wheel round suddenly. The defender denied fault. The sheriff attributed the accident to a slip on the part of the carriage driver just before the automobile came on, and to some extent to an error of judgment in the car not being stopped soon enough. He absolved defender.

REFUSING TO STOP.

SHERIFF SYM, at Perth, has had to try a case in which Lord Cairns was the offender. He was charged with having on September 18th, on the public road leading between Perth and Murthly, near New Farm, failed to cause a motor-car which he was driving to remain stationary so long as might be reasonably necessary when signalled to by John Pettigrew, coachman, by holding up his hand. Mr. Walter Anderson, solicitor, said he was present for Lord Cairns, and wished to object to the relevancy of the complaint. Mr. Melville Jameson, Procurator-Fiscal, objected

to this, and the Sheriff held that Mr. Anderson had no *locus standi*. Evidence was then led. John Pettigrew, coachman in the service of Colonel Richardson, of Ballathie, said he was driving Colonel Richardson's daughter and her maid to the station, when near Lister's farm a motor-car, driven by Lord Cairns, came along the road. Witness's horse became restive, and he had great difficulty in restraining it. The car continued to come along at the same rate of speed, and although witness held up his hand twice to stop, Lord Cairns failed to do so, and passed him without slackening speed. The Sheriff imposed a fine of £5.

NO NAME ATTACHED.

MESSRS. MAYHEW, of 112, Church Road, Battersea, have been summoned for allowing a motor-van to be used without a name and address upon it. Police-constable 459 P said he saw the motor-van in Wastdale Road, Forest Hill, without a name. The driver told him the name of the owners. A fine of 20s. and 2s. costs was imposed.

AN automobile club is in course of formation at Cannes.

THE Rhenish Automobile Club is organising a hill-climbing competition from Heidelberg to Konigstuhl for the 26th inst.

THE Austrian Automobile Club will hold its third annual exhibition in March next.

THE American Consul at Johannesburg reports a brisk demand for automobiles in that rapidly-developing section of South Africa.

MESSRS. SKINNER AND CO., who have taken over some motor-cars running in Hastings, have just declared a dividend of 7½ per cent.

A PRIZE of 250 francs was offered by Mr. E. W. Hart, of Luton, to be awarded to the light car doing the fastest time on the hill in the recent Gaillon trials.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

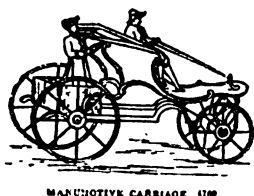
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COMMENTS.



ON Sunday morning the Earl of Dudley, the Lord-Lieutenant of Ireland, and Countess Dudley, accompanied by Captain Fetherstonhaugh and the Hon. C. Ward, with suite, arrived in Galway on a tour through the West of Ireland. A few local gentlemen were presented to his Excellency on the platform, and after luncheon in the Railway Hotel the company started for Oughterard, where they took the road by motor-cars to Cashel. At Cashel a halt was made for the night. Three motor-cars had been placed at the service of the Viceregal party, whose tour through Connemara has thus given them an excellent opportunity of seeing the conditions of life in the country districts.

The Tyre Trials.

SOME time will elapse ere results of the tyre trials can be made known. Since we last wrote on the subject the tests for detachability and resiliency have been completed, and now the tyres are to be forwarded to Professor Hele-Shaw for tests with the dynamometer and recording apparatus designed for the British Association. We understand that Mr. Midgley has reported to the Committee that he was unable with the set of tyres used in the trial to complete the few remaining miles which would make up the four thousand miles. He placed himself at the disposal of the Committee to undertake the resiliency, detachability and other tests, and they decided that, as he was not running for an award, he might be permitted to undergo the tests, which he did, in company with T1 and T6, over a rough piece of road in Regent's Park on Saturday last. In response to application from T1 the Committee have decided not to penalise that tyre (a Dunlop) to the extent of six marks on the occasion of a repair when there was no jack on the car and other help had to be improvised. This reduces the total marks lost by T1 from 102 to 96.

Motor Hooligans.

AGAIN we feel compelled to join issue with those of our contemporaries who seem to think the terms "motor ruffians" and "motor hooligans," to say nothing of "motor blackguards," fit epithets by which to designate the gentlemen who own automobiles. Motorists do not drive recklessly; they are not less human than other users of the road; and any wantonness on their part would be simply suicidal. Where the roads are clear of traffic they may—in fact they do—drive fast; but to say that they are a reckless class of people, heedless of other people's lives and limbs, is to charge them with insane folly and calculated to damage automobilism to an unpardonable degree. Burke declared in one of his speeches that an "indictment could not be brought against a whole nation," neither should attempts be made to fix a general charge upon a large body of gentlemen merely because some rural councillors have been alarmed at the quickened speed of locomotion on the

road. A close study of the evidence in the cases of alleged furious driving which have appeared in our columns from time to time affords proof that motorists are not reckless. Why, then, continue to use the offensive terms we have quoted?

The Yorkshire Automobile Club.

THE members of the Yorkshire Automobile Club again turned out for a run to Ilkley on Saturday, and, fortunately, the weather kept fine, although the state of the roads necessitated careful driving. The meet was at the pretty village of Burley-in-Wharfedale at 3 p.m., and amongst the arrivals there were noted: Mr. Kirk and Mr. Bolton, 16-h.p. Panhard; Mr. and Mrs. Jackson, 10-h.p. Daimler; Messrs. A. W. and A. Dougill and Mr. Walsh, 8-h.p. Loidis; Mr. Martin and Mr. Milner, De Dion; Mr. and Miss Armitage, 8-h.p. Korti; Mr. Mortimer, 3-h.p. tricycle; Mr. and Miss Burrows, 8-h.p. De Dion; Mr. Brookes, 2½-h.p. bicycle; and Mr. Hey and Mr. Lanchester. After waiting for the late arrivals for half an hour, during which time the party had been well looked after by a local constable—a general move was made for Ilkley, and the cars were drawn up at the Crescent Hotel. At 6 p.m. a start was made for home. At an informal meeting it was decided to arrange runs throughout the winter, it being the general opinion of those present that, providing the weather is fine, a winter run is as pleasant as a run in summer, and without the disadvantages of the dust.

Ten Days in Prison.

AT a meeting of the County Council of Perthshire, Mr. Andrew Hutcheson proposed a resolution in support of further legislation with regard to motor-cars, and in the course of his speech said he had received from Mr. Macpherson, the Chief Constable, a statement which pointed out the advisability of taking stronger measures for regulating the traffic, and Mr. Macpherson had expressed the opinion that ten days' imprisonment would be more beneficial than a £10 fine. The police, he thought, should be empowered to apprehend anyone and take him direct to the Sheriff. The statement mentioned that from December, 1901, to October, 1902, there had been nineteen prosecutions, and the number of cases reported had been forty-one. A committee was thereupon appointed to act with other Scottish counties in securing Parliamentary attention to the matter.

A Scottish Meet.

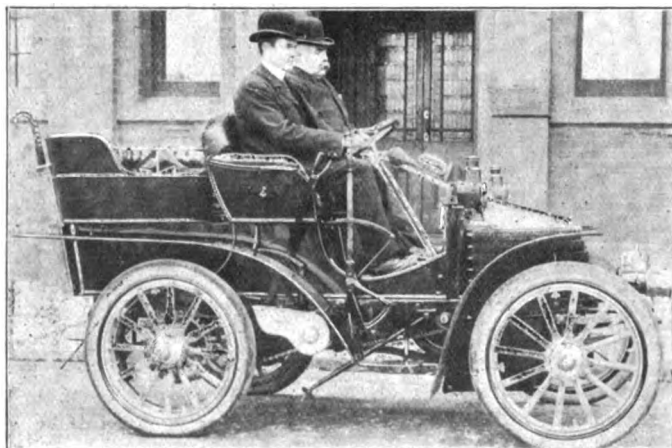
TO-DAY (Saturday) the members of both sections of the Scottish Automobile Club will lunch with Mr. W. S. Steel, of Philiphaugh, Selkirk. They will meet at the east lodge entrance at 12.45 p.m., and proceed in procession up the avenue to the house. At a meeting of the General Council of the Club it has been decided that Mr. Norman D. Macdonald, the present Chairman, shall act as Secretary *ad interim*, all correspondence being sent to him to 15, Abercromby Place, Edinburgh. Sir J. Miller, Bart., has been elected a vice-president, and Mr. R. J. Smith asks that members should make suggestions as to a suitable circular road route for the Gordon Bennett Cup race.

Automobile Clothing.

THE introduction of the motor-car has not found all tailors prepared with ideas for the production of new styles of garments; they have not had the experience necessary to adapt themselves at once to the requirements of the situation. A large number of orders have, therefore, been carried out by workmen who have had no other qualification than that they were accustomed to work with leather. Neither has it been an easy task for the ordinary cutter or master tailor to go a-motoring, and learn from actual experience the necessities of motor garments. The most successful makers of motor-car garments are those who have been accustomed to the cutting of sporting garments. Many of the garments are made from leather or material that will offer the maximum of resistance to the wind and rain. The speed at which some of the cars are driven makes it a necessity that the garments must be wind and water proof, or else the wearers would suffer seriously in health. Leathers used for making garments are usually submitted to a waterproofing process, and they are also lined throughout with a material which resembles a Witney blanket of cinnamon colour. Jackets, vests, and knickers or breeches are made of leather and lined throughout with woollen material or swandown calico. One of the main features in the designing and cutting of motor garments is to provide for the protection of the chest, neck, head, and ears. During the last exhibitions of motor-cars the "Tailor and Cutter" observed quite a number of garments being exhibited, and while leathers were being pushed very hard as the most appropriate class of material, our contemporary also noticed keen rivalry from the woollen makes of goods.

Motoring in Wales.

CAPTAIN D. HUGHES MORGAN is a keen motorist, and has been making some good trips in Wales on his 10-h.p. Wolseley car. In fact, since May last he has travelled 5,000 miles on the car and never once had to stop for any repair whatever—a tribute to the way in which his driver has overhauled the vehicle



CAPT. D. HUGHES MORGAN, J.P., ON HIS 10-H.P. WOLSELEY.

after each day's run. Given a good car and regular attention on the part of the driver, there is no reason why equally good records should not be universal. Captain Morgan made a trip to St. David's from Tenby, where his motor-vehicle was "stabled" for five weeks on very reasonable terms by Messrs. T. and H. Rees, of St. Julian Street, who intend putting down a pit for the use of motorists. He travelled from Tenby to St. David's *via* Haverfordwest, thus enjoying beautiful scenery and thoroughly testing the hill-climbing capacity of his car. Between Haverfordwest and his destination—a distance of only sixteen miles—there are seventeen hills, all of which were negotiated by the Wolseley car without incident.

The Conversion of J.P.'s.

ACCOMPANYING Captain Morgan (who is also a magistrate for the county of Brecon) on his car is Mr. Lewis Williams, J.P., of Brecon, who at one time was strongly in favour of the twelve miles an hour limit. But several trips on the car illustrated have convinced him as to the absurdity of the legal restriction—a conversion that leads to the suggestion that motor-car owners should take J.P.'s for runs wherever possible, so that they may be able to recognise the control that the driver can have over his car.

Mechanical Engineers and Motor-Cars.

RARELY, if ever, has the lecture-hall of the Institution of Mechanical Engineers' headquarters at Storey's Gate, S.W., had within it such a large assembly as came together on Friday evening, last week, on the occasion of Captain Longridge's paper on "The Oil Motor-cars of 1902." If the large attendance may be taken as any indication, it would seem that mechanical engineers as a body are at last beginning to realise that the motor-car is not merely a pleasure vehicle for the wealthy, but is something which will within a few years bring about a radical change in the ever-increasing traffic in all large centres. Here and there among the representative audience we noticed a number of familiar faces in the automobile world, including Major Crompton, Messrs. Worby Beaumont, Holroyd Smith, Lyons Sampson, C. T. Crowden, G. Iden, R. E. Phillips, H. G. Burford, and many others. After the ordinary business was over, the Secretary of the Institution was called upon for the paper; owing to its length, however, the bulk of it had to be taken as read.

The Oil Motor-Cars of 1902.

IN another part of the present issue we commence the publication of Captain Longridge's exhaustive paper. Before the discussion the author added a few remarks, drawing attention to the points on which he would particularly like criticism and discussion. Among these points were the development of the impulse-every-revolution motor; the use of steel cylinders in place of cast iron; the question of lubrication at high temperature, etc. The discussion itself was opened by Professor Turner, of Birmingham, who confined his remarks to metallurgical matters, first drawing attention to the unsuitability of white hematite for cast-iron cylinders. He then referred to the probable adoption of steel in place of cast-iron for this part of petrol motors. The Professor recommended the use of a steel containing only just sufficient carbon to give the desired properties, and considered that a steel having 15 per cent. of carbon would meet all requirements.

English Spring Makers Behind.

MR. FREDERICK GROVER, of Leeds, a well-known authority on internal-combustion engines, followed with a few brief results of tests he had made with regard to products of combustion, after which Mr. Geo. Iden, of the Motor Manufacturing Company, offered some interesting remarks. In the first place, he urged the members of the Institution to take more interest in the automobile industry, and to study its requirements. In this connection Mr. Iden related the difficulty he had experienced in obtaining, among other things, English-made springs for motor-cars, and how, after many trials, he had had to fall back on French-made springs, which were incomparably better than those of home manufacture. As regards steel cylinders, Mr. Iden stated that so long ago as 1897 he had experimented with these, as the result of which he favoured cast iron. The question of the success of cast-iron cylinder and jacket castings was largely a matter of design and suitable quality of metal. As indicating

this, he pointed out that whereas three years ago the failures in cylinder castings ranged from 16 to as high as 60 per cent., now they were not more than 1 per cent. With regard to the explosion-every-revolution motor, Mr. Iden considered that there will be great difficulty with the exhaust valves. Even with Otto-cycle motors this trouble had been experienced; he himself had found valves made of pure nickel gave by far the best results. At this point the Chairman (Mr. Maw) brought the meeting to a close by announcing that as so much interest had been evinced in Captain Longridge's paper, the Council of the Institution had decided to hold a special meeting on Friday evening, the 31st inst., when the discussion will be continued.

New Railway Regulations.

THE exclusive information we published last week with regard to the new regulations of the railway companies concerning the carriage of petroleum spirit was read with considerable interest by all motorists, and with alarm by not a few. The Anglo-American Oil Company, Limited, has now declared that "whatever may be the outcome of the railway companies' sudden resolution not to carry petroleum spirit, etc., except they are indemnified by the consignor against all loss and claims for damage of every kind, we refuse absolutely to accept the new consignment note in its present form. We are notifying all our customers of this fact, and we are informing them that for the execution of their orders in future it will be necessary for them to forward to us with each order one of the new consignment notes duly signed by them as the consignors. We do not recommend to them, however, to take the risk which they would certainly incur by so doing." Similarly, Messrs. Carless, Capel and Leonard have informed their customers that "as it must necessarily take some time before we can hope that the railway companies can be induced to reconsider their decision and withdraw Clause 2, and as in the meantime they will not accept the traffic unless the consignment notes are signed without alteration, in case you should be willing to take the risk of accepting Clause 2, we enclose a form which, until further notice, authorises us to sign the consignment note, and to pay the railway carriage on your behalf. We, ourselves, under no circumstances, will sign the note."

Safety in the Past.

No explanation of their new restriction on trade is offered by the railway companies, and from all we can learn the regulations previously in force have been amply sufficient, as is proved by the trifling losses that the railway companies have sustained during the past twenty-five years in consequence of this traffic. Such regulations have included the setting apart of special days for the reception of these articles; the providing of separate trucks for their carriage; the affixing to each package in a conspicuous manner of a label plainly stating the nature of the article, etc. Moreover, the rates of carriage for this class of goods have always been exceptionally high. There would seem, therefore, to be no substantial reasons why the railway companies should have adopted these additional and prohibitive measures, unless it is that they wish to thwart the advance of a likely competing interest.

Anticipating Matters.

In connection with this matter it is said—but we have had no opportunity of confirming the statement—that the King, having been informed of what was likely to occur, promptly gave an order for 400 gallons of petrol for his motor-cars, to be despatched to Windsor and Sandringham. The War Office also has given an order for fifty barrels to be sent to Aldershot for the purpose of carrying out some experiments with motor-cars. It is not only the owners of automobiles that will suffer by the dispute, for the prescribed inflammable liquids are needed for cleaning clothes and many manufactured articles, and consequently the outlook is decidedly serious.

Unattended Horses.

FOR leaving a horse and cart unattended at Westham a farmer has been fined 15s., and we would congratulate Mr. J. B. Coles, the motorist, who prosecuted, on thus administering a salutary lesson. There is too much neglect in this matter, and if motorists generally would bring actions against those foolish people who leave horses and carts unattended on the highway there would be considerably fewer cases of shying horses.



LA BELLE OTERO ON THE NEW 6-H.P. DE DION VOITURETTE.

Mr. Edge on Proposed new Racing Rules.

ON Friday of last week the Nottingham and District Automobile Club inaugurated their winter session with a dinner at which Messrs. S. F. Edge and Charles Jarrott were the guests. Mr. G. W. Wells (vice-president) occupied the chair, the company including Colonel L. L. Powell (Melton Mowbray), Messrs. M. R. Browne, W. H. Warburton, D. G. Cole, T. Hardstaff, A. F. Houfton, R. Harbidge, G. H. Kirk, H. Belcher, W. D. Wells, H. Rimington, J. Carson, A. P. Stevens, P. C. Mey, H. W. Bartleet, Clifford (Loughborough), H. V. Stevens, W. J. Dexter, and A. R. Atkey (hon. sec.). Mr. Edge referred to a new rule which French motorists are advocating with regard to racing, so that the weight of the frame without the body will have to be 1,000 kilos. That would mean that racing motorists in this country would be at a great disadvantage, for if the rules could be altered so quickly French makers would be able to alter the rules to suit the carriages which they were intending to construct in the following year, while the English makers had to keep well forward with the construction of their own machines, and would

thus be greatly handicapped. He intended to take the matter up, through the Automobile Club, and attempt to get the business stopped, on the ground of its unfairness. Rules should not be altered without at least twelve months' notice, as if the matter went through English manufacturers would not be able to make cars to compete with the French machines.

Trapping by Battery.

AT the Hailsham Petty Sessions a police constable has described the system adopted for trapping motorists. He was on special duty at the Dicker, timing the speed of motors with the new electric battery supplied by the County Council. A furlong of the road had been measured, and at one end a constable was stationed, witness being at the other end with the battery. The battery was connected by a wire with the constable, who when a motor passed over the point pressed the button, and started the watch, witness stopping it when the motor passed him. The motor-bicycle on which defendant was riding passed over the measured furlong, the electric apparatus was put into operation, and witness ascertained that the motor-bicycle covered the furlong in slightly over nineteen seconds—equivalent to twenty-three miles an hour. Sergeant Allchorn, who was at a point lower down the road, was signalled to and stopped the defendant.

Police Education.

IN view of the increasing number of vexatious cases in which well-meaning motorists are entrapped by the police, a correspondent suggests that the Automobile Club should arrange a series of trial runs with either the police themselves or those responsible for their present tactics, in order to demonstrate what is the real danger of motor driving so far as the public are concerned. To the uninitiated the idea of one travelling at twenty or thirty miles an hour is certainly somewhat alarming, but to one who knows what perfect control the cars are under the pace counts for nothing, provided, of course, that the road is clear and other users are not inconvenienced. The question of pace is one of education simply. All different modes of progression have encountered similar difficulty and prejudice, and in days to come we shall laugh at the grandmotherly legislation which limited the speed to twelve miles an hour on open country roads. Seeing that the effect of the education of the Chief Constable by the Club some time ago seems to have worn off, something of the same kind might be repeated in Surrey, where the police are doing very little real good by their present tactics. In confining their efforts to entrapping car drivers on main country roads, they are losing their opportunities of doing real service by stopping reckless men who drive fast through villages and round corners, where real danger exists.

Lacking Enterprise.

WHENEVER progress is made in any department of activity someone is almost certain to suffer. It was so when railways were introduced, as those interested in the turnpike roads could tell; and now, apparently, something of the same kind is occurring with regard to livery keeping. A Leamington stable keeper, who has just met his creditors, assured the meeting that since he had been in that town the use of motor-cars had so greatly increased that the demand for horses, either for purchase or hire, was much less than it had been. He could, he said, give the names of people who had purchased motor-cars to the detriment of his business. There is no doubt that isolated instances of this kind will be reported from time to time during the next few years; but it demonstrates that livery stable keepers should move with the times and be willing to turn a portion of their present stabling accommodation to account for the storage of motor-vehicles. If they would be wise in time and do this, there is no reason why any of them should appear in the bankruptcy court to lament their lack of enterprise.

In Ireland.

ONE of the oldest coachbuilding establishments in the town of Waterford is now occupied by Mr. W. F. Peare, who has developed an extensive business in automobiles in the district. The premises are complete in every department and not only can petrol cars be overhauled and repaired there but electric cars can also be recharged. On one of the upper floors is a club room at the disposal of visiting motorists, while above one of the spacious workshops Mr. Peare is providing a roof garden after the manner of the Automobile Club in Paris.

A Useful Suggestion.

ONE of the best things that we have seen in connection with foreign competition in the great trades of the country comes in the notice which has been issued to the workmen employed by Messrs. Vickers, Son, and Maxim, in their Barrow Works, inviting them to communicate to the firm any idea they may have tending to the economical production of the work on which they are employed. An awards committee has been appointed, and ten suggestions have lately been handed in. In six cases these have been adopted by the firm, and prizes of varying value have been given. The idea is not a new one, for it has long been in vogue in some of the leading ship-building yards in Scotland, but it gives a hint to some of our British makers of automobiles that might help them in meeting the competition from the Continent that they have to face.

A 7-h.p. Star car has been purchased by the Automobile Club for the use of that organisation.

THE Hon. T. A. Brassey employed a motor car in his election contest at Devonport.

AT the recent Sanitary Institute Congress in Manchester, Professor A. Sharp read a paper on "Municipal Motor-Waggons."

REPLYING to Sir Howard Vincent in the House of Commons, Mr. Walter Long has expressed his view that there is no probability of the Registration of Motor Vehicles Bill being proceeded with during the present session.

MESSRS. PETO AND RADFORD, LIMITED, have issued a new list giving full particulars and prices of the "P.M." system of electrical ignition, for which they are sole agents in this country.

THE annual display of the Metropolitan Fire Brigade took place in Victoria Park, E., on Saturday. Heading the procession of steam fire engines was the experimental motor-engine which has been designed and turned out in the workshops of the Fire Brigade.

THE Hydroleum Motor Company, Ltd., whose system of steam raising attracted so much attention at the exhibition at the Agricultural Hall in April last, have now taken works at Hythe Road, Willesden Junction, and are settling down to active operations. Users of steam cars will be interested in the Hydroleum system, as the company are supplying a crude oil at 2d. per gallon in quantities, which will, it is claimed, produce more steam per gallon than petrol or petroleum, and reduce the cost of fuel to one-eighth of a penny per mile.

DURING the recent military manoeuvres in Ireland, four motor-cars were in use—the Brooke, Gladiator, Napier and Panhard. The Duke of Connaught's Napier experienced a mishap, and while it was under repair his Royal Highness had a front seat on Major Nugent's Brooke car, Mr. Maudslay Brooke having the honour of being at the helm. Shortly after the Napier had been repaired a bad side slip disconcerted the front wheels of the Gladiator. The roads were in an abominable condition, being made with limestone and covered about 1½ in. thick with slime. The culverts were also particularly bad, especially in the Bog District, and the cars would sometimes leave the road entirely, all four wheels striking it together.

THE TRAPPER AND THE TRAPPED; OR, A LAND OF LAW AND EN- LIGHTENMENT.

BY MRS. MARY E. KENNARD.

(Concluded from page 645.)

THE following morning my husband went off with Brooks to find a blacksmith, as our governor hammer required a little attention. We stayed at the Metropole, and in his absence I whiled away the time by perusing a motor-car journal I had brought in my bag. The head chambermaid was a stout middle-aged woman of singularly officious temperament. She either could not or would not leave me alone. Possibly she did not wish to allow me to escape without a guerdon. Anyhow, she kept popping in her head and disturbing me by saying, "There is a reading room downstairs, madame." "Thank you," I rejoined. "I am quite comfortable here." The woman annoyed me as she continued to intrude. Presently she appeared at the door again. This time her face was wreathed in smiles, and she evidently

disgust. Was this England—the just, the free, the tolerant? For the first time in my life I blushed for my country and countrymen. Surely, it was monstrous in a civilised and enlightened land for a lady to be hounded in this manner. When harmlessly touring with her husband and staying at an hotel, she was rendered an object of suspicion. It appeared to me simply abominable. Yorkshire and its horsey squires had always been typical of hospitality in my mind hitherto. I never wished to set foot inside the county again after my treatment. Putting personal animus aside, however, the struggle clearly resolved itself into a duel between the jog-trot horse and every new form of locomotion. To me the question was simple enough. Was the horse for ever to retain sole possession of our highways, and bar the introduction of any swifter and more reliable mode of transit? Who could foretell the future? We might hereafter be conveyed from one place to another by undreamt-of methods, by unknown factors, much more rapid than the persecuted motor. Was every improvement, every invention to be tabooed because of the equine animal and his owner's fears about his behaviour? Personal cowardice was at the bottom of the whole problem. If drivers were sure of the steeds they drove between



MR. RANDLE KAY, OF LYTHAM, ON HIS NEW 12-H.P. DAIMLER (see page 668).

enjoyed revenging herself for my unresponsiveness. "There's a policeman downstairs as wants to see you," she said gleefully. "A policeman!" I exclaimed incredulously.

I descended the stairs, and found a burly constable who said my presence was required at the police-station for the furious driving of a motor-car. I could have kicked him, so great was my indignation and sense of injury. Of course I did nothing of the kind. As a matter of fact I followed him meekly. Thank goodness! at last one came across a sensible person. The head inspector was unshackled by the bonds of prejudice. I told him the number of hours we had been on the road and the exact time of our entry into Newcastle.

It so happened he had witnessed the arrival of the car. He informed me they had telegraphed on from Northallerton warning him to be on the alert, but I elicited in course of conversation that the offending car was brown in colour, whilst ours was painted blue and yellow, and it had passed through the village of Thormanby, whilst we had taken the Boroughbridge route. Electric trams were cutting about Newcastle in every direction, at much beyond the legal limit for motorists. I returned to the hotel in a high state of dudgeon. My sensations were those of utter

the shafts, we should soon hear very little about the danger to the public occasioned by mechanically-propelled vehicles. Nine times out of ten the public have only their stupidity to blame when accidents do occur. None but the motorist knows with what an inconceivable lack of intelligence our roads are used. Give the human animal sense as well as the equine and there would not be much trouble. But there lies the difficulty.

"Sir Charles" performed the remainder of the journey without falter or hesitation, and we arrived at our destination in safety, but with feelings considerably ruffled by our experiences, which had quite robbed the drive of its pleasure. Exactly a week after the date of our departure from home, my husband went to St. Andrews to play golf, and Brooks and I were entrusted with the responsibility of driving the car back to England. Well, perhaps it is fitting and right that Sabbath-breakers should pay the penalty of not going quietly to church, staring at their neighbours, and putting on their best bibs and tuckers. We left on Saturday, and Sunday brought us once more into the dreaded region of Northallerton, the scene of our former discomfiture. Very cautiously I crawled through the town, and not until we were well beyond its confines did I resign the helm to my com-

D

panion. I had driven most of the forenoon and was glad of a rest. When about ten miles from Northallerton we began to think we were safe, and congratulated ourselves on having passed successfully through the danger—I mean sneak—zone. A gentleman, riding a restive bay horse, delayed our progress. We pulled up for him to get by without an accident. The nervous rider dismounted and lugged his steed past "Sir Charles." He thanked us for our courtesy. This little episode at an end, we made a fresh start. Before us stretched a long, straight road, with not a human being in sight. Far as eye reached nothing was visible, save a solitary cottage situated at four cross roads. The gradient was slightly downhill, and a more favourable spot for speed could scarcely have been devised. We sped down it with glee. Alas! for our short-lived pleasure. We had momentarily forgotten the stealthy hunter set by a body of gentlemen to hunt down his own kind like vermin, exclusive of sex. All honour and

in thirty-four seconds according to our accusers, and remonstrance on our part was useless. I pointed to the clock on our dashboard, and intimated that the same gentleman who presented stop watches so freely to the police ought in fairness to give them also to poor, unoffending motorists like ourselves. But pleasantry and politeness were thrown away, especially if flavoured with a dash of truth. It was the old story. These men had strict orders to stop *every* car. They admitted as much, and alluded with pride to the bag made that very Sunday. They talked glibly of the public danger, but as there was not a living soul save our party on the road, their remarks failed to appear appropriate. In the end, we were allowed to proceed sorrowfully and indignantly on our way. All the dash was taken out of us for the time being. In its place remained a sense of burning shame, not for our own misdeeds, but for the folly, the deceit, and lamentable pig-headedness of our compatriots. I asked myself if it could possibly



THE PASSY-THELLIER FOUR-CYLINDER CAR, the winner of the Voiturette class in the Chateau-Thierry and Gaillon hill-climbing trials.

[La France Automobile.

glory to these brave, upright Yorkshiremen, who would be even greater heroes if they were not heroes in disguise! Just before we reached the cottage, out darted two policemen from its open door, and with stentorian voices and authoritative gestures commanded us to stop. We did so. Short of committing murder, no other course was open to us. To describe our disgust is beyond my pen. And now, appearing as it were from the bowels of the earth, a benevolent-looking, middle-aged gentleman clad in a big checked suit rode up on a bicycle. His face was one sparkle of a smile, and he showed his yellow teeth with a liberality which fascinated my attention. Snake in the grass! He, too, belonged to the fraternity. He produced a stop watch, and the inspector also produced one. They placed their heads close together and consulted. Then, in accents of triumphant assurance, these worthies pronounced their ultimatum. Twenty-five miles an hour was what they estimated our mad career to have been. Wicked, dangerous, illegal! We had covered a measured quarter of a mile

be right for a lot of slow-going old county magistrates to destroy the uprightness and *morale* of the police? Skulking, prowling, laying traps and ambushes is no fit work for honest men. The effect both on trapper and trapped is distinctly harmful. It engenders mutual distrust and suspicion, and lessens the esteem in which the public have hitherto rightly held the blue-coated upholders of law and order. The whole system is wrong, and not only wrong, but almost incredibly foolish; seeing that it serves no efficient purpose. The motorist who sins to-day will sin again to-morrow to a certainty, only with increased stealth and evasion; whilst his persecutor must necessarily deteriorate in character owing to the sneaky, mean, underhand nature of the work he is called upon to perform. Given a certain amount of concession on either side, and surely some more satisfactory understanding could be arrived at. Play the game fair, and if it must be war to the knife, at all events let the strife be conducted in an honourable, straightforward fashion.

CONTINENTAL NOTES.

BY AUTOMAN.

THE last echo of the Paris-Vienna motor-car race comes from the racing committee of the A.C.F., which has decided to disqualify all the motor-cycles in the event. It seems that the Arlberg was fatal to them all, and protests and counter-protests rained on the devoted heads of the commissioners. If all accounts are true, the local peasants and mountaineers and the horses also helped the two and three-wheeled vehicles to scale the Alps.

PENDING the decision in this matter the *Auto-Velo's* cup for regularity has been held over, and it is now awarded to the firm of Georges Richard, who made the best time with their two 10-h.p.

in France than any other living man, has found an ideal site on the road which runs from Saint-Arnoult to Dourdan (Seine-et-Oise), joining the two great roads from Paris to Bordeaux. At each extremity there is a wide place suitable for turning round. The road is excellent, and if it is not exactly as level as a billiard table, the inclination is only four ten-thousandths per cent. There is about 1,500 yards at each end to get up speed and slow down. There are no cross roads, and the road is thirteen yards wide. It is about 30 miles from Paris, and there is a railway station close by. It only remains for the A.C.F. to tar it in order to lay the dust, and put up posts for the kilometre and mile, and it will be as near perfection as possible.

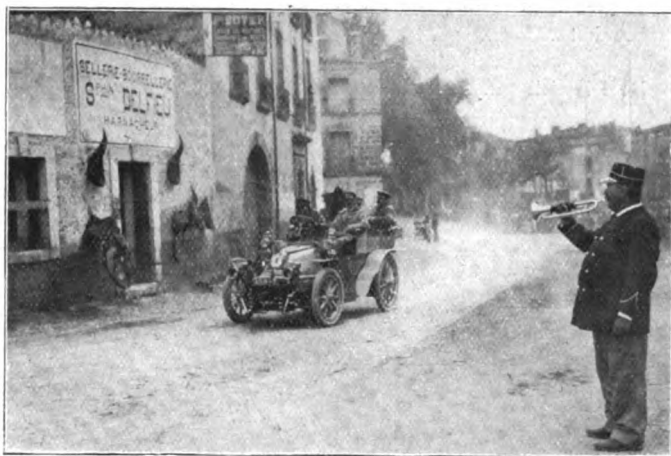
THERE have been automobile races in Russia, to close the season, from St. Petersburg to Strelna-Gatchina and back, in



BEFORE THE RACE—WEIGHING THE CARS.



PREPARING TO START.



POLICE ANNOUNCING THE PASSAGE OF THE CARS THROUGH A VILLAGE ON THE ROUTE.



THE CARS AT PEZENAS.

THE CIRCUIT DE L'HERAULT.

voiturettes, driven by Georges Richard and Gaston Riviere, which accomplished the journey from Paris to Vienna in the total time of 57 h. 2 mins. and 30 secs. Gardner-Serpollet is next with 151 h. 13 mins. and 9 secs. for five cars, and Georges Richard is third with his three light 20-h.p. cars.

THE A.C.F. has taken up seriously the question of kilometre records on the road, apart from public competitions. It has long been evident that as the site of the record was left to the owner of the car making the trial, the records could not be considered as really serious, and now the A.C.F. has requested M. Tampier to recommend a particular kilometre to be used for this purpose. M. Tampier, who knows probably more about the roads

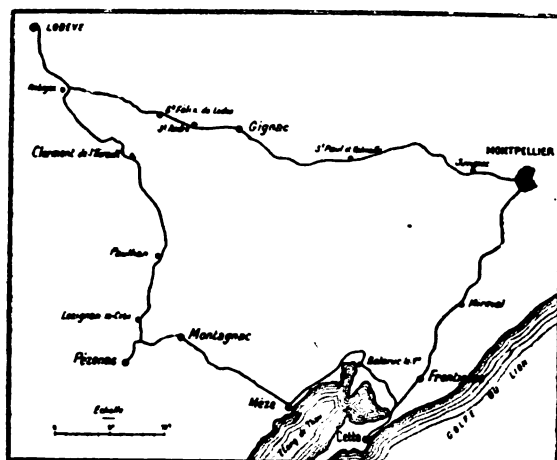
which about thirty cars took part. Most of them, however, broke down on account of the bad roads. The *Passe Partout* and its crew were present at the races. The following were the results:—

1. Surmetz on a 10-h.p. Georges Richard.
2. Barbay " " " "
3. Kapoustine on a "24-h.p. Panhard."

THE numbering of automobiles in and around Berlin is doing an irreparable harm to the trade in that part of Germany, and keeping hundreds of people from becoming owners of motor-cars. The proceedings, as far as the police are concerned, are reduced to the simplest expression. There is just a little red note-book in which the number of the car is jotted down, and the next morning

a police notice of one or many fines. The speed is simply left to the appreciation of the police.

FROM January 1st to August 31st of this year the value of motor-cars exported from France reached the enormous sum of £800,000, and there is no doubt that one million pounds will be reached before the end of the year, and the trade is increasing by leaps and bounds. All this is due to intelligent legislation which, whilst it has protected the pedestrian and the other users of the roads, has allowed road racing under proper conditions and under proper supervision. Road racing has been, and is still, the prime factor in the automobile industry. It has transformed in a few short years the ponderous, underpowered, ugly Daimler (whether of German, French, English, or Belgian make), with its 300 to 400 lbs. weight per horse-power, into the smart Panhard, Mer-



THE CIRCUIT DE L'HERAULT—MAP OF ROUTE.

cedes, or Mors, with only 50 to 60 lbs. weight per horse-power, and the improvement is not nearly complete yet. It must not be imagined that this reduction in weight per horse-power is to the detriment of the solidity of the vehicle; all those who have predicted such a result have been hopelessly wrong, and it is unquestioned that the average car of to-day is much more able to resist the wear and tear of the road, and costs much less in repairs, than the car of two years ago.

THE easiest way to sell a motor-car now a days is to say that it is just exactly like the Mercedes. A most amusing instance of this occurred to me only a few days ago. I happened to be in a French provincial town one evening when a motor-car put up for the night at the principal hotel. The car shall be nameless. The driver invited me to inspect it, telling me that it was a copy of the Mercedes. The first thing that struck me was the radiator, which was of the usual form, and I remarked that it was not a Mercedes honeycomb radiator, to which came the reply, "Oh, no, but everything else is the same." Passing on to the motor, I said, "Of course the valves are mechanically worked," and was surprised to learn that the inlet valve was worked by suction. Finding the change of speed gear to be of the usual Panhard type, I ventured to ask where the similarity with the Mercedes came in, but when I was told that it was the Mercedes frame, which is, of course, angle iron, and found it to be "bois arme," I thought the cup was full, but it was not, for my friend started the engine up and I heard it cut out with a fine Panhard "vrrum, vrrum," and then he assured me that that was the new Mercedes throttle governor.

ON Thursday, October 10th, the competition known as the "Circuit de l'Hérault" took place under the patronage of the

Society for the Encouragement of Agriculture. The points which counted in the trials were the following:—

Consumption of alcohol	10
Regularity of running	8
Hill climbing	5
Comfort and elegance	5
Speed for a kilometre	2
	<hr/>
	30

The distance to be covered was a little over 100 miles, from Montpellier to Lodève, Lodève to Cette, and Cette back to Montpellier.

OUT of twenty-one entries there were fifteen starters. The weather was most propitious, and the spectators were very numerous all along the roads. The following are the results and awards:—

I.—CARS UNDER 700 KILOS.

Maker.	Consumption in cubic centimetres per kilometric ton.	Speed, kilometre.	Percentage.
SILVER GILT MEDAL AND 400 FRANCS.			
Peugeot...	83.7	51	22
SILVER GILT MEDAL AND 250 FRANCS.			
Automotrice ..	91.2	43.300	18
SILVER MEDAL AND 150 FRANCS.			
Renault Freres ..	106.5	46.500	16
SILVER MEDAL.			
Darracq...	114.9	64.500	13
Darracq...	105.2	40	11
Gladiator ..	123.800	64.280	8
BRONZE MEDAL.			
Gladiator ..	116.800	53.400	6
Georges-Richard ..	108.600	30.200	4
Clement ..	100.8	38.700	2

II.—CARS OVER 700 KILOS.

SILVER GILT MEDAL AND 400 FRANCS.			
Bardon ..	68.4	35.140	40
SILVER GILT MEDAL AND 200 FRANCS.			
Brouhot ..	99	81.400	25
SILVER GILT MEDAL AND 150 FRANCS.			
De Dietrich ..	105.600	43.500	20
WORK OF ART.			
Gladiator ..	109.200	75.600	10
SILVER MEDAL.			
Peugeot..	118.500	53.500	5

THE delivery wagon competition organised by the A.C.F. has been definitely fixed for November 20th to 26th. The entrance fee is 200 francs, and must be sent to the A.C.F., Place de la Concorde, Paris, on or before November 5th, after which date it will be increased to 300 francs.

THE Holborn Viaduct was originally the centre of the motor industry in the metropolis, but it was soon seen that the trade was one for the West End. At present there are only two distinctly motor firms on the Viaduct, and these, we understand, will shortly be removing—the Motor Manufacturing Company, Limited, to Bond Street, and Messrs. Friswell, Limited, to Portland Road, where they have acquired the spacious premises known as the Albany Repository.

PUNCH has been studying rural police methods, and in the current issue has three cartoons on the situation. In the first we have the contempt of the policeman for the rapidly-approaching horse-drawn vehicle; in the second his nonchalant treatment of the cyclist speeding along at a good pace, and in the third, a picture of a dejected motorist who is being towed by a horse, expostulating with the bucolic Robert, who retorts, "Tain't no use tellin' me you've broke down! Stands to reason a motor-car goin' down 'ill's bound to be goin' too fast. So we'll put it down at about thirty mile an hour. Your name and address, Sir, hif you please."

MOTOR-CYCLING NEWS.

A USEFUL little booklet containing practical hints on building a motor-cycle and keeping it going, with special reference to the Fafnir motor engines, has been issued by the British agents, Messrs. Straus and Co.

THERE is talk of a motor-bicycle contest in New Zealand at an early date; the Oamaru-Christchurch course (112 miles) is spoken of as the most suitable, and already a number of New Zealand motorists have notified their intention of competing.

THE W. A. Lloyd Cycle Fittings Company, Limited, are putting a motor-bicycle set of fittings on the market for next season, which will include an engine of their own manufacture. The new 2-h.p. motor comprises some novel features, chief of which is a very simple form of electrical make and break.

IN a case at Exeter, in which the defendant was summoned for ill-treating a dog, it came out in evidence that the animal in question had been running after a motor-bicyclist. The defendant thereupon struck the dog, and an action was brought. This was dismissed, the magistrates apparently recognising that dogs must be educated to good behaviour in the public streets.

WITH reference to the controversy between the London agents for the "Minerva" and the "Kolecom" motors, we have received a letter from the Ormonde Motor Company saying that they do not intend to follow up the challenge made to Mr. Citroen for a match with the engines used in a recent Continental race, as it is now too late to carry it out on the conditions originally suggested.

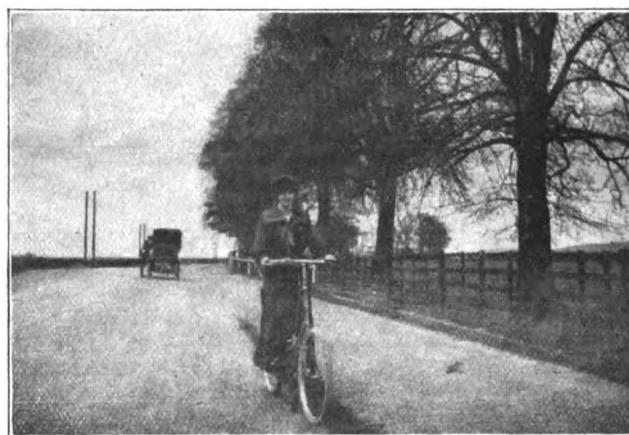
SUNDAY runs will be held by the Motor Cycling Club, Ltd., throughout the winter, the routes being chiefly in a northerly direction from London. The next four runs will start from the Marble Arch at 10.30 a.m., the destinations being as follows:—To-morrow, to Hitchin, calling at the Salisbury Arms at Barnet at 11.15 a.m.; the 2nd prox. to Aylesbury *via* Harrow Hill; the 9th prox. to Bishop's Stortford *via* Barnet; and on the 16th prox. to Buntingford. Should the Club membership in the southern suburbs increase, runs will also be organised to towns south of the Thames.

THE Motor-Cycling Club run on Sunday last took a dozen enthusiasts to Barnet. Before leaving that place it was mutually agreed to change the destination from Dunstable to Wheathampstead, as better roads were anticipated by the latter route. Ten sat down to lunch at the Bull, Wheathampstead, including the captain, Mr. E. Arnott, Messrs. J. van Hooydonk, Wyers, Burley, and Page. The return journey was made *via* St. Albans. The roads after Hatfield on the outward journey were really very good, but the road to Barnet and Hatfield out of London could not have been worse; the grease was terrible, and this, combined with the heavy fog which hung over London up to about 11.30 a.m., had its effect on those riders who prefer either butterfly conditions for riding, or bed. There was not a single side-slip during the day, though in ascending Barnet Hill the grease was so bad that the back wheel of Mr. Arnott's Werner, owing partly to the extra weight of the trailer, occasionally revolved without gripping the road or propelling the machine.

PARTICULARS of the 1903 models of motor-bicycles of different makers are coming to hand at a rapid rate. The Quadrant Cycle Company are bringing out a new machine, in which they have adopted a curved frame, the engine being fixed in an inclined position in the centre of the bottom tube. The mechanism is controlled, as in the earlier pattern, by a single lever, which performs every function except oiling and regulating the mixture,

the air lever being fixed on the opposite side of the top tube. The "single lever" makes the electrical connection, opens the inlet valve, closes the compression, and regulates the spark. The principal improvement in the motor consists in a new contact-breaker, for which it is claimed that no adjustment is required, the wear being taken up automatically. The trembler is abolished, and its place is taken by a right-angled rocker. The company have also got over the difficulty of oil escaping from the crank chamber, so that the outside of the case is free from all grease and dirt and the driving belt is also kept free from oil. Two varieties of engine are being made, one giving 2-h.p. on the brake, and the other 3-h.p.

AT Dublin on Saturday last the Irish Motor Cycle Union held its first race meeting at the Ashtown track. The ground was sodden after recent rains, and the corners proved greasy, so that fast times were impossible. In the two races a Phoenix



MRS. LODER ON HER "IVEL" MOTOR-BICYCLE.

proved itself by far the fastest machine, and, being steered by a racing man skilled in negotiating dangerous corners, it secured a runaway win in each event. The handicaps proved totally inadequate, though they were scientifically framed. Very interesting results were gleaned from the consumption trial. A 1½-h.p. Ariel with a pint of petrol accomplished over 21 miles at a minimum pace of fifteen miles an hour. This works out at 168 miles to the gallon; but these figures are not quite correct, as darkness set in ere the pint had been worked off completely, and the machine looked good for a few miles more when the judges ordered it to stop.

PREVIOUS to this event considerable excitement was caused by a portion of the cinder track suddenly taking fire. Some competitors, in preparing for the consumption trial, had emptied their carburettors on the track, and on this a lighted match had been dropped. Consternation reigned for a few moments, whilst the quick darting flames sought out everything which flavoured of petrol. Cans and measuring instruments were dropped forthwith, and it was only by determined efforts on the part of their owners that several cycles were snatched from the flames. The results were as follows:—Ten miles handicap: (1) R. W. Stevens (2¼-h.p. Phoenix), 310 yds.; (2) H. A. Huet (2-h.p. James), 1,368 yds.; (3) M. Thomas (1½-h.p. Excelsior), 1 mile 476 yds. Winner's time, 20 min. 45 4-5 sec. Twelve started. One Mile Scratch:—(1) R. W. Stevens (2¼-h.p. Phoenix); (2) H. A. Huet (2-h.p. James); (3) J. J. Cahill (2-h.p. Mitchell). Time, 2 min. 12 3-5 sec. Won by thirty yards. Consumption Trial—(Each machine allowed one pint of petrol. The minimum speed to be fifteen miles per hour):—(1) M. Summers (1½-h.p. Ariel), 21 miles in 58 min. 36 sec.; (2) H. A. Huet (2-h.p. James), 14½ miles in 41 min. 32 sec.; (3) F. A. Wallen (1½-h.p. Excelsior), 13¾ miles in 38 min. 15 sec.

MOTOR-BICYCLE FORE-CARRIAGES.

HEREWITH we illustrate (Fig. 1) an attachment known as the Trimo, which is being introduced by Mr. J. Van Hooydonk, of the Phoenix Motor Works, Upper Holloway, for converting a motor-bicycle into a three-wheeled machine for two persons. The advantages over a trailer are obvious—both occupants are within speaking distance, the passenger is out of



FIG. 1.—THE "TRIMO" FORE-CARRIAGE.

the dust, mud, and smell; while the machine having but three wheels only a 15s. license is required, and, furthermore, the six-mile-an-hour trailer limit is evaded. The machine may be compared to a quad, but it scores over this type on account of its lighter weight, $1\frac{1}{2}$ cwt., complete, as against 4 cwt. or 5 cwt.

Referring to the illustration, it will be seen that two special steps are screwed on the back hub spindle, from which two curved $1\frac{1}{2}$ in. tubes run right to the front of the machine, where they are joined by another tube of the same dimensions, this forming the bridge, and terminating in two ball heads. To the latter the hub spindles are fitted, and the extensions connecting the two wheels together with a $\frac{3}{4}$ in. tube. The moving of the handle-bar by suitable connections imparts the required steering motion to the front wheels in exactly the same way as on a car. On the head tube of the bicycle a clip is fixed, to which, by means of two bolts, two stay tubes are attached; the latter terminate in a pair of lugs brazed on to the two curved main tubes, and so supporting

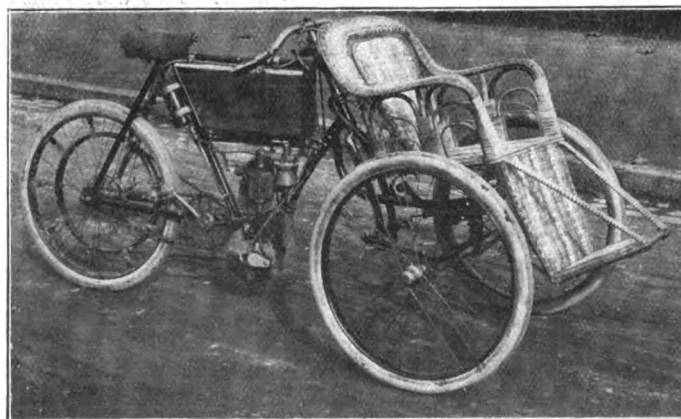


FIG. 2.—THE "LEONARD" FORE-CARRIAGE.

the front portion of the machine on to what is really the frame of the whole carriage. The two main tubes being 4 ft. 6 in. each long, and the front part of the machine resting on them, these become to all intents and purposes a gentle spring, with the result that even the roughest roads are claimed to lose all their objectionable bumpiness. The front seat is attached to the machine by a couple of C springs; the seat is thus insulated from the frame, with the result that no vibration is apparent.

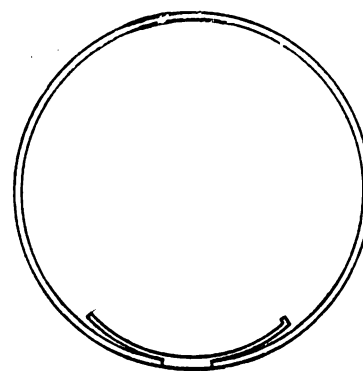
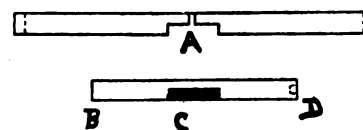
The body shown in the illustration is merely an experimental one; a roomy well-upholstered carriage body will be fitted, with a leather apron to protect the passenger from the wind, etc. To alter the Trimo into a bicycle, or *vice versa*, takes but little more time than that occupied in attaching a trailer. The two nuts on the steps on the back wheel are unscrewed, two bolts are taken out of the clip round the head of machine, and the spindle on front forks slid out of the hollow distance piece. The whole then comes away, and only the front wheel has to be replaced to complete the change.

The machine described has been run about 200 miles, with a 2-h.p. Minerva engine has attained a speed of twenty-five miles an hour, and has climbed Barnet Hill with two persons up. It is intended, however, to use a $2\frac{1}{2}$ -h.p. motor as the standard, so as to have plenty of power available.

Fig. 2 represents still another front carriage arrangement intended for converting a motor-bicycle into a two-seated motor-tricycle, which is being introduced into this country by Mr. J. J. Leonard, of 107, Brockley Grove, S.E. The front carriage can be quickly attached to any type of motor-bicycle; it is of French manufacture, and as it is being put on the market at a relatively low price, it should soon become as popular as the trailing car; particularly, as pointed out above, it gets over the six-mile-an-hour difficulty and requires only a 15s. license.

THE WILSON AND PILCHER PISTON RING.

THERE would not seem room for much inventive genius in connection with the piston rings of petrol motors, but Messrs. Wilson and Pilcher have brought out a new device which appears to possess some merit, the object of the arrangement being to render the split in piston rings gas-tight



without affecting the elasticity of the same. From the sketch it will be seen that the split in the piston ring is of a special shape. A tongue piece, B, is provided at its centre with a projecting piece C, which fits in the corresponding recess in the piston ring; one end of the tongue-piece has a turned-over projection, D, which fits in a small groove formed in the piston body to receive it. The tongue-piece ensures a gas-tight ring, even when the latter is worn, and at the same time prevents the ring from turning on the piston.

MESSRS. JOHN BROADWOOD AND SONS, LIMITED, the pianoforte makers, have a light motor-van on order, specially intended for their particular work.

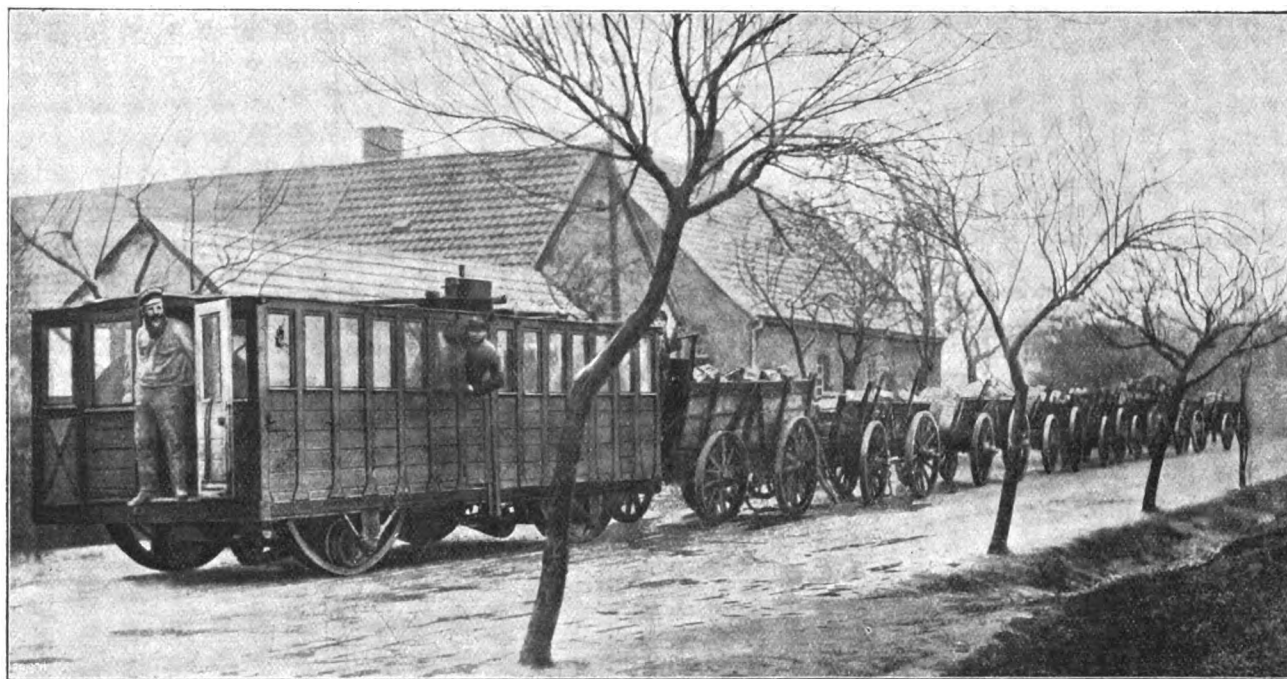
THE TREATMENT OF CLUTCHES.

THERE are still quite a large number of people who prefer to have a belt connection between the engine and the gear-box on their cars because "clutches are such an awful nuisance, you know." It is certainly true that very often clutches are a great nuisance, but the trouble may usually be traced, either to the fact that the driver does not understand how to use and adjust his clutch, or that the clutch is of inferior design and construction. Generally speaking, the driver is at fault, and makes matters worse by treating his clutch with various compounds, all of which are more or less detrimental to its life and wearing, though they may remedy the trouble for a short time. Clutches may roughly be divided into two classes. 1. Leather-faced clutches. 2. Metal to metal clutches. And these two classes may be subdivided as follows:—Leather clutches (i.) The ordinary cone clutch. (ii.) The expanding type. Metal clutches: (i.) The ordinary cone type. (ii.) The expanding type. (iii.) The coil or spiral type.

Let us commence with the leather clutches and consider their troubles. In nearly every case it will be found that the trouble is either—(i.) The clutch is very fierce and engages with a violent

touches the surface can be made even and the leather will touch evenly all round.

So much for fierce clutches, and now the next and most common complaint comes, viz., the clutch slips. This may be due to want of adjustment, and consequently remedied by tightening up the clutch spring and the thing is done. Very often slipping is due to the presence of grease, oil, etc., on the leather, in which case the leather should be well washed with petrol and slightly roughened with a rasp, and adjusted up a little by the spring. A light tin screen should be placed between the clutch and the gear-box from where the oil usually splashes. Of course, if the leather is badly worn and fired, there is only one remedy, and that is a new clutch leather. The latter gets badly burned by injudicious driving, such as slipping the clutch continually on the high speed on a hill, instead of changing on to the lower speed. Beware of putting resin and other concoctions on the leather of a clutch: the cure by such agents as resin is only temporary and very detrimental to the leather, and resin, it should be noted, has the unfortunate property of becoming heated by the friction, and consequently sticking up the clutch so that it cannot be withdrawn when required! Beware also of having a car washed



A RAIL RING TRACTOR HAULING EIGHT WAGONS (*see last issue*).

[Der Motorwagen.]

shock, or (ii.) The clutch slips badly and at times refuses to drive the car at all. Now a fierce clutch is generally due to very new leather which has not been treated with castor oil to make the leather pliable, as all new clutch leathers should be; or, again, it may be due to the fact that the male cone does not engage truly with the female—that is, the leather only bites in certain places. As above stated, the first trouble may be remedied by castor oil. The clutch pedal should be depressed and the oil laid on lightly with a small brush; it will be found that the fierceness will very soon disappear, owing to the leather becoming pliable, and as soon as the fierceness has worn off it will be advisable to slighly tighten up the clutch spring. As regards the clutch which does not engage truly, this is a more difficult matter to deal with, as it means taking the clutch right down and truing up the leather; if, however, the latter is only very slightly out of truth, the cure may be effected without taking the clutch right down: the connections must be undone, the spring removed, and the male cone pulled back; then, by turning the male cone round in the female portion it can be seen where the leather touches; by gently rasping the spots where the leather

when the clutch is held out by the hand-brake, as the effect of water upon the leather is by no means good.

Passing on to metal clutches, there is not much to be said, as the only method of treating these till actual wear sets in is adjustment. It should be noted, of course, that oil will cause slip, which may be cured by washing out the clutch with petrol and fitting up a metal shield as described above. A word about the coil clutch. This type of clutch, as used on the Mercedes cars, depends for its grip upon a steel spiral binding upon a sleeve. The idea may well be illustrated by winding a clock spring up round the finger until it binds tight upon the latter. It will be seen, therefore, that oil on this type of clutch is necessary, or there may be some difficulty in releasing it.

R. A. C.

ENCOURAGED by the success of their car in the recent Reliability Trials, the White Sewing Machine Company now proposes to build a racer, in the event of the United States sending a team to compete for the Gordon Bennett Cup next year.

HERE AND THERE.

PROFESSOR HELE-SHAW will give the Juvenile Lecture at the Royal Institution this year, taking as his subject "Locomotion."

THE ROAD CARRYING COMPANY, LIMITED, have twelve 12-h.p. Daimler cars on order, the first of which has been sold to Mr. Randle Kay, of Lytham, who is shown on his new car in the photograph reproduced on page 661.



THE SHIP INN, PORLOCK.

THE 1903 Darracq light car will have a 12-h.p. motor, with a governor acting on the admission. Three speeds forward and a reverse motion, all controlled by a single lever, will be available, while a number of minor improvements are also being introduced.

THERE is a possibility that the Baker electric "torpedo," which was the cause of a fatal accident in the United States a few months ago, may shortly be seen in France, as the owners are anxious to put it through a series of speed trials on a straight level road.

THE English and Irish agency for the Delahaye cars has been placed in the hands of Mr. H. T. Cheswright, 73, Queen Victoria Street, E.C. The latest Delahaye has the engine in front under a bonnet, the connection between the motor and the change gear box being by means of a long belt. The single-cylinder car is of 8½ to 9-h.p., and the double cylinder one 13½ to 14-h.p.

IN regard to the future work of the Liverpool Self-Propelled Association, we learn it is possible that a trial of motor-vehicles for heavy traffic will be held a clear twelve months after the passing of the proposed new Act, should it become law during the 1902-1903 Session of Parliament. In regard to pleasure carriages, it has been suggested that a speed contest should be organised by the Association early next year over a course in the neighbourhood of Liverpool.

CONSIDERABLE interest is being shown in the new 6-h.p. De Dion light car with motor in front. In general arrangement it is practically the same as the present 8-h.p. car with two-speed gear, but made considerably lighter, the 8-h.p. car weighing 12 cwt., and the new 6-h.p. only 7 cwt. It is provided with a two-speed gear with expanding clutches on the well-known De Dion principle, connected direct on to the differential and driving the rear wheels by Cardan axles. The engine has a valve regulator, actuated by the foot as well as by a handle on the steering column. These cars are made in France as a standard without reverse and with wire spoke wheels, but for the English trade it is intended to fit a reversing gear, and to use artillery wheels.

OUR Dumb Friends' League is urging that the roads in Westminster should be sanded—in the interests of motor-cars as well as of horses.

OUR congratulations to Mr. E. H. Arnott on his recent marriage. Appropriately enough, he went for his honeymoon trip on a motor-car.

A MOTOR-CAR is the principal feature in a case about to come before the Irish Courts, in which two military motorists figure as plaintiff and defendant respectively.

A RESIDENT of Westerham has just driven a Belsize car over the same course up the hill as was used in the Reliability Trials. He accomplished the climb in 3 minutes 28 seconds.

THE HON. ARTHUR STANLEY, M.P., has asked the Prime Minister to appoint a Departmental Committee to prepare evidence with regard to the condition and regulation of roads, which shall afterwards form the basis of reference to a Royal Commission.

REMINISCENCES of pleasant holidays are constantly crowding upon the motorist, whose capacities for seeing the country are so much superior to those of the ordinary individual. A new guide to Weston-super-Mare, Cleveland, Minehead, and the Somersetshire coast, issued by Mr. E. J. Burrow, of Cheltenham, under the auspices of the Councils of those places, calls to memory many happy days in that country of beautiful landscape and healthy atmosphere. Weston is reputed to have the lowest death-rate of any seaside resort in the kingdom. Clevedon's green-clad cliffs were described by Tennyson in language that will never fade, and nestling under the North Hill, on the borders of Exmoor, is Minehead, which is rapidly developing into a first-class watering-place. All these places are described and pictured by Mr. Burrow in a guide that is at once reliable and interesting. Minehead is a splendid centre for the holiday-maker. The town itself came into prominence among motorists in the autumn of 1900, when a 16-h.p. Napier car achieved the distinction of being the first automobile to ascend the steep Porlock Hill in the vicinity. Porlock village is about six miles to the west of Minehead, and is a picturesque little hamlet, as may be imagined from the accompanying illustration, reproduced from Mr.



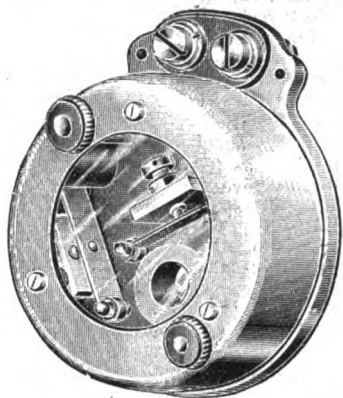
THE PARISH CHURCH, MINEHEAD.

Burrow's guide book. All around are equally delightful old-world scenes. There is Dunster with its high-perched castle and quaint old yarn market, while its church is unique within a twenty-mile radius by reason of its central tower, which has weathered the storms of five centuries. Verily the Minehead country is one that we love to recall, and one to which motorists should journey whenever they contemplate going westward.

MR. A. JOYNES, of Leamington, has been fined 5s. and costs at Warwick for driving a motor-car without a red light in the rear.

MRS. EDWARD KENNARD has written a story which Messrs. Hutchinson will issue under the title "A Motor Maniac." As this indicates, motoring has a conspicuous place in its pages.

UNITED MOTOR INDUSTRIES, LTD., are introducing on the English market an improvement on what is known as the Aster type of commutator made by Messrs. Basse and Michel. As will



be seen from the accompanying illustration, a glass window is fitted in the aluminium cover, so that the platinum points can be seen making contact, a convenience which will be readily appreciated. The commutator is all ready for placing on the dashboard if so desired. Of course it is nothing new for commutators to be placed on the dash and to have a glass front, but hitherto this has had to be done specially, and has been a rather costly job. Now that the thing

is standardised, it only means a few shillings instead of several pounds.

SPEAKING at the annual buck feast at Andover, Mr. E. B. Faber, M.P., has been advocating the numbering of motor-cars and the licensing of their drivers. After a man had been fined three or four times for reckless driving he should have a term of imprisonment.

ON the premises of the Bradford Motor-Car Company at Bradford, Mr. Albert House, the manager of that enterprising concern, has held the third automobile auction of the season. There was a large attendance, dealers and buyers being present from Leicester, London, Stockton, Newcastle, Manchester, and York, and the prices obtained were very good. A Minerva bicycle realised £21 10s., a 2-h.p. Humber motor bicycle, £35, an 8-h.p. Darracq car £155, a Sirene £125, and altogether forty-eight lots were offered.

RICHMOND BRIDGE has been the subject of a somewhat heated discussion in the Richmond Town Council. The old bridge was built in 1777. To reach it from the heart of the town a long gradient, in parts of one in twenty-nine, has to be faced in Hill Street, and then at a sharp angle the road dips downward at one in sixteen, to rise again nearly as steeply to the crown of the bridge, a long slope leading down on the other side. The roadway is but 16 ft. 8 in. wide, and the footpaths are narrow in proportion. A proposal that the County Councils of Surrey and Middlesex should be approached with regard to rebuilding has been postponed.

AMONG those who enjoy the pleasures of motoring will be found many a lover of Nature in her varying moods. No other travellers have such opportunities of enjoying the countryside as the men and women who, scorning railways and neglecting the pains of travellers by foot, speed along our roadways revelling in the changes of the landscape that they pass. Such will appreciate "The Country Month by Month," which has been written by Mr. J. A. Owen and Professor Boulger, F.L.S., and published by Messrs. Duckworth and Company. This is really a new edition of a popular and useful work, and has the advantage of some notes by the late Lord Lilford. The authors are observant writers, and here we have the results of their study and attention arranged in a way that facilitates reference by those who wish to know something of what they see month by month in the country. A valuable and accurate index adds to the value of the work, which must be regarded as "a boon and a blessing" to all town dwellers anxious to become acquainted with the diverse features of rural England.

MOTOR-CAR races are just now a very general feature at country fairs in the United States.

MESSRS. J. H. WINTER AND CO., electrical engineers, are about to open a new depot at Merchant Street, Bristol, for the repair and storage of motor-cars.

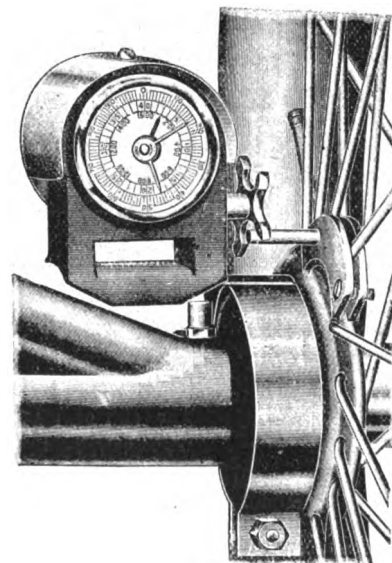
ON Tuesday Mr. Stanley Spencer made an airship ascent from Blackpool. He descended at Alnes Walton, three miles from Leyland—a distance of twenty-six miles from the start.

MESSRS. G. T. RICHES AND COMPANY, of 4, Gray's Inn Road, Holborn, London, W.C., inform us that they have been appointed sole distributing agents for "Plaxine." Although the liquid has only been on the market a short time, it has rapidly come to the front for restoring greasy clutches, brakes, or belts to their original gripping capacity.

MR. WALLACE BENTLEY'S *Machine Shop Companion* (the Bentley Publishing Company, Halifax), has now reached a second edition. It is a useful little handbook, intended to supply engineers and mechanics with simple notes, rules and tables to enable them to solve some of the problems which arise in their daily occupation in the workshop. Motor-car repairers will find much in the little work that should prove of service to them in the various jobs they are called upon to undertake.

THE White Sewing Machine Company is preparing to place on the market a new steam delivery van. A number of these vehicles are under construction, the first two taking part in the New York-Boston and return endurance contest. The vehicles have a carrying capacity of about 14 cwts. of packages. They are equipped with a flash boiler somewhat larger than the one in the phaeton, and the engine—8-h.p.—is correspondingly larger. A London depot for the sale of the White steam cars has now been established at 19, Prince's Street, Westminster.

THE illustration herewith shows the Bell odometer, which has recently been put on the English market by the Automotor Accessories Company. The apparatus is not only an odometer, but is also a mileage timer, as it is fitted with a bell which can be made to ring at every mile or every kilometre, as desired. It can be attached to the front wheel or on to the dashboard of a motor-car where it can be seen and heard at all times by the driver, who thus can, with the assistance of a motor clock or his watch, figure the time required to cover each mile. The odometer can be



fitted to any kind of wheel, attachments being made for the various standard sizes. It is made in a variety of forms; model A records up to 1,600 miles and repeats. It contains three indexes, each of a different colour; the red index registers a mile every time it makes a complete revolution and rings the gong; the yellow index registers every forty miles, each division representing one mile, while the blue index shows the total distance covered up to 1,600 miles.

OIL MOTOR-CARS OF 1902.*

By CAPTAIN C. C. LONGRIDGE.

IN offering this paper, the author does not wish to burden it with details, but rather to advance for discussion debatable points in the principles of construction embodied in the latest cars.

Types of Motors.—With very few exceptions, petrol car engines are of the vertical single-acting Otto type; variations where made consisting chiefly of horizontal Ottos, or more often horizontal motors, in which one cylinder contains two pistons, between which explosion takes place, such as the Koch, Gobron-Brillie, Pretot, Hyler-White, Lucas, and a number of others. There are, therefore, two prevailing positions and two classes of engines. As regards position, the vertical is far the more common. From the standpoint of the automobile engineer, the case stands thus:—Advocates of vertical fixing assert better accessibility and adaptation to the usual method of drive; those of the horizontal claim less vibration, lower centre of gravity, easier lubrication, and room for a longer stroke—a requirement for the use of alcohol and heavy oils. In America, there is a tendency to adopt the horizontal position, and it is not unlikely that Europe will follow suit. Between the types of engines the comparison stands thus: Simplicity and probably economy lie with the single-acting Otto; greater smoothness of running with the one-cylinder two piston type. From the persistency and extension of its use, it is clear that manufacture consider



A PICTURESQUE VIEW NEAR TOLEDO, OHIO.

[Automobile Topics.]

this latter advantage to more than compensate for increased complication, which, after all, in these small motors, is not so great. The author himself holds that neither type is going to stay. The ultimate evolution will be the impulse-every-revolution engine. The aim of manufacturers is obviously towards elimination of change-speed gear by increasing the flexibility or elasticity of the motor. The car explosion motor has to be more and more assimilated to the character of the steam-engine. To this assimilation there is only one successful road. To obtain steady running from the highest to the lowest speed, impulse must be multiplied; and as the number of cylinders is limited—the fewer the better—recourse must be had to the impulse-every-revolution motor. In this belief, the author has recently patented an engine in which impulse in every cylinder is obtained at every revolution. The cycle is exceedingly simple, and as high compression is used efficiency and economy should result. The motor consists of two, or multiple of two, side-by-side cylinders, closed at both ends. The rear end forms the compression chamber, in which explosion takes place; the front end is an air-receiver. The front end or air-chamber of each cylinder is connected by a pipe or passage to the rear end or compression chamber of the other cylinder. This tube or passage is provided at both

ends with valves, and serves to transfer air from the air-chamber of the one cylinder to the compression chamber of the other. The compression chambers are provided with ample exhaust valves, and the air chambers are fitted with automatic inlet valves. All other valves are mechanically operated. The oil, atomised by a small compressed air-jet, is fed, under control of the governor, into the combustion chamber, at the end of the compression stroke. The action is as follows:—Assume the piston in No. 1 cylinder to be at the end of its compression stroke, and that in No. 2 cylinder at the end of its working stroke. The front of No. 1 cylinder is full of air; the rear of No. 2 cylinder is full of burnt gases. The compressed charge in No. 1 is now carburetted and fired, the piston advances, compressing the air in front; the piston in No. 2 retreats, expelling the waste gases. At about half-stroke, the exhaust valve in No. 2 is closed, and simultaneously the inlet valves (one at either end of the inlet tube) are opened, and the full charge of air, already under compression, is pumped from the front of No. 1 cylinder into the compression chamber of No. 2. On the completion of the No. 2 cylinder compression stroke, atomised oil is injected (the Diesel engine illustrates the method) and is fired; at starting, by the electric spark, and afterwards, perhaps, by hot surface contact ignition, oil injection can be effected at once or gradually, as desired.

The advantages claimed are:—1. Impulse every revolution in each cylinder without extraneous pumps. 2. Very perfect cushioning and easy running. 3. Very high compression, with diluted charge, and, therefore, economy. 4. Absolute immunity from premature ignition, a factor that militates against high compression in other engines. 5. High charge temperature of the charge, without corresponding rarefaction. Therefore very favourable conditions for easy ignition, rapid inflammation, and high power. 6. A method of oil injection that admits of the engine being run as an explosion at constant volume engine, or a combustion at constant pressure engine. 7. Equal adaptability to petrol or heavier oils.

The feature that will, no doubt, be pronounced peculiar, if not objectionable, is the large proportion of exhaust gases left in the cylinder. The author, however, believes that when, as in the present case, the weight of incoming charge can be made independent of rarefaction by imparted heat, and the risk of premature ignition is avoided, the presence of exhaust gases, even to a large amount, is not detrimental, and that, in view of the higher compression used, the engine will be more economical than the petrol motors now on the market. Nearly two years ago the author strongly recommended a motor company to adopt governing on the exhaust (i.e., reducing the volume of fresh charge by retaining a portion of the exhaust), in preference to volume throttling. But the management could not be brought to recognise the economy to be obtained, and adopted volume throttling. It is some satisfaction to the author to find—first, that motors governed on the exhaust have since established their claim to greater economy; and, secondly, that the 1894-5 conducted experiments of Mr. Frederick Grover bear out the views held by the author. The advantage of high compression, claimed for this engine, opens up another and what might be termed a negative feature of present car-engines. Reduction in fuel consumption is the great advantage of increased compression, or, to state it otherwise, in any given mixture, the explosion pressure produced by ignition is proportional to the charge compression. In practice there are, of course, limits to the degree to which the charge can be usefully compressed. These limits are fixed mainly by four conditions: First, the difficulty of keeping piston and valves tight; secondly, the necessity of seeing that the negative work and the increased friction due to high compression do not exceed the greater efficiency obtained (the ratio of increase in efficiency decreasing as the pressure is increased); thirdly, the desirability of avoiding the excessive shock of a rich charge fired under high compression; fourthly, the risk of premature ignition in a highly compressed charge. It may be useful to consider how far these facts affect present practice as regards compression. A very considerable advance on prevailing compressions will have to be made before the first two causes of limitation come into play. The influence of the third factor, namely, the automobile requirement of an easy-running engine, is already at work. But the complete and satisfactory fulfilment of this requirement is not incompatible with the use of higher compressions than are now in use. All that is required is to reduce the richness of the charge by using less petrol, until the violence of the explosion is sufficiently reduced, the result being an easy running motor, working under the conditions of maximum economy, namely, high compression and less loss of heat owing to the lower combustion temperature. Poor charges may, it is true, lead to increase in cylinder dimensions, but to obviate increased weight we may yet have recourse to steel cylinders and light water-jackets. The third consideration, namely, danger of premature ignition, is also a matter of present moment. Two ways of surmounting this obstacle to high compression may be suggested. The first is, as in the Diesel engine, to admit the petrol at the end of the compression stroke. The second method is a system of internal cooling by water injection. In the matter of piston speed, this year's engines show a general return to the earlier speeds given by 700 to 800 revolutions per minute normal running. This gives less wear and tear on the motor, gear, and firing accessories, and less difficulty in filling the cylinder; while reserve power by acceleration is held in hand. In respect of slow, yet steady action, the impulse-every-revolution motor would possess a decided superiority.

Material and Methods of Manufacture.—Here, again, there is plenty of room for improvement. With very rare exceptions the present car motors are cast-iron, solid-head, water-jacketed cylinders, cast complete with valve-box in one piece. It is scarcely possible to imagine a design better adapted to give trouble in the foundry or the workshop; or one less

* Abstract of Paper read before the Institution of Mechanical Engineers, on Friday, Oct. 17th, 1902.

in accordance with metallurgical requirements. A casting of this description, intricate in shape, full of angles, curves, bosses, ribs, varying thicknesses, etc., enormously increases the difficulties of moulding and producing sound castings. Apart from this commercial objection, a casting of this design is ill suited to its purpose. First, because the variations of thickness and the ribs between the walls produce irregular expansion and contraction. Secondly, because it almost precludes the possibility of using the best iron for the purpose, the founder naturally working with a very fluid running mixture. While the majority of makers have been caught by the "drawing-office" solid-head, water-jacketed design, a few more practical makers have followed the plan of casting the cylinders separate, and adding a light aluminium, or rolled metal, water-jacket. This method admits of a simpler casting, for which the best metal can be used.

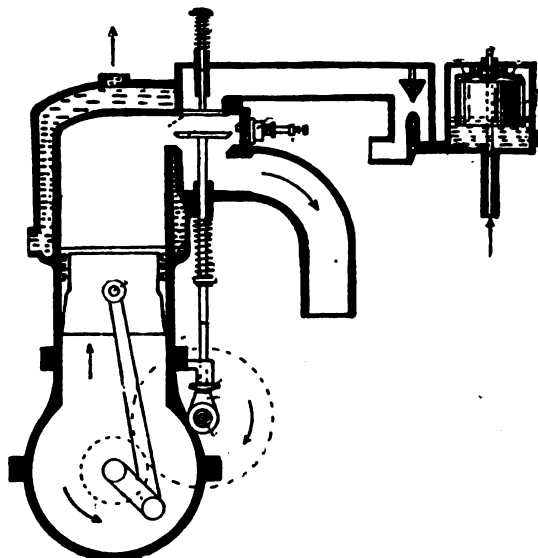


FIG. 1.—Showing the exhaust valve, so placed that the gases are diverted into a new direction while passing the valve; also that the discharge is greater on one than on the other side.

On the question of what is the best metal, there is a difference of opinion. Professor Hiorns inclines to white hematite, cast in metal moulds. Theoretically this is no doubt correct, but commercially the limited output and the constant changes of design might not justify the cost of moulds and the expense of grinding the cylinders. For these reasons, both Professor Hiorns and Professor Turner recommend, as an alternative, the use of the closest and hardest iron that can be conveniently machined. The class of iron suggested by Professor Turner as typical is:—Combined carbon 0.55, silicon 1.80, sulphur 0.10 or less, manganese 0.50, phosphorus 0.75. The casting of a cylinder, where there is any intricacy of design, should be a matter for special precautions. In view of the troubles arising from porous cylinders and for other reasons, the author favours the substitution of steel tubes for cast-iron cylinders. Lightness, strength, freedom from flaws, easy cooling, and probably, on the whole, cheapness, are much in favour of this material for small motor cylinders. Steel tubes screwed into a cast-steel or cast-iron head should make a good job. Some years ago, the author saw a small German motor with steel-tube cylinders, in which no running troubles were experienced. Another instance, probably known to all, is the Holden cycle motor. The class of steel used by Colonel Holden contains 0.35 per cent. carbon, and no trouble has occurred. In the new "Centaur" motor, in the 40-h.p. racer of Messrs. Charron, Girardot et Voigt, and in the Cannstatt Daimler racing cars, steel is the material used; and, under the severe conditions of racing, no running difficulties have been recorded. There is really no reason why steel should not successfully and advantageously replace cast iron. In a recent communication, Professor Turner wrote: "My impression is that solid drawn steel tubes would be best. They would be stronger, weight for weight, and more trustworthy."

The author's opinion is that the method of casting cylinder and jacket together is wrong; and that if the cylinder is of cast iron, it should be cast alone, and a light jacket added. In using steel cylinders, cast-iron piston rings might be retained. For these, a strong, fine-grained, elastic iron would be the best.

Engine Details.—The Valves.—The present usual practice is an automatic spring induction valve, opened by the suction of cylinder; and a mechanically lifted, but spring-closed, exhaust valve, commonly cam-driven by a half-speed shaft. The combination is exceedingly crude, and a few manufacturers are now waking up to the advantages of mechanical operation for both valves. The leading German firm, the Cannstatt Daimler Company, have adopted this practice in their new Mercedes Simplex, and there can be little doubt that other makers will be forced into line.

There are several reasons why with high-speed motors mechanical operation of the valves should be adopted. Owing partly to clearance and partly to back pressure from the silencer, the cylinder at the end of the

exhaust stroke is filled with burnt gases above atmospheric pressure. When the piston, therefore, begins the induction stroke these have to expand before air can be drawn in by suction, hence one of the disadvantages of the automatic inlet valve is that it is sluggish in opening. This is just the reverse of what should be—for in high-speed motors the valve should not only open promptly at the very beginning of the stroke, but might preferably be given a "lead," thereby promoting scavenging of the combustion chamber. Again, the automatic valve closes at the end of the suction stroke, whereas it might be better to keep the inlet valve open a trifle after the piston had begun the compression stroke, that is, before the slight vacuum in the cylinder has been converted by the piston into compression above atmosphere. By so doing, the momentum of the air in the inlet pipe tends to add to the volume of the charge. It may be noticed that where governing by volume throttling is used, if the spring of the exhaust valve weakens, the increased suction of the piston on the intake stroke may cause exhaust gases to be drawn back through the valve into the cylinder, with the risk of a miss or a slow firing through the presence of exhaust gas round the sparking plug, or of premature ignition, if the gas is hot. The advantages of mechanical valves, therefore, are sure and proper action.

As regards the material for valves, their seating and fitting, there is again difference of opinion. There can be no question that the spindle and head are best made of different material. For the head, the author favours nickel steel; cast iron wears well, but for small valves it seems hardly strong enough. Where trouble has arisen, and there has been plenty of it, with burning, irregular wear, and breakage of valves, it has usually been ascribed to weakness in the neck, unsuitable material, faulty methods of lift, throttling of the exhaust by insufficient area of the valve, exhaust pipe, or silencer. Any deficiency here may lead to broken valves. With a choked exhaust, the pressure left in the cylinder combined with the spring may produce hammering of the valve on its seat. In time this leads to brittleness and fracture.

There is, however, another cause of a very different nature which the author suggests as a probable source of much of the irregular wear and ultimate fracture of valves. Those conversant with the construction of horizontal plunger pumps will recognise a defect frequently found in otherwise well-designed machines. This is the placing of the valve seat on a level with the waterway. The effect of such an arrangement is that not only is the discharge greater on one side than on the other, but the water, diverted into a new direction, while in the act of passing the valve, exerts a tilting force on it, pressing the valve towards the waterway. The results are irregular wear, sticking, and hammering of the valve on its seat. Now, the usual disposition in the vertical motor is similar—a horizontal port with a vertical exhaust valve, the latter seated on a level with the former. An analogous state of affairs is thus established, a flow of gas, in lieu of water, being diverted into a new direction while passing the valve. There is, therefore, the same unequal discharge, with the similar tilting action and tendency to force the valve from its true position. See Fig. 1. But there is this difference: in the pump the stroke is comparatively slow, the flow tardy, the pressure low, the valve, spindle, seat, and guides cold, and in the best condition to resist wear; whereas in the motor, the valve heat is extremely rapid, the gas-flow swift, the pressure high, and all surfaces so highly heated as to be in the worst condition to withstand attrition and deformation. Thus the evils of bad design in the pump are much aggravated in the case of the motor, the tilting action being greater and the irregular burning and side wear more rapid. The remedy in both cases is the same. The valve seats should be kept respectively below the waterway or the gas passage, so as to permit the flow of water in the one case to rise upward until clear of the valve before taking a new direction, or the rush of gas in the other case to acquire a straight downward course before reaching the valve, Fig. 2. All tilting action is thus eliminated. Naturally the usual precaution of tully equal area in the annular space round the valve to that of the valve outlet must be preserved.



FIG. 2.—Method of countersinking valves to give direct flow.

Far the better practice would be to avoid port passages, and place the inlet and the outlet valves on the head of the combustion chamber. With the heavier oils this position has the additional advantage of direct charge admission without a possible condensation by contact with the port and cylinder walls.

(To be continued.)

DE DION-BOUTON, LIMITED, have brought out a poster illustrating the End-to-End journey by Mr. J. W. Stocks on an 8-h.p. De Dion car. Copies will be sent to motor-car agents applying for the same.

IMPORTS OF MOTOR-CARS, MOTOR-CYCLES, AND PARTS THEREOF.

BELOW are the official returns showing the imports of motor-cars, motor-cycles, and the parts thereof into Great Britain for the month of June. Already we have given the general statistics for that and later months; but the following analysis of the countries of origin will be of particular interest to the trade:—

BELGIUM.

				£
Antwerp	Bristol.....	Motor car	1	86
"	Goole	"	3	600
"	Grimaby	"	1	362
"	Harwich	" cycles	2	90
"	"	" cycle parts	—	1,527
"	London	" cars	5	1,476
"	"	" parts	—	10
Brussels	"	" cars	2	700
"	"	" parts	—	180
Ghent	"	" parts	—	80
Ostend	"	" cars	7	982
"	"	" cycles	8	306
Total Value of Imports from Belgium, June, 1902				£6,399
" " " Jan. to June, 1902 ...				£23,942

FRANCE.

				£
Bordeaux	London	Motor cars	1	150
"	"	" car parts	—	5
Boulogne	Folkestone	" cars	117	35,154
"	"	" car parts	—	1,955
"	"	" cycles	5	204
"	Goole	" cars	1	150
"	London	" parts	27	6,950
"	"	" cycles	—	20
"	"	" cycles	2	65
Calais	Dover	"	1	26
"	Leith	" cars	2	250
"	"	" car parts	—	600
"	London	" cars	6	7,916
"	"	" car parts	—	3
Dieppe	Newhaven	" cars	49	19,235
"	"	" car parts	—	2,133
"	"	" cycle parts	—	28
"	Grimshy	"	—	125
"	"	" cars	3	1,200
Dunkirk	Hull	"	2	355
"	Leith	"	12	1,395
Havre	Southampton	"	2	500
"	Liverpool	"	5	1,170
Paris	London	"	2	750
Rouen	Manchester	"	1	250
Treport	London	"	3	1,076
Total value of Imports from France, June, 1902				£81,674
" " " Jan. to June, 1902 ...				£372,549

GERMANY.

				£
Bremen	London	Motor-cars	3	949
Hamburg	"	" parts	—	27
Total Value of Imports from Germany, June, 1902				£1,076
" " " Jan. to June, 1902 ...				£11,267

HOLLAND.

				£
Rotterdam	London	Motor-car	12	3,100
"	Leith	"	1	50
"	Harwich	" parts	—	20
Total Value of Imports from Holland, June, 1902				£3,170
" " " Jan. to June, 1902 ...				£14,839

UNITED STATES.

				£
Boston	Liverpool	Motor-cars	4	1,258
New York	"	"	2	340
"	London	"	47	8,111
"	Southampton	"	17	2,370
Total Value of Imports from United States for June, 1902				£12,079
" " " Jan. to June, 1902 ...				£54,040

ABOUT eight hundred motor-cars have called at Warne's Hotel, Worthing, during the past season.

CORRESPONDENCE.

THE FURRING OF BOILERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice in recent issues of your *Journal* that several of your correspondents who own steam-cars find the boiler and pipes become considerably furred through the mineral matter present in the hard water they employ for the boiler, etc. I had exactly the same trouble with my steam-car until I regularly employed a solution in my feed-water called "Vulite," and, by blowing the boiler out regularly, it keeps it splendidly clean, also the pipes.—Yours truly,

FRANK THATCHER.

WARMING MOTOR CAR SHED.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Now that the winter is coming on, I would be glad to know what means of heating my car shed I may safely employ. The shed is only a temporary structure—brick, with wood roof and tile floor; and as it is only temporary I do not wish to put in a hot water installation. Would it be permissible to use a coke stove of the "Tortoise" type in a corner of the shed, or would the stove have to be outside, and the flue simply carried through? Petrol is stored outside, and only the small supply in the tank and carburettor is in the shed.

Does a private owner of a car have to apply for and obtain a "petroleum licence"?—Faithfully yours,

WM. D.

IGNITION TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In the event of Mr. Bonfield's letter in last week's *Journal* giving rise to a misapprehension as regards the voltage required for a 4½-h.p. De Dion voiturette, I may explain that my use of 8 volts was only temporary, and that the constant use of such a high voltage might injure the coil. I use three (Peto and Radford's) cells of 2 volts each, making 6 volts, in accordance with Mr. Guest's recommendation.—Yours truly,

DOCTOR OF MEDICINE.

RE POLICE PERSECUTION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read Mr. John D. Hill's letter, re the above, published in the last issue of your paper, and I most sincerely hope that he will be able to help to put down in time the present unfair persecution by the police, and with such a co-operation as he wishes for, no doubt something could be done. Might I be permitted to ask, what has become of the "Brighton Road Motor Patrol"?—Yours truly,

H. M. PENNEMAN.

CHAINS ON MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should much like to hear from users of chain-driven motor-cars their experience on the following points:—

- (1) How long do chains last, say, on cars weighing about 14 or 15 cwt.?
- (2) Were the chains oiled or covered with grease? Or cleaned and boiled in tallow?
- (3) What degree of tightness were the chains run at?
- (4) How many miles did the sprockets run, and the number of teeth?
- (5) How often were the chains tightened?

I have heard of chains doing 10,000 miles, but have not been able to obtain that particular brand. My own experience is that after 3,000 miles they become unsatisfactory. They may run longer, but they then have become usually tight in one part of the revolution, and slack in another.

I occasionally boil the chains in tallow, but I never run them without giving them a good dose of grease or oil.—Yours truly,

D. E. STEPHENS.

KICKING ENGINE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Can any of your numerous readers inform me why my engine gives a sort of kick when running slowly? It is a 5½ to 6-h.p. Has it anything to do with the exhaust not freeing itself sufficiently soon enough? Any hint to overcome the difficulty will be much appreciated by—Yours truly,

PUZZLED.

BELGIAN-MADE DURYEAS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Our attention has been called to an advertisement offering a number of 6-h.p. Duryea dog-carts for sale at reduced prices, and we have been asked many questions concerning them, as their description does not correspond with that given in our catalogues. Permit us, therefore, to explain that the cars in question are made under the Duryea patents of 1898, which were chiefly taken out by Mr. Frank Duryea (a brother of our Mr. Charles E. Duryea), and by a company which was formed in Belgium for the purpose. Our power carriages, however, are made under Mr. Charles E. Duryea's later patents of 1900. We desire to point out that they

are not built by us, and do not embody our three cylinder 10-h.p. balanced motor, our one-hand control, and the many other features of Duryea construction to-day.—Yours truly,

THE DURYEA COMPANY.

THE CARRIAGE OF PETROL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Re the newly-enforced railway regulation against the carriage of petrol and kindred inflammable spirits except upon owner's risk, as far as I can find out by enquiry the manufacturers and factors of these goods decline to send further consignments per rail under the regulation mentioned. Yesterday I had an interview with one of the leading oil merchants of Birmingham, and his opinion appeared briefly to be this. That the whole matter might be calmly settled by the vendor or wholesale purchaser giving in to the railway companies' demands, and in self-defence heavily insuring all consignments against damage or compensation risks. This would, of course, force the retailer, at no advantage to himself, to charge a penny or twopence more per gallon to the motorist.

Now, when you consider that the provincial motorist is already paying 1s. 4d. to 1s. 7d. per gallon for the same spirit that is sold in London at 1s. (solely by reason of extortionate railway rates and restrictions), is it likely that he will quietly submit to further imposition in this form? Motor-ing is expensive enough already for the middle-class business man (who, after all, will form the largest class of motor buyers and users) by reason of railway extortion, revenue and police restriction and every other kind of hindrance that is allowed by a Government which seems bent upon throttling instead of fostering an industry that is providing work for thousands of its people. What it will become if this sort of thing is allowed to go on unchecked one is almost afraid to think. To myself, and to many others, this appears only the initial step of a determined attempt by the railway companies to crush the motor trade.—Yours faithfully,

FREDERICK S. JACKSON.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
*Hailsham ...	E. Watkins, London	23 m. p. h.	10s.
Bedale	W. P. Brigstock, Isle of Wight	21 m. p. h.	£5, etc.
"	J. H. Dickenson, Isle of Wight	16 m. p. h.	5s., etc.
Caerleon	W. P. Thomas, Cardiff	27 m. p. h.	£5.
Chertsey	W. Lanchester, Bir'ngam	—	Adjourned.
"	J. B. Purchase, London	—	10s., etc.
"	J. P. Realter, London	—	"
"	A. Raas, Weybridge	—	"
"	B. Humphrey, Southgate	—	"
"	T. Ince, Twickenham	—	"
"	J. Cheston, Bracknell	24 m. p. h.	20s., etc.
"	H. Coombs, Egham	36 m. p. h.	40s., etc.
"	G. Burton, London	23 m. p. h.	£1, etc.
Castle Hedingham	F. M. Viret, Halstead	—	£1, etc.
Crawley	B. Humphrey, London	36 m. p. h.	40s., etc.
"	F. Stregorwold, London	32 m. p. h.	—
Ripon	J. P. Thompson	—	£10, etc.
Hantingdon	M. D. Rucker, Crawley	—	Dismissed.
St. Ives	L. Scott, Woodbridge	—	£8, etc.
"	B. Wilson, London, W.	27 m. p. h.	£2, etc.
Winchester...	A. H. Adams, London	31 m. p. h.	£5, etc.
"	G. All-worth, London	30 m. p. h.	£1, etc.
Wokingham	Capt. B. Liebert, Slough	—	£1, etc.
"	J. P. Marling, J.P., Stroud	—	"
"	Captain Brereton, Windsor	—	"
"	J. Knight, Windsor	—	"
"	W. M. Appleton, Weston-super-Mare	—	£1.
Rotherham ...	G. Ledoux, Sheffield	19 m. p. h.	£2, etc.
"	F. Parrish, Surrey	—	£5, etc.

Where no alleged speed is given it is understood to be above the legal limit.
* Motor-cycle case.

At the Rotherham West Riding Police Court, on Monday, Fred Parish, engineer, of Surrey, was summoned for furiously driving a motor-car. He did not appear, and the clerk handed a letter from him to the Bench. Superintendent Macdonald stated that the offence was committed on September 9th. At 1.30 o'clock in the afternoon Police-constable Marow was on duty at Tinsley, and saw defendant travelling at the rate of thirty to thirty-five miles an hour from Sheffield to Rotherham. The constable was unable to get defendant to stop, and therefore telephoned to the headquarters at Rotherham a description of him and his motor-car. A constable was sent out, and he saw defendant in High Street. Evidence having been called Superintendent Macdonald added that defendant had been

fined three times previously in the present year for similar breaches of the law, the last occasion being at Oxford, where the penalty was £4 and 12s. 6d. costs. The Bench imposed a fine of £5 and costs.

In the case against Captain Bernhard Liebert, the Bench, after retiring for a short while, decided that there was no traffic on the road, and no danger, and the driver had stopped when called upon, but the car was travelling at more than the statutory limit, and a small fine of £1 would be inflicted with costs.

F. M. VIREL, of Halstead, motorist, has been convicted on the ground that sufficient care was not exercised in driving his motor-car.

THE invasion of the Highlands by motorists has provided the police with a new sport, and catching automobilists has proved a pleasant alternation to the ordinary weary "beats." Lord Cairns has been fined in Perth; Mr. Cornwallis West has paid the penalty at Banff; Mr. Phipps, who rents Beaufort Castle from Lord Lovat, has also suffered; and Mr. Breeze, an American, who rents a place in Inverness-shire, has had the option of paying a fine or imprisonment.

In the cases at Newmarket, reported last week, J. Trevesa was fined 2s. 6d. and 7s. 6d. costs, and G. Violon 10s., including costs. The chairman of the Bench stated at the time that the magistrates were not prejudiced against cars, and that many of them drive them, which is a fact. Mr. G. Harding Newman, who has driven a car in the district for nearly a year, and has friends who do so too, writes:—"We have always found the police most considerate, but then we always try to drive with consideration to other users of the road, and in a place like Newmarket, with numerous valuable horses about, care is very necessary. I am not in any way interested in the case reported, but I think it only fair to the magistrates and police here, who are not given to the dirty tricks and traps of their brethren elsewhere, that this should be stated. It seems to me that the paid mechanic is our greatest enemy, and until something can be done to curb his abominable recklessness we shall always have to contend with prejudices created very greatly thereby. Nobody enjoys motoring more than myself, or is more opposed to numbering proposals and the present ridiculous speed limit, but I am sure it is the reckless and inconsiderate driver who is our enemy."

MR. LINDSAY SCOTT, Foxborough Hall, Melton, Woodbridge, Suffolk, was summoned at St. Ives for furiously driving a motor-car along the highway in the parish of Fenstanton, to the danger of the public on September 15th. George Briers said he was in Fenstanton in charge of a two-wheel cart containing empty barrels. When by Mr. Gifford's house a motor-bicycle passed, and directly after a car came along. He was on the right side of the road, and as near the hedge as he could get. The car was going like an express train—he should say at the rate of 35 miles an hour. The car caught his wheel, broke the axle, and himself and a man named Cook were thrown out of the cart, with the empty barrels. He first looked after the horse, and then asked the driver of the car, which had come to a standstill, for his name and address. This he refused. For the defence Mr. Scott said it was simply impossible for a car to go at such an extraordinary pace up a hill. It was a pure accident, and caused by the horse jibbing, and backing partly across the road. After retirement, the Chairman of the Bench said they had decided that the charge was proved, and fined the defendant £8 and 11s. 6d. costs.

MEASURED DISTANCES.

THERE is a measured mile on the main road through Steyning.

TIMING on a measured furlong by means of a battery is the latest sport of the police at Hailsham.

THERE is a measured half-mile on the Leeming road, in the North Riding of Yorkshire.

FIVE motorists have been summoned before the Wokingham County Magistrates as the result of a trap laid by Sergeant Jannaway and Police-constable East, who had measured out half a mile of the London Road at Ruscombe, with an officer at each end. The constable gave the signal with a handkerchief when the car entered the measured area, and the sergeant noted the time by the aid of a stop-watch, with the result that some fast times were placed on record, and subsequently the reward was reaped—£1 and costs.

On the Caerleon Road, in the parish of Llanhennoc, the police have a measured mile, and the policeman stationed there with a stop-watch is a watchmaker by trade—a fact proudly urged by the police superintendent in the case against Mr. W. Parker Thomas, recorded in this week's list.

POLICE traps are still numerous in and around Crawley, Hailsham and district.

BETWEEN Rotherham and Sheffield the police have a measured distance which has enabled them to trap a local motorist.

THE police are watchful at Southwick, on the Brighton and Shoreham road; also at Washington, near Steyning. A Shoreham reader of the *Journal* is going that way on Sunday, and, should he find any traps, will place confetti on the road.

IGNORING THE POLICE.

A DRIVER named James Brown appeared before Bailie Murray in Edinburgh Police-court on a charge of having, while driving a motor-car, failed to obey the directions of a constable. Bailie Murray fined defendant 21s.

DAMAGES AGAINST A MOTORIST.

At Altrincham County Court, Mr. H. Bailey sought to recover the sum of £50 damages from Mr. F. Bradshaw, of Manchester, for alleged negligent driving of the defendant's motor-car, and Miss Lucy Bailey, daughter of the first-named plaintiff, claimed £30 under similar circumstances. The defendant Bradshaw counterclaimed for £25 damages to his motor-car, and paid into court £16 in satisfaction of the claim of the Baileys. The action arose out of a collision on the Knutsford road between a trap driven by Mr. Bailey and the motor-car driven by Mr. F. Bradshaw. His Honour, Judge Rowlands, K.C., awarded Mr. Bailey £30 and Miss Bailey £25, with costs in one case, and in their favour on the counter claim.

AN APPEAL ALLOWED.

At the Carnarvonshire Quarter Sessions, Harold Maurice Bater, motor-car driver, in the employ of the Marquis of Anglesey, appealed against a conviction by the Conway magistrates for furiously driving a motor-car on the road between Deganwy and Llandudno on July 7th last. The circumstances were that the motor-car was driven furiously round a corner, and almost came upon four young women, who had to jump into the hedge to avoid injuries. It was calculated that the car was proceeding at the rate of twenty to thirty miles an hour. Evidence in support of these facts was tendered by seven persons who were on the road at the time. Mr. Dew, for the appellant, contended that the evidence on the other side was grossly exaggerated, and was due to the high state of nervousness which seemed to characterise the ladies. The probabilities were also against furious driving, inasmuch as it was only the same morning that the defendant was fined at the Conway Police Court for furious driving, and he then gave an undertaking that the offence would never be repeated. Moreover, Mr. Rowland, the solicitor who defended Bater at Conway, was also riding on the car, and he would swear to the reasonableness of the pace. The defendant, called, denied that he was driving furiously, the reason why he came to the hedge being that he did not know the road until Mr. Rowland told him how to turn. Other witnesses were called in support of the appeal, including the town clerk of Bangor, who was on the car at the time, and who denied that the pace was in any way unreasonable.

The Court, after deliberating in private, announced that on account of the conflict of evidence they had decided to allow the appeal without costs.

ASSAULTING A MOTORIST.

A BUTCHER named George Hosking, of Ripley, has appealed at the Surrey Quarter Sessions, held at Kingston, against a sentence of one month's imprisonment passed on him by the Guildford justices for an assault on Mr. Campbell Muir. The evidence showed that on June 15th Mr. Muir, accompanied by Lady Cecil Montagu, was driving in a motor-car on the Ripley Road, near Guildford. As the car approached, Hosking stepped into the middle of the road, and as Mr. Muir passed Hosking struck him with a stick on the mouth, cutting his cheek and lip and knocking out a tooth. He admitted that it was an unjustifiable assault. The chairman said that had the case come before the justices present, they would have acted in the same way as those at Guildford. But having regard to Hosking's admission and his good character they thought that justice would be done if they affirmed the decision, and mitigated the penalty to a fine of £5 with costs.

THE STORAGE OF PETROL.

At Marlborough Street (London) Police Court, on Monday, Mr. Robert Willis, trading as the Ormonde Motor Cycle Company, at 79, Wells Street, Oxford Street, W., was summoned, before Mr. Denman, for keeping petroleum to which the Petroleum Acts of 1871 and 1879 applied, without a licence from the London County Council.

In opening the case, Mr. Helman-Pidsley, who appeared for the London County Council, said the defendant had a licence for the sale of petroleum spirit up to 100 gallons under certain conditions. It appeared that on September 5th a fire broke out on the defendant's premises, and a boy was burnt to death. At the inquest the jury added to their verdict a rider respecting the caution necessary in storing the spirit. On September 8th a County Council inspector called at the premises and found two cans containing petroleum spirit in the foreman's office instead of in the store-room specially built for the purpose. The evidence would show that the inspector was told it was kept there for convenience to supply small customers. The case for the prosecution was that having thus broken the conditions of the licence the defendant, in consequence, was practically unlicensed now.

Mr. Robinson, for the defence, said that at the inquest that had been referred to it was admitted that the boy was smoking a cigarette at the time and that he met his death through his own carelessness. The defence was that the petrol kept in the office was for use in testing motors at the premises, and a provision in the regulations made by the Home Secretary in 1900 allowed that to be done. His client had complied with all the regulations under which he kept the spirit, and moreover could rely upon the decision given in the case of "Godfrey v. Napier" before the Lord Chief Justice and Justices Darling and Channell. The County Council inspector was mistaken in stating that Mr. Willis said the spirit was kept in the office to supply customers. It was kept there for testing motors only.

Mr. Denman said he must find against the County Council in this case. A summons might have succeeded if brought for a breach of the regulations

of the Secretary of State, but that was not done, and, by the diligence of the advocate for the defence, the decision in the case of "Godfrey v. Napier," which was very much to the point, was brought to his notice. The summons would be dismissed.

LEAVING CARS UNATTENDED.

MR. H. PHIPPS has been fined £1 ls., with £3 expenses, for leaving a motor-car unattended on the public roadway at Fasnakyle, N.B.

REGINALD COCKLE, motor-car driver, has appealed at the Newington Sessions against a conviction for quitting a motor-car without having taken due precautions against it starting in his absence. The motor-car, as reported in the *Journal* at the time, was left in the main road at Wandsworth to await the arrival of its owner. Shortly afterwards it started on its career, knocking down a man, mounting the pavement, and finally coming to a dead stop in the window of the London and South-Western Bank. Mr. Grimwood Mears, who appeared for the appellant, said that before leaving the car the driver put on both brakes, threw the machinery out of gear, and put down the clutch. The fact that it required three distinct operations by a skilled person to restart the car was proof that it was re-started by some such person out of pure mischief. Down in the courtyard, he went on, was an exactly similar car, and he invited the Bench to endeavour to start it, venturing to declare that not one member of the court who was not an expert could set it in motion in any number of hours. The Hon. C. S. Rolls gave evidence that what the driver did before leaving the car rendered it quite safe and impossible for anybody but an expert to set it in motion. Mr. McConnell, K.C., did not accept the challenge, but, remarking that if a person left a car entirely unguarded that would not be taking due precautions, affirmed the conviction, with costs.

THE "Passe-Partout" and "Argyll" round the world cars left St. Petersburg for Moscow on the 15th inst.

IT is reported that M. Henry Fournier is preparing for an attempt to lower the mile automobile record established by Mr. W. K. Vanderbilt, jun., on August 5th. He will use a Mors car identical with that of Mr. Vanderbilt.

TO CORRESPONDENTS.

All communications intended for insertion in this *Journal* or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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COMMENTS.



IN the House of Commons, on Monday, Mr. John Ellis asked the President of the Local Government Board whether he would next session introduce and press forward a Bill to place the law respecting motor-cars on a more satisfactory footing, by removing the present hard and fast limit as to speed, by requiring registration, by making the use of public roads by these vehicles subject to respect for the rights, convenience, and safety of all other users thereof, and by enacting a heavy maximum penalty for breaches of these conditions. In reply Mr. Long said he indicated last May the general lines on which amendment of the law relating to motor-cars should, as it seemed to him, proceed, but he pointed out there were considerable difficulties in the way of a settlement of the question. He could not at the present time give any pledge as to legislative proposals for next session, but it would be a matter of satisfaction to him if he found it practicable to deal with the matter then.

Postponement of the Legislative Dis- cussion.

IN consequence of the statement recently made in the House of Commons by the President of the Local Government Board, to the effect that it was improbable that amended legislation affecting motor-vehicles could be introduced during the present Session, and also in view of the fact that the alterations and decorations of the new Club premises in Piccadilly have taken longer than was anticipated, the discussion on the Hon. John Scott Montagu's Bill, which was announced to take place on Thursday, the 6th November, has been postponed. Further notice will be given concerning the date fixed for this discussion.

The Anniversary Run.

At a meeting of the Executive Committee of the Automobile Club, held on Thursday last week, it was decided that the sixth anniversary run to commemorate the passing of the Light Locomotives on Highways Act of 1896 should take place on Saturday, the 8th inst., to Oxford, *via* Reading. This run is open to all automobilists, whether they be members of the Club and the Motor Union or not. Non-stop diplomas will be given in respect of vehicles which complete the journey from London to Reading, and from Reading to Oxford, without a stop (except stops for traffic or restive horses), and at a moderate speed. Diplomas will not be granted if the average speed, exclusive of luncheon stop, is under eight miles per hour. No entries can be received after midday on Wednesday, the 5th inst. The entrance fee for (a) non-stop certificate, including cards of identification, time cards, and storage for vehicle at Oxford, is 10s. per vehicle; (b) entrance fee, including cards of identification and storage at Oxford (but not non-stop certificate), 5s. per vehicle; (c) entrance fee, including cards of identification (but not non-stop certificate nor storage at

Oxford), 2s. 6d. per vehicle. No entry can be considered unless it be accompanied by a remittance. At the same time the following particulars regarding the car must be furnished—make, horse power, and number of seats (including the driver's).

The Programme.

THE start will take place from Grosvenor Place, Hyde Park Corner, at 9.30 a.m. The vehicles will draw up and start in the order of their arrival. Lunch will be taken at Reading, from which place the route to Oxford will be *via* Pangbourne, Streatley, Wallingford, Shillingford, Dorchester and Sandford. The vehicles will remain at Sandford until the signal is given to start, and will then proceed in procession to St. Giles, Oxford and there receive instructions as to storage. The Club Committee have decided that the vehicles taking part in the run shall again be identified by names instead of by numbers. Those who enter for the run will be supplied by the Club with cards bearing the names selected for the vehicles, and these cards must be attached, one to the front and one to the back of the car, during the run. The names may be selected by the owners of the cars. They must not, however, consist of more than ten letters. Owners who enter cars are requested to communicate to the Club Secretary, as soon as possible, the name selected for their car. No other signs, and no advertisements, must be attached to the vehicles. Claimants for non-stop diplomas must lodge their claims in writing, together with time-cards, at the Automobile Club not later than 8 p.m. on Monday, the 10th inst. It will be remembered that last year the entries totalled considerably over 200, and it is probable that this year that number will be exceeded.

The Annual Dinners.

THE annual dinner of the Automobile Club will be held at the Trocadero Restaurant, Shaftesbury Avenue, W., on Friday, the 7th inst., at 7.45 for 8 o'clock, when it is expected there will be a large and representative gathering. A dinner will also be held at the Clarendon Hotel, Oxford, at 8 p.m., on the night of Saturday, the 8th inst., at which all those (including ladies) taking part in the run may attend. Morning dress may be worn on Saturday evening. Admission will be by ticket only, which may be obtained from the proprietor of the Clarendon Hotel, Oxford, price 5s. each, which includes the cost of dinner, exclusive of wines, etc.

The Carriage of Petrol.

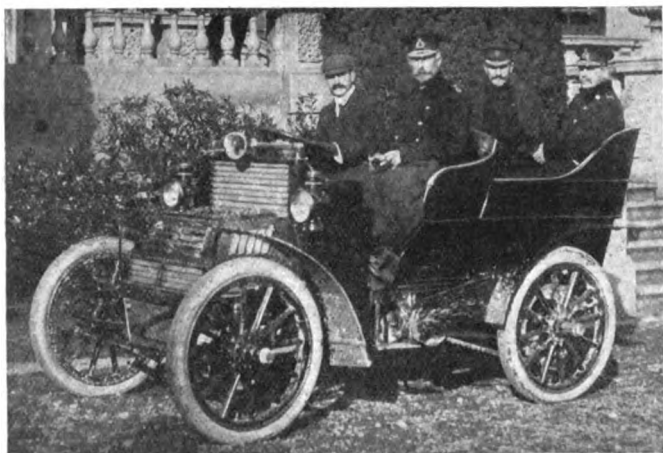
THE carriage of petrol by rail is still the "turning" question of the moment with motorists, and we would again urge the suggestion made in these columns some time ago that those great firms trading in petrol should secure proper motor-vans and convey their specialities by road. This would render them independent of the railway companies, who would quickly come to their senses when they found their traffic going. Already we have hinted that this is possibly a revival of the old antipathy between the railway companies and the road motor conveyances; and if such is the case, a game of "tit for tat" would be productive of the best results.

A Bradford Suggestion.

ON this question our correspondence columns contain a very useful letter showing how one Bradford firm is determined to meet the hostility of the railway companies. The present is a very critical time for the industry, and it behoves the trade to show a very united front; and in that they must be supported by private owners. Surely motorists are influential enough to be able to approach railway directors and managers and show them how, unless a spirit of tolerance is shown now, they will be bringing disaster upon themselves—so far as one valuable source of revenue is concerned—in the near future.

A Question in Parliament.

WE are glad to see that the action of the railway companies has been brought before Parliament, Mr. Gerald Balfour, President of the Board of Trade, having stated, in answer to a question by the Hon. J. Scott Montagu, M.P., that he will consider whether the Board of Trade can approach the railway companies on the matter. We understand that full particulars of the railway companies' new regulations are being laid before Mr. Balfour for his consideration, and it is to be hoped that some arrangement will be arrived at in due course.



THE DUKE OF CONNAUGHT ON MAJOR NUGENT'S 10-H.P. BROOKE CAR, MR. MAWDSLEY BROOKE AT THE HELM.

The Freight to Dublin.

A GOOD item of news comes from Ireland, where, unfortunately, so many of the roads seem to have been constructed on anti-automobile lines. The Dublin and Glasgow Steampacket Company and the Glasgow, Dublin, and Londonderry Steampacket Company, Limited, have reduced the freight on motor-cars from Glasgow to Dublin to 45s. per ton. As the freight on motor-cars is exceptionally high, this reduction will be much appreciated by those in the trade on both sides of the Irish Sea.

A Novel Trip.

ONE of the historical landmarks of Copenhagen, Denmark, is the Round Tower erected by Christian IV. for astronomical purposes. The tower is 100 ft. high, and has the novel feature that, instead of by a staircase, the top is reached by a winding road 12 ft. wide, having an equal gradient of 1 in 4. As we briefly reported at the time, a successful attempt was made in July last to drive a motor-car up and down this novel course. As a result of inquiries, we find that the vehicle in question was a 6-h.p. Beaufort, of the Beaufort Motor Co., London, and was driven by Mr. Lorenzen, their works foreman. The ascent was made in the early morning, and took exactly one minute. The drive down from the tower, although the most

dangerous part of the trip, was equally successful, the round trip being made without the driver leaving his seat or using any help or assistance whatever, other than that of the engine. Our illustrations on pages 684 and 685 are reproduced from photographs of the tower and of the car during its noteworthy ascent.

English-made Induction Coils.

As a result of the complaints made with regard to English-made induction coils, in connection with the Gordon Bennett Cup races, a good deal of attention is at present being centred on this all-important part of electrical ignition. The other day we had an opportunity of inspecting a new English coil, which will give a spark of sufficient intensity to fire the charge, even when using only a 2-volt battery in place of the usual 4-volt accumulator. It will, however, work equally well with the latter, and, as showing the high insulation of the coil, we may say that we connected it up to a 6-volt battery, the result being a fat flaming spark over $\frac{1}{2}$ in. long, and this without injury to the coil. Those who have experienced the joys (!) of finding themselves miles from everywhere, with a battery showing 3.5 volts, yet too low to give the requisite spark, will, we imagine, welcome a coil that furnishes it at an accumulator pressure of only 2 volts. As to the use of the coil on high-speed motors, Mr. Sanders, of Hammer-smith, the maker, assures us that he has tested it up to an engine speed of 2,600 revolutions per minute with satisfactory results. In view of this, we are not surprised to learn that already the new coil has been adopted by a number of well-known motorists.

Proposed Changes in Racing Rules.

THERE are two propositions going the rounds of the automobile clubs on the Continent. One emanates from the Austrian Club, and is to the effect that a general congress of all the affiliated clubs shall be held at the Paris Exhibition in December, with the object of framing international racing rules and the formation of an International Racing Committee. The second proposition consists in a circular letter which according to the "Chronique de Bruxelles," has been addressed by the Committee of the A.C.G.B.I., to all the affiliated Clubs except the A.C.F., proposing a united action to revise the racing rules by the introduction of six alterations: (1) That on international committees there shall only be *bona fide* owners not interested in manufacture; (2) that duplicate times cards, written in ink, shall be given to each competitor to prevent mistakes; (3) that a failure to get a card at any control shall disqualify a competitor; (4) that the driver or *mecanicien* of one car shall not assist or give spare parts to the driver of any other car; (5) that although petrol and water may be carried and handed to the driver of any car, all filling and work of any kind shall be done by himself alone or his *mecanicien*; (6) that no one, save the driver or *mecanicien*, shall push any car under any circumstances after it has left the first starting point in a race until it has completed the whole course.

A Free Garage.

IN our last issue we briefly mentioned that Messrs. Friswell, Limited, had acquired the building known as the Albany Repository, near Portland Road Station, Regent's Park, N.W., which they will shortly be making their head-quarters. The enormous extent of these premises, which are fireproof, and are lighted by electricity, may be gauged from the fact that in the course of a chat with Mr. Friswell he informed us that there is accommodation for over 700 motor-vehicles. It is the intention to arrange the premises in three different sections. Block A will be used entirely for offices and show-rooms for the Peugeot cars. In Block B large repairing shops will be established. The auctioneering business will also be carried on in Block B, it being intended to hold, from time to time, and upon separate days, special auction sales. For instance, one sale will be entirely devoted to motor bicycles and tricycles, another day will be set apart exclusively for steam

ears, another for voituresses of a value not exceeding £150, and still another day for a sale of higher-priced carriages. The most novel departure in connection with the new premises is the decision to set apart a large portion, to be known as Block C, as a garage for the use of clients absolutely free of charge. There is a lift in the centre of the building on to which cars can be driven from the road, taking vehicles immediately to any part of the building. The use of this lift will also, we understand, be quite free. The idea of a free garage is a radical departure, and its result will be watched with interest. Messrs. Friswell have not arrived at this decision without full consideration, but estimate that they will receive compensation for the accommodation they are able to offer by supplying oil, petrol, and grease to their clients, and also by carrying out any necessary repairs on the spot. The new depot is to be opened as soon as the necessary alterations are completed.

water, remaining wet when other portions of the road have dried. The experiment is much too promising to be allowed to drop, and probably some means of applying the oil will be found which will get over the difficulty.

Testing Petrol Motors.

ON Thursday last week we were present at a practical test of the Mathot explosion recorder, which is being introduced into this country by Messrs. T. S. McInnes and Co., Ltd., of Glasgow.

As we gave an illustrated description of the device in our issue of March 15th last, it is only necessary to briefly mention that the apparatus is intended for registering the explosions in petrol motors with the view of practically controlling their conditions of operation. Although it has been possible up to the present to control the state of regulation of such motors by means of diagram indicators, the results have been relatively satisfactory only when the

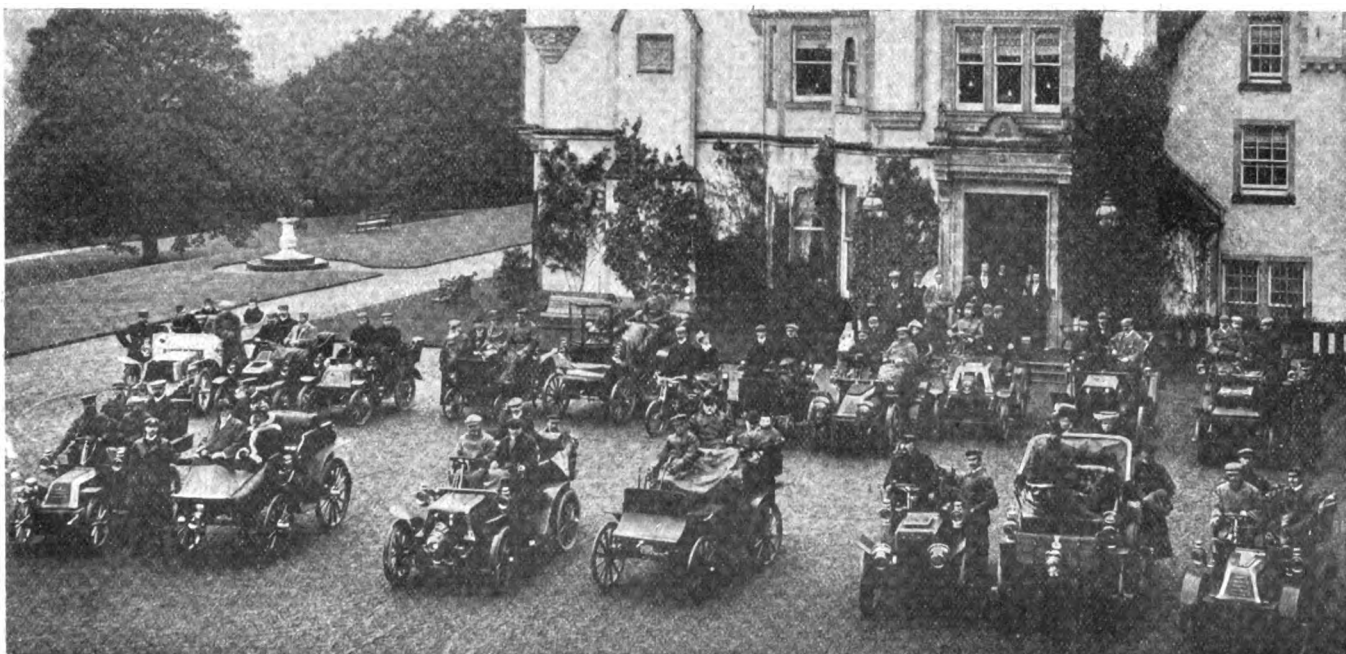


Photo by]

THE MEET OF THE SCOTTISH AUTOMOBILE CLUB AT PHILIPHAUGH. (See page 679.)

[Alex. A. Inglis.

Motor-Cars in Victoria.

THE Belgian Consul-General at Melbourne in a recent report states that a strong movement is on foot in Melbourne for the utilisation of automobiles as a means of transport. The question of their use for the postal service in the environs of Melbourne is under consideration, the collection of letters from the letter boxes within a radius of six miles from the central office being at present made by means of vans, necessitating the employment of from 40 to 50 horses. The Consul-General adds that trials are being made with motor-cars, and a comparison instituted with regard to the rapidity, regularity, and cost of transport of the mails. In the event of the adoption of the new system, it is said that tenders for the supply of motor-vehicles will shortly be called for.

Oiling the Roads.

THE experiment with the oiled road at Farnborough has, it appears, not altogether resulted satisfactorily during the recent wet weather. Replying to a question at the Farnham Rural Council, the surveyor stated that the experiment was satisfactory while the dry weather prevailed, but under wet conditions the road was in a bad state. It seems to hold the

velocity of the motor to be tested has remained within the limits of speed of from 300 to 400 revolutions per minute. Since the motors of automobiles exceed such velocity, and easily reach from 1,000 to 2,000 revolutions, the most skilful experimenter cannot obtain a diagram under such conditions, and consequently cannot ascertain what phenomena are taking place during the running of the motor. The apparatus devised by M. Mathot, on the contrary, owing to its ingenious construction, permits of following in an absolute manner, for a determinate time, the conditions of operation of any motor, whatever be its rotary velocity. The apparatus having been secured to the motor, its piston is forced by each of the explosions to a height corresponding to the power of the latter, and a tracer controlled by a lever registers them one alongside the other upon a band of paper in motion. The resulting diagram indicates not only the number of the explosions and revolutions within a given time, but also their regularity, their alternations with the "miss-fires," and their pressure in atmospheres, measured by the scale of flexion of the opposing spring. The diagram obtained permits of determining experimentally the most favourable dimensions to give to the admission and exhaust valve, by reason of the different velocities; of avoiding the resistance during suction and the counter-pressure during the exhaust that are the principal causes of losses of useful effect in high-speed motors; and of estimating the role of

compression, etc. It is possible, also, to fix the amount of the resistance during suction and exhaust. To this effect, it suffices to compare the origin of the lines of explosion with the atmospheric line marked by the tracer. The complex phenomena that accompany the operation of explosion motors are by this apparatus verified in a scientific and positive manner, and its use by manufacturers should undoubtedly permit them to introduce modifications in the design they have adopted, with the effect of improving the efficiency of their motors.

Magistrates and Motor-Cars.

ON Tuesday last the "Morning Leader" published an interesting map showing the towns in Surrey and Sussex where motorists have lately been fined, and where measured distances have been established by the police, compiled from the information published in these columns. Our contemporary remarks that:—It is, of course, impossible to express with absolute accuracy the results of a long series of cases extending over many weeks before such varied jurisdictions. But the substantial fact remains that, more particularly in the South of England, the country benches have got into the habit of selecting a standard fine to be imposed on all offenders alike, without regard to the particular circumstances of the case, and based merely on the taste and fancy of the justices. This is too often simply a measure of the prejudice entertained by country gentlemen, whose habits are nearly always equestrian, against automobiles as a class. We have not the slightest sympathy with motorists, any more than with politicians, who indulge their preferences at the risk of other people's lives. Any reasonable regulations to secure the punishment of serious offences against the public convenience which Mr. Long may be able to introduce will no doubt be loyally welcomed by the respectable class of motorists. Meanwhile, the existing system is not only unjust, it is utterly ineffective, even for its purpose.

Motoring in Lakeland.

THE excitement experienced in motor-ing along mountain roads like those in Westmorland and Cumberland is really thrilling. Along the margin of Lake Windermere and on the roads across to Conistown every track is a switchback, mile after mile. Fifty miles of dashing down declivities and of steadily climbing up-gradients is exciting. On an ordinary road you see what is coming. Nothing of the kind in Lakeland, however, according to a writer in the "Echo." All round the lakes the roads are beautifully constructed, and are thus a joy to the automobilist. "My friend," continues the writer, "who rusticates in autumn in his sweet villa near Bowness, meeting me at Windermere Station with his car, immediately shot down a steep decline on the road for Rydal Water and Grasmere. With a significant smile he remarked, 'I had a narrow escape last week.' Seeing that while these remarks were being made we appeared to be rushing at a terrific rate along a precipitous and sinuous narrow lane, I was profoundly impressed with a sense of the incongruity of this discourse. My only response at the moment was a feeble smile. I was constantly speculating as to what might happen at any one of the countless obscurantist twists in this lovely but perilous track. Soon I learned by observation that my friend was all the time keenly on the alert with eye and hand, and that the car answered like a living creature to all the delicate manual impressions of the steering process."

Lakeland Rambles.

LAKELAND, while presenting many delights to the motorist, is an even more enjoyable experience for those who love rambling on foot. For both classes of holiday makers Mr. W. T. Palmer has written a pleasing volume of "Lake Country Rambles," just published by Messrs. Chatto and Windus. Within the space of thirty chapters Mr. Palmer

presents a vivid series of word-pictures of the incomparable and diverse scenery of the Lake Country. He writes with the ardour of an enthusiast and the knowledge of one who for a dozen years has wandered o'er tarn and fell, ascending precipitous heights and feeling his way down hill sides until the Lake country has become as familiar to him as the roads of Surrey are to the Metropolitan motorist. These Rambles are congenial companions for all who love Nature and are familiar with her ways.

On the South Coast.

FOR five whole days, with the aid of our new car, we have been enabled to escape both rain and fogs, touring along the south coast, staying at a different hotel every night. The roads were in grand condition, there being no dust, while the air was balmy and mild. It may be mentioned that we have thus far travelled over two thousand miles on our 40-h.p. Mercedes, and never once has it needed adjustment of any sort on the road. While at Brighton we travelled the whole length of the "front" on the second speed, at about six miles an hour, the engines running at from 100 to 120 revolutions a minute. Except for the "tapping" of the valves the car was absolutely noiseless.

PANHARD and Mors cars will represent France in next year's Gordon Bennett Cup race.

ON Saturday, the 8th inst., Scottish automobilists will commemorate the passing of the Locomotives on Highways Act, 1896, by a run to Luss, Loch Lomond.

ON Wednesday afternoon we had an opportunity of inspecting a new 10-h.p. Belgica car which M. L. Mettewie has just brought over from Brussels with the view of opening up an agency in this country.

MESSRS. MERRYWEATHER, of Greenwich, have built a steam motor fire-engine for the municipal authorities of Cape Town, and have one in hand for Wanganui, New Zealand.

ON Thursday last week the King paid a visit to Windsor Castle, arriving from London by motor-car. He left the Castle about 3.15, and, entering his motor-car, drove through Frogmore and Old Windsor back to London. The roads were in perfect order, and the car ran splendidly.

WE understand that the resignation of Mr. E. Shrapnell Smith, who has been acting as Hon. Secretary, *pro tem.*, of the Liverpool Self-Propelled Traffic Association, has now taken effect. Pending the appointment of a successor, the secretarial duties will be undertaken by Messrs. Lloyd and Walker, of the Accountants' Department of the Liverpool body. There are now upwards of 160 members on the register of the Association.

As a result of the action of the railway companies, a scarcity of petroleum spirit is already being experienced in Surrey and Sussex. None is at the moment available at Eastbourne or Brighton, although at the latter resort arrangements are in hand to get in a supply by road. At Horley, the Horley Motor Company are also arranging to have delivered by road 200 gallons at a time, daily if necessary, so that they will be able to supply motorists on demand.

UNDER the name "English Bilar" Messrs. John Child Meredith, Ltd., are introducing a new sparking plug, which is, we are informed, of English manufacture throughout. One of the great features of the plug is its special porcelain, which is practically indestructible, having been submitted to the following test:—The porcelains are made white hot, and immediately plunged into cold water. The components of which the porcelain is made are perfect in insulation; it contains the advantages of mica without its disadvantages. In order to further encourage the use of their sparking plugs the firm are making arrangements to receive back through their agents all broken plugs which have been used, and to exchange them for new ones, making a small allowance for the old ones.

THE SCOTTISH AUTOMOBILE CLUB.

ON the invitation of Mr. W. Strang Steel, the members of the Scottish Automobile Club held their run on Saturday last to the historical and romantic Philiphaugh. The modern mansion stands in the centre of one of the sternest battle grounds of the Scottish Covenantry period. The Laird, in July of last year, was kind enough to invite the Club to his beautiful home, and so successful was the run on that occasion that, upon another invitation being extended this year, the Club most readily accepted. The advanced state of the season, however, prevented the western section of the Club taking part in the run. The major number of the western members were at least 80 miles from Philiphaugh, so that really in the dark and in so uncertain weather as prevails at this time such a journey would really have made a labour of a pleasure. The eastern section, reinforced by Jedburgh and Aberdeen, made up a splendid party, and, even in the face of inclement weather, a thoroughly enjoyable time was spent.

From Edinburgh to Philiphaugh the distance is 42 miles, and, with cars of varying speed in their membership, the Club

Mr. Steel to make a very short speech. He apologised for the absence of the western section, who had not come owing to the lateness of the season, and they regretted their inability all the more as they remembered Mr. Steel's unbounded hospitality. He also apologised for the absence of their President, Lord Kingburgh, but perhaps he, as the Lord Justice Clerk, felt more secure on the Bench dealing with the malefactors at the bar than in the hands of the police at Galashiels. He thanked Mr. Steel on behalf of the Club for his generosity, and concluded by proposing a very hearty vote of thanks. Mr. Steel briefly replied that the motorists were always welcome at Philiphaugh.

The party subsequently were photographed in front of the mansion, and shortly after four o'clock left for their various destinations. The cars present were:—Mr. W. S. Steel, (Philiphaugh), 12-h.p. Arrol-Johnson; Dr. Blair (Jedburgh), 3-h.p. Benz; Messrs. Jas. Ballantyne, 22-h.p. Daimler; D. Cameron, 12-h.p. Gladiator; Jas. Cruickshank, 8-h.p. Argyll; R. D. Croall, 9-h.p. Napier; A. J. Drake, 5-h.p. Stirling; P. Drummond, tricycle; Jas. Macdonald, 7-h.p. Daimler; G. Macmillan (Secretary), 7-h.p. Panhard; A. Melvin, 6-h.p. M.M.C.; Sir John Murray (Vice-President), 8-h.p. Albion; Messrs. J. E. Naismith,



Photo by]

GROUP OF MEMBERS OF THE SCOTTISH AUTOMOBILE CLUB AT PHILIPHAUGH.

[Alex. A. Inglis.

decided that no formal meeting should take place in Edinburgh, but that owners should leave the city at the hour which suited them, and all the cars gather at the Main Lodge at 12.45, thereafter proceeding up the avenue in line. The early forenoon was a beautiful autumn one, and as the cars quitted the Scotch metropolis the conditions promised to be ideal. The route lay past Liberton and Shank's Bridge to Heriot, on past Galashiels to Selkirk, and thence to Philiphaugh. All went well until the high ground near Heriot was reached, and with heavy mists sweeping down the hillsides they were soon into a drizzling rain and chilling atmosphere. The roads turned very bad and speed had to be slackened. Several of the cars were a little late in arriving at the rallying point, while Mr. George Macmillan, the Honorary Secretary of the Club, burst his tyre near Stow, and, determined at all hazards to fulfil his engagement, completed his journey along with his party by the aid of a horse.

At half-past one the company, numbering over a hundred, sat down to luncheon in the magnificent old oak dining hall, with the Laird of Philiphaugh at the head of the table. After an excellent repast, Mr. Norman Macdonald, Chairman of the Scottish Automobile Club, proposed a hearty vote of thanks to their host, Mr. W. Strang Steel. He had received a strict injunction from

6-h.p. Stirling-Daimler; J. H. Paterson (Aberdeen), 12-h.p. Peugeot; Dr. Bruce Ronaldson, 10-h.p. Delahaye; Messrs. Thos. Sanderson, 3½-h.p. Benz; W. L. Sleigh, 10-h.p. Clement and 16-h.p. Waverley; Professor Dawson Turner (Vice-President), 10-h.p. Delahaye; and Mr. John Wilson, 8-h.p. Peugeot.

THE Portsmouth Automobile Club has decided to hold meetings during the winter months for the discussion of automobile topics.

A CURIOUS electric "runabout" attracted some attention in the City one evening last week. The vehicle had unusually large rear road wheels, of the cycle type, the electric motors being contained in the hubs.

THE Roadway Autocar Company, Limited, have lately despatched several Mors and Renault cars to India. Calling at their depot the other day, we had an opportunity of inspecting a fine 15-h.p. Mors car which is also being shortly taken out to India by its owner, a military gentleman. The car body, which was built by Messrs. Edwards, of Ashford, is of the double tonneau type, having seating accommodation for six persons. With its canopy, dust screen, and white-painted body, the vehicle has a very striking appearance.

NEW ELECTRICAL IGNITION DEVICES.

A NOVEL method of attaching the sparking plug—or in this case plugs, for two are used to each cylinder—has lately been introduced by the Automobile Equipment Company, of Chicago. As will be seen from Figs. 1 and 2, the arrangement consists of a T-shaped casting, provided with a pair of sparking plug receptacles, a three-way valve and a nipple. A compression tube is fitted to the lower end of each plug receptacle.

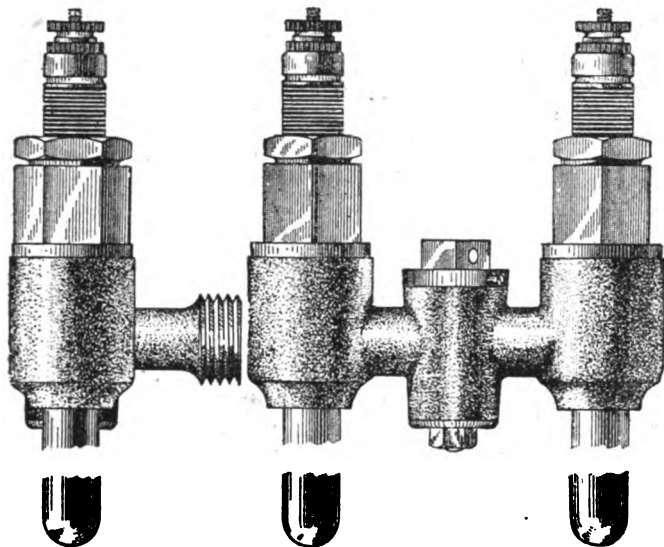


FIG. 1.—SIDE VIEW.

FIG. 2.—FRONT VIEW.

In the application of this device the nipple is screwed into any canal leading to the compression chamber of the engine cylinder, while in motors fitted with incandescent tube ignition the tube can be taken out and the new device inserted in its place.

Being unable to speak of the device from our own practical experience, we quote the description of the action of the arrangement from the particulars sent us by the makers:—"In operation the gas is compressed through the nipple past one of the plugs, when it is ignited at the desired period, the expansion cycle of the

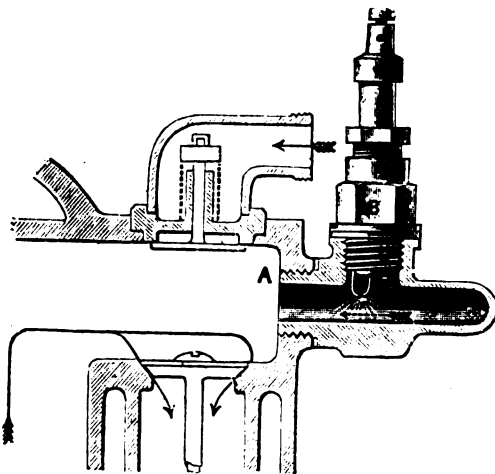


FIG. 3.

engine then taking place. On the return or cycle of exhaustion the gases are exhausted to substantially that of the engine or nearly atmospheric pressure, leaving a certain quantity of dead gas, which is forced into the compression tube on the next compression cycle to such an extent that the combustible gas passes through and fills the plug receptacle, insuring ignition under variable compression. The troubles caused through deposits of

carbon or other electrical conducting material on the insulation of the plug are removed through gaseous friction, the insulation and electrodes being always in a polished condition. The advantage obtained through the duplex construction is that the operation of the engine can be continued indefinitely, for if any missing of ignitions through defects in the active plug are detected the electric current can be switched to the other plug. The useless plug can then be removed and a new one inserted at leisure."

A somewhat similar arrangement was exhibited at the last Paris Motor-car Show by M. Ruffin, 77, Avenue de la Grande Armée, Paris. A section of the device, which is known as the "Meteor," is shown in Fig. 3. As will be seen, instead of the plug being screwed directly into the explosion chamber, it is attached to a small hollow piece, which is in turn attached to the cylinder top between the inlet and exhaust valves. The arrange-

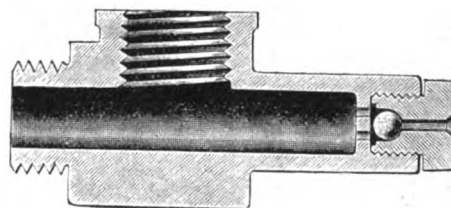


FIG. 4.

ment is claimed to possess a number of advantages, chief among which being that there is less chance of fracture of the porcelain of the sparking plug, owing to its location in such a position that it is not subjected to so high a temperature as in the usual practice. Another point to which attention is drawn is that there is less danger of the sparking points being "sooted," and that, owing to the explosion tube being filled with fresh mixture at each suction stroke, a more powerful explosion is obtained. The intermediate piece, which is known as the "electric burner," is sold separately, so that motorists may fit it to their engines themselves, the threaded portions being made to suit the standard sparking plug threads. The "electric burner" is made in two types—for slow-speed motors it is of the form shown in Fig. 3, while for high-speed motors it is made with a small air valve as shown in Fig. 4.

New members of the Automobile Club include Lord Stanley, Lord Pirbright, Sir W. C. Quilter, Bart., M.P., Mr. Leicester Harmsworth, M.P., Col. W. G. Wyndham, and Col. R. Mirehouse.

At Newport, Essex, Mr. H. S. Choppen has a motor repair shop, where he also stores petrol, grease, &c., and is able to prove a handy man to motorists in distress. He has also the advantage of location, being on the London main road.

The new road from Monifeth to Barry, N.B., was formally opened a few days ago. Lord Provost Hunter, Dundee, presided, and in his address intimated that Mr. J. Thomson, assistant burgh engineer, Dundee, who had officially inspected the new road, had stated that the work had been carried out in a satisfactory manner, and that the road as designed and formed was sufficient for traffic similar to that on the main roads in the district.

SPEAKING at the annual display at Victoria Park, E., of the Metropolitan Fire Brigade, with reference to the experimental motor fire engine which has been constructed in the workshops of the Fire Brigade, Captain Wells explained that the engine was on that occasion really only undergoing a workshop trial. It had reached its destination from head-quarters in something under half an hour, and this notwithstanding that it had had to pass through crowded traffic *en route*. It was also stated that the same machinery which drives the engine works the pump. The engine, which ran smoothly and steadily, if not so speedily as the steam engines drawn by horses, aroused a good deal of interest among the spectators.

CONTINENTAL NOTES.

BY AUTOMAN.

THE long delay in according the *Auto-Velo's* prize for regularity in the Paris-Vienna race was due to the fact that the Racing Committee of the A.C.F. had not made up their minds what to do about the motor-cycles, which had been the subject of many protests. The climb up the Arlberg had been too much for them. The Racing Committee decided to disqualify the whole of them, and thus it was that the prize fell to Georges Richard.

MESSRS. WERNER FRERES, however, objected to this wholesale disqualification, and their protest was so strong and so well backed up by honourable and trusted witnesses that the question was opened up again; and it was decided to render official the performance of Messrs. Bucquet and Labitte, who rode Werner motor-cycles from Paris to Vienna, and for whom the Arlberg had no terrors. This decision changes, therefore, the hands into which the *Auto-Velo's* cup falls, and the definite holders of it now are Messrs. Werner, whose two machines did the best combined time of all the combined entries in the race.

TALKING about the Paris-Vienna race, I may mention that it has just been decided by the Committee of the A.C.F. to continue the series of International motor-car road races—which began with Paris-Amsterdam in 1898, continued with Paris-Berlin in 1901, and Paris-Vienna in 1902—by the organisation of a Paris-Madrid race in 1903. The race will most probably take place during the month of May, and will perhaps be divided into two stages, namely, Paris to Bordeaux as a speed contest, and Bordeaux to Madrid as a reliability trial, the object of the A.C.F. being to show that French cars can score for reliability as well as for speed. As to how the contest will be arranged is, as yet, uncertain; there are two propositions before the Committee, the one being to make speed the only factor for success, and the other to make the contest a question of the aggregate points gained by the total number of cars entered by one firm, speed being counted, of course, as a factor.

THE partisans of the two propositions cannot agree, and have decided, very wisely I think, to consult the various makers. The result of such a consultation cannot be doubtful, for if there are three or four, or perhaps five, makers who are particularly cut out to make powerful and fast vehicles, there are at least a dozen who are not specially adapted for the construction of racing cars, and who will have a good chance of gaining fame for reliability.

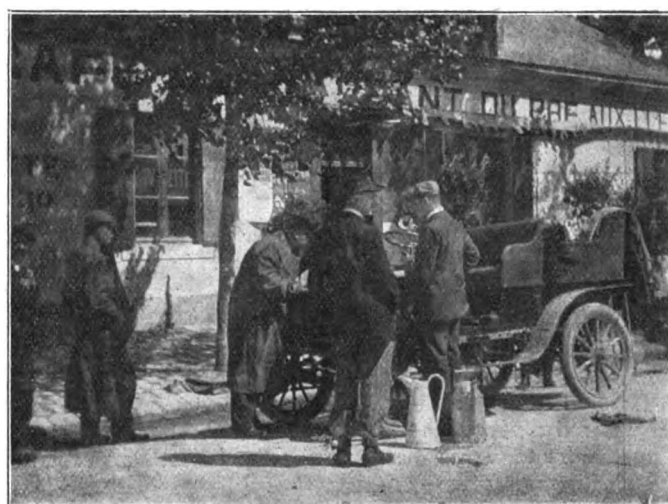
FROM Paris to Bordeaux is about 360 miles of splendid roads, on which the highest average speeds may be looked for. From Bordeaux to Biarritz there are about 130 miles of fair roads; from Biarritz to Madrid about 850 miles of bad roads, including the passes over the Pyrenees, which are badly kept and where there are some terribly steep climbs. This, however, seems to be the most practicable route from Paris to Madrid, and totals up to something over 1,340 miles.

A PARIS-MADRID race is the natural sequence of the success which the other International races have brought to the French automobile industry. The Belgians, Germans, and Austrians have each had a demonstration of the high efficiency of the French nation as regards the new locomotion, and now it is the turn of the Spaniards.

THERE remains, however, the question of the authorisation to be dealt with, both from the Spanish and the French side. From the Spanish side it is said that very high influences have been at work suggesting the organisation of the race, and from the French side the use of alcohol will be a great factor in deciding the Government to countenance the competition, and there is little doubt but that big prizes will be offered to those competitors who use the national product instead of imported petrol.

USING the word petrol, so universal in England, to describe the particular benzo-naphtha used for motor-cars, reminds me to give a word of warning to English automobilists driving in France. Always ask for "essence," as the word "petrole" is used in French to designate kerosene or ordinary paraffin.

Now that the year's racing is practically over, the time has come for settling the details of next year's important events, and the first of these is, of course, the Nice meeting. It is to begin on March 28th and last until April 6th. The 28th of March falls next year on a Saturday, and the meeting is to commence with a competition for brakes. On Sunday, March 29th, there will be an automobile battle of flowers; Monday, Tuesday, and Wednesday, March 30th and 31st and April 1st, will be devoted to automobile races, the particulars of which will be settled later; on Thursday, April 2nd, there will be the Nice-La Turbie hill-climb and the appearance competition at Monte Carlo; Friday and Saturday will be devoted to an exhibition; on Sunday there will be the mile record and the Rothschild cup, and the meeting will be brought to a close on Monday, April 6th, by the competition for the de Caters cup. Entries must be sent in by March 15th with single fee, or March 28th with a double fee. The entrance fee is £3 for cars under 400 kilos and £6 for vehicles over that weight.



Photo'by)

A WAYSIDE SCENE IN FRANCE.

(Mr. D. M. Weigel.

It is probable that the automobile races on March 30th, 31st and April 1st will consist of an alcohol race and a "Circuit du Sud Est à l'Alcohol." The heavy-weight caravan from Paris to Nice, which was so successfully organised this year, will be repeated under the same able organiser, M. Paul Meyan.

UNDER the auspices of the Automobile Club de Namur and Luxembourg a hill-climbing competition was held at Huy on Sunday last, over a course 1,364 4-5 metres long. The winners of the various categories are given below:—

	Rider.	Machine.	Time. m. s.
Motor-bicycles (under 50 kilog.)...	Kinet	Antoine...	1 31½
Motor-bicycles (over 50 kilog.) ...	Van den Born...	Antoine...	1 59½
Tricycles	Joostens	Korn	2 14½
Voiturettes (under 400 kilog.)	Oury	Clement...	1 40½
Voiturettes (over 400 kilog.)	Barbaroux	Clement...	1 19½
Cars (700 kilog.) ...	Hautvast	Pipe	1 52½
Light touring cars...	Baron de Crawhez ...	Clement...	1 28½
Heavy touring cars...	De Melotte	Gobron Brillie...	1 53½

THE Edinburgh Town Council is discussing a proposal to purchase a motor-fire engine.

MOTOR-CYCLING NEWS.

ON Sunday next the Motor Cycling Club will hold a run to Aylesbury. The members will meet at the Marble Arch, W., at 10.30 a.m.

MR. S. HOLMES, of Bradford, sends us a few particulars of a roundabout tour he recently made through North Wales and the Lake district, visiting, among other places, Rhyl, Betws-y-Ced, and Snowdon. Leaving the latter point he journeyed on



to Chester, thence to Birkenhead, across the ferry to Liverpool, and through Ormskirk to Preston, finishing the day's run at Blackpool. After staying a few days at this popular seaside resort, Mr. Holmes set off to Morecambe, journeying through Poulton-le-Fylde, St. Michaels, Garstang, and Lancaster. From Morecambe a visit was made to Cark, passing through some lovely scenery on the way. A very heavy thunderstorm was encountered during this part of the run. Leaving Cark, a start was made for the lakes, Windermere, Ambleside, Derwent Water, and Thirlmere being visited; thence to Bowness, Kendal, and on to Kirby Lonsdale, and from this place home to Bradford. During the whole of the journey Mr. Holmes's machine, which is a 2½-h.p. De Dion quad, fitted with Mercie two-speed gear, behaved splendidly, not a single puncture or stoppage from engine troubles occurring. The illustration shows Mr. and Mrs. Holmes on the machine at a pretty little spot just outside the village of Grasington, about 10 miles beyond Skipton, Yorkshire.

MR. A. RIVETT, of Leytonstone, writes:—"I have noticed that at different times well-known motor-cyclists have made attempts at a long-distance ride on the track. Nothing very successful has been done in the way of a long non-stop ride, and I would like to suggest the holding of a long-distance non-stop race, to be held on the following novel lines at an early date before the weather gets too cold:—Engines not to exceed 75 by 75 mm. bore and stroke. The race to be for six hours, any stop whatever to disqualify rider, who should retire. All machines to be fitted with cyclometers, tested officially, for a mile or two, for accuracy before the start. Each rider to provide their own cyclometer and vouch for its correctness; the distance recorded by it to be accepted as correct. Every competitor stopping to have his time taken, and an official certificate given him of his own non-stop ride. One time-keeper to be employed to time, start, and stop competitors at end of race. Entrance fee to be £1 1s. per machine. All money beyond time-keeper's fees to be spent on a prize for the winner. Track to be the Crystal Palace or Canning Town. I feel sure a race on above lines would

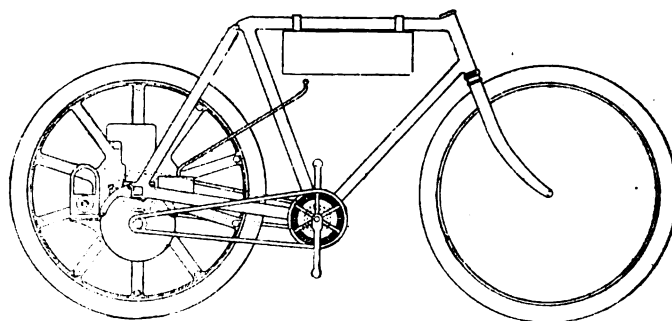
provide good sport, and prove a good advertisement for motor-cycling and motor-cycle manufacturers."

THE value of the motor-bicycle in urgent cases of medical importance is well illustrated by the experience of Dr. E. S. Forde, of Kenbank, Dalry, Galloway, who writes:—"This day week I saw a case of lockjaw in a boy. I wired to several places to see if I could obtain Behring's serum, and found I could get it only 66 miles from here, but if it came by post or train I would not get it for forty-eight hours, when it would be useless. So I mounted my Singer motor-cycle, and accomplished the double journey in 5½ hours and some odd minutes. The boy is now on the high road to recovery, and the case has had the effect of making several people take a very different view of motors."

ON Sunday, the 19th ult., the members of the Liverpool Motor-cycle Club held an enjoyable run. Llangollen was the place appointed, but on reaching Mold it was proposed that a turn should be made homewards, *via* Chester, as, the roads being extremely slippery, they were somewhat treacherous. From the time of leaving Birkenhead until the return home in the evening not a single machine misbehaved itself.

THE first motor-bicycle road race in Spain was run off a few days ago—the route being from Barcelona to Tarragona and back, a distance of about 125 miles. It cannot be said to have been a very exciting affair, as out of seven entries only two turned out, and only one of the couple covered the whole distance! The winner, Senor Saroma, used a machine of his own construction, his time being 8 h. 7 min. 30 sec.

FOR the 1903 season the Singer Cycle Company, Ltd., in addition to continuing the manufacture of the direct-driven machine, are bringing out a new form of their well-known motor-bicycle. In the first place, the gear drive is to be replaced by a chain. The motor will be extremely accessible, as the spokes on one side of the wheel are dispensed with. The carburettor is to be complete in itself, and the petrol supply will be carried in a separate tank. As regards the motor itself a new piston-ring system has been worked out, reducing the chance of loss of compression owing to leaky rings. The chain drive system comprises two chains, one running from the motor pinion to a specially-designed spring buffer sprocket wheel at the crank shaft. On the other side of the crank shaft is arranged an internal gear system, and, from a sprocket, the driving chain runs to the driving wheel, effecting a second reduction. The pedal crank spindle passes through the hollow pinion axle, and roller bearings are fitted between the two axles. Owing to the design of the spring chain wheel, the impulses of the engine are absorbed, and the drive is claimed to be as elastic as a belt and with the great



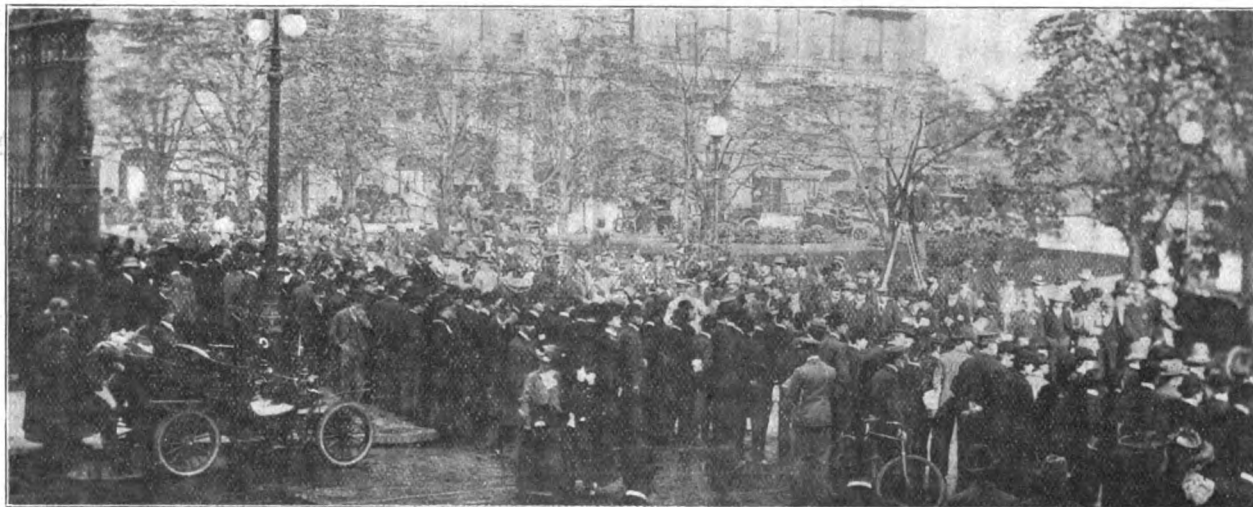
THE NEW SINGER CHAIN-DRIVEN MOTOR-BICYCLE.

advantage of being positive. The engine can be entirely removed from the wheel without difficulty, even the tyre not having to be touched. The new arrangement will be fitted to motor-bicycles only, the tooth gearing being still retained for the Singer tricycles and tri-voitures.

THE AMERICAN 500-MILE RELIABILITY CONTEST.

THE start of the six-day Reliability Run of the Automobile Club of America at New York on Thursday, October 9th, was all that could be desired. The cars were sent off promptly according to schedule, and the confusion that had marred previous contests was avoided. The first car away was

promptly at 9 a.m. the Club officials sent off the first car, and the others followed at fifteen second intervals. At Hartford the competitors and passengers were entertained to luncheon by the Hartford Rubber Company. The night at Springfield was a most enjoyable one. the greater number of the contestants spending it at Cooley's Hotel, where a banquet was given by the Knox Automobile Company. This proved a pleasant affair, and it ended with speeches by Messrs. Shattuck and Scarritt, Geo. F.

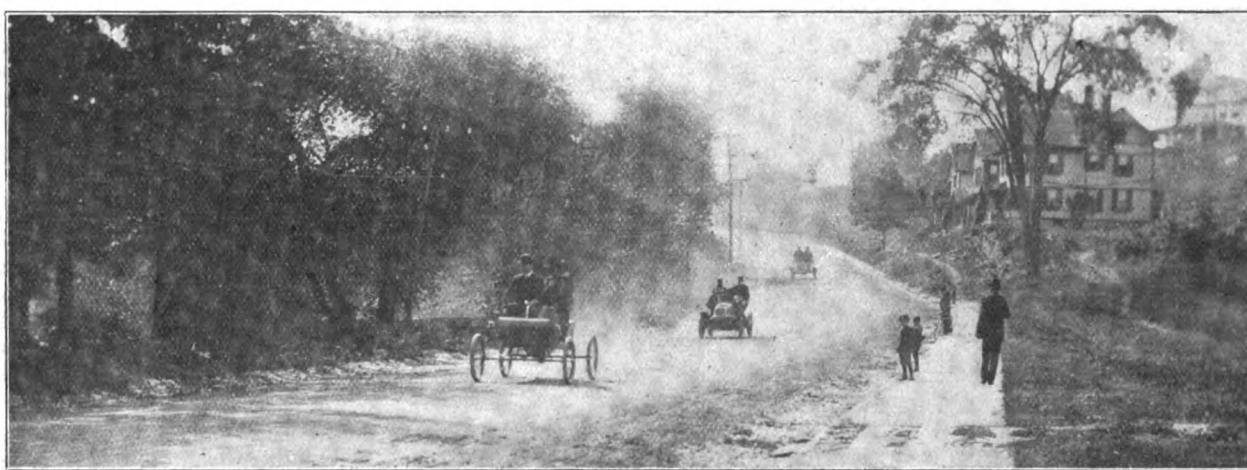


THE SCENE AT THE START FROM NEW YORK.

C1, a 24-h.p. Packard tonneau touring car entered by Mr. Harlan W. Whipple, and it was sent over the line at exactly 9 o'clock. The other vehicles followed at half minute intervals, until finally the last of them had crossed the line, and seventy-five of the eighty machines entered were under way for New-haven (79 miles), which was safely reached by seventy-two. Only three participants were reported missing, two of whom failed to reach Norwalk, the halfway stop, during the noon

Chamberlin, of the A.C.A., and other well-known American automobilists.

The vehicles lined up shortly before 8 o'clock on Saturday morning. the 11th ult., ready for the journey to Boston (96 3-5 miles). All the cars seemed to be in good condition and prepared for the run, which was said to be the hardest stage of the contest. The start was made, as usual, promptly at 9 o'clock. Of the starters on the third day there were only two which did not

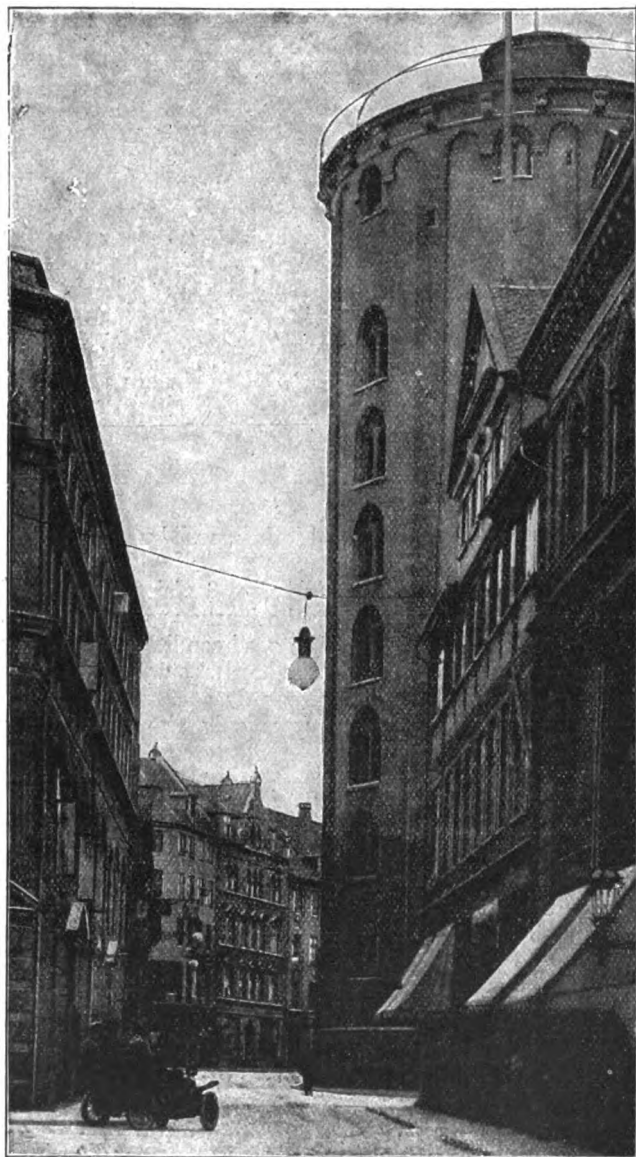


THE CARS ARRIVING AT NORWALK.

control. A canvass of the drivers on the day's run shows that fully 80 per cent. of the vehicles had a clean record, with no stops of a penalising character. Of the trouble encountered, the bulk of it came in the form of punctured tyres. On Friday, the 10th ult., the journey was continued from New Haven to Springfield (68 3-5 miles). There was more or less adjustment to be done on all the cars which lined up on both sides of the street,

report at Worcester, where lunch was taken. The first car to reach Boston was B 39, a De Dion 8-h.p. light car, which skidded along into the control, its occupants wet to the skin by the heavy drizzling rain that was falling. According to the "Horseless Age," of the seventy-five cars starting from New York sixty-eight reached Boston. Tired out, but still happy and jubilant, the motorists who had successfully completed the first

half of the six-day run spent Sunday, the 12th October, quietly in Boston. Despite the threatening weather, Monday morning, October 13th, dawned bright and clear, and there was every prospect of a pleasant run on the first day's trip toward New York, as far as Springfield (96 3-5 miles), which was safely reached by the bulk of the cars. On Tuesday, the 14th ult., New Haven (68 3-5 miles) was once more reached. Between Springfield and Hartford, the roads are such that an average speed of fourteen miles an hour can be easily maintained, and practically all the vehicles arrived in as close succession as they had started. At New Haven large crowds thronged the road near the control. The leading vehicles arrived at about 4 p.m.,



THE ROUND TOWER, COPENHAGEN (SEE PAGE 676).

in close succession, running, [when close] to the control, at a very slow pace to avoid getting in ahead of time. On Wednesday, the 15th ult., nearly all the machines reached the Norwalk control before half-past 11, having made the thirty-five miles from New Haven in good time and with very little trouble. On the morning of the last day of the contest printed slips were distributed to the competitors announcing that in the afternoon no contesting vehicles would be allowed to pass the Club Committee's vehicles, two in number, which would be recognisable by pennants bearing a large C. Disregard of this rule would result in disqualification. The Committee of the A.G.A. acted wisely in this respect, for without this rule the contest for first arrival would undoubtedly

have resulted in racing within the city limits. As it was, there was the usual scramble for first place when the vehicles neared the control. The Committee's vehicles passed the control at 4 o'clock sharp, and they were followed closely by two Stevens-Duryeas, two Oldsmobiles, a Knox, Darracq, De Dion, Elmore and Foster. Fifth Avenue was crowded with sightseers from Seventieth Street down to Fifty-seventh Street, where the observers gave up their record books and the vehicles were released. Over 90 per cent. of the vehicles that started arrived within half an hour. Of the seventy-five cars which left New York sixty-eight arrived back, a very creditable result. The official results are, of course, not yet to hand.

HERE AND THERE.

MR. J. GORDON BENNETT is reported to have placed an order for a 60-h.p. 1903-model Mercedes car.

THE Amsterdam Fire Brigade have decided to purchase a new electric motor fire engine, which will be capable of carrying nine men.

MR. MCGREGOR has been appointed to represent the Cleckheaton Chamber of Commerce at the forthcoming trial of delivery motor-vans.

ANOTHER motor-cycle contest will be held at the Ashtown rack, Dublin, to-day (Saturday), under the auspices of the Irish Motor-Cycle Union. Two events are down for decision—at five miles handicap and a petrol consumption trial.

THE Fillebrook Cycle Company, of Leytonstone and Walthamstow, have removed their Leytonstone business from the Kirkdale Road to 787, High Road, where they have erected new and larger premises for the storage and repairs of all types of automobiles.

THE Ridley Autocar Company has been registered with a capital of £2,000 to adopt an agreement between J. Ridley of the one part and J. H. Chilton (for the company) of the other part, and to carry on the business of manufacturers of and dealers in motor-cars, cycles, mechanical engineers, etc.

THE special prize of £25 offered by the Continental Caoutchouc Company to the driver of the gold medal car which had its "Continental" tyres in the best condition at the end of the Reliability Trials has been awarded to Mr. H. Prosser, of Messrs. Rennie and Prosser, Glasgow, who drove the Wolseley 10-h.p. car (No. 41).

REFERRING to our report last week of the discussion on Captain Longridge's paper on "Oil Motor-Cars," the omission of a decimal point made Professor Turner's recommendation with regard to the amount of carbon in steel appear somewhat doubtful. The steel he recommends should have, of course, 15 per cent. of carbon—not 15 per cent.

TURNER'S MOTOR MANUFACTURING COMPANY has been registered with a capital of £10,000 to acquire the business of motor manufacturers carried on at Archos Works, Walsall Street, Wolverhampton, by Thomas Turner and Co., including the benefit of agreements between that firm and R. Pincock and the Miesse Steam Motor Syndicate, and to carry on the business of manufacturers of and dealers in steam generators, motor-cars, and vehicles, etc.

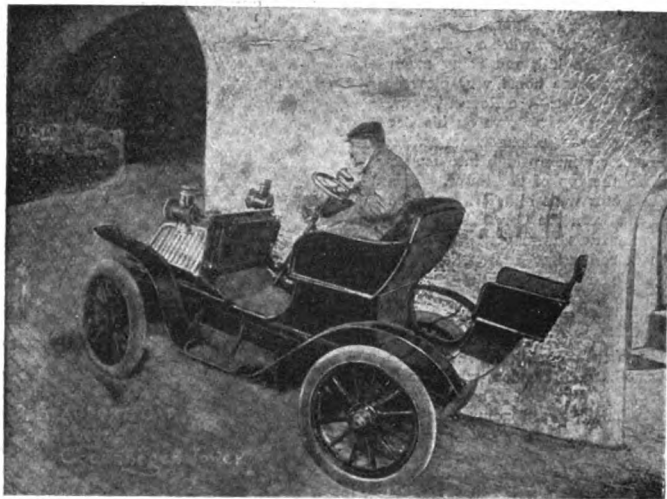
ON the night of the 27th ult. burglars entered the house of Mr. A. C. Davison, 366, Camden Road, N., and stole two motor-bicycles. They should be easily identified, as one, the "Davison," was of a new pattern, and has a frame quite different to any other on the market. It has also glass oil gauges let into the petrol and oil tanks, and other improvements which the owner was working out. The other bicycle was an Ormonde of the usual well-known pattern, but has an additional Lucas valve attached to the oil supply pipe, and the top tube has had the enamel scraped off and touched up by hand. Mr. Davison is naturally anxious to see the machines again, and should any motor or cycle traders have the bicycles offered to them he would be glad if they would communicate with him.

A RUMOUR reaches us that the Hon. C. S. Rolls contemplates an early attack on the mile automobile record.

A PHILADELPHIA company, known as the Hess Steam Vehicle Company, is bringing out a light steam car, in which charcoal is used as fuel.

THE Darracq Company are bringing out, for the 1903 season, a four-cylinder 20-h.p. car, the motor having mechanically-operated inlet valves.

MESSRS. J. FULLBROOK and Co., of Slough, have arranged for the delivery of motor spirit and petrol by road—so that users of the Bath road need have no fear on that score.



THE BEAUFORT CAR CLIMBING THE ROUND TOWER, COPENHAGEN.

As already announced in these columns, the Motor Manufacturing Company, Limited, are shortly removing to the West End, where they have taken premises at 95, New Bond Street.

FROM Messrs. Hartcliffe, Lee, and Malkin, Limited, St. Simon Street Works, Salford, we have received a copy of the catalogue of lubricators for steam and internal-combustion engines, of which they make a speciality.

AN order for a public inquiry into the Maidenhead Bridge Tolls has been made by the Charity Commissioners. This will take place on the 18th inst., at 10.30 a.m., and motorists will look with interest to the result.

THE Firefly Motor and Engineering Company, of High Street, Croydon, have sent us a copy of the new catalogue they have just issued. It gives particulars of their 9-h.p. and 12-h.p. Firefly cars, and also the rates for the hiring and storage of motor-vehicles.

THE Century Engineering and Motor Company, Ltd., have recently despatched several Century light cars from the works, amongst others a handsome 12-h.p. brougham, specially built to the order of Lord Ebury, and a 12-h.p. tonneau for Mr. Courtney Warner, M.P.

A BALLOON carrying despatches will ascend from the Crystal Palace at about mid-day on Saturday, Nov. 1. In connection therewith a prize is being offered to the member of the Automobile Volunteer Corps who follows the balloon to its descent and captures the despatches.

THE London Motor Garage, Ltd., have acquired the sole rights for the United Kingdom and Colonies in the Pipe car, a vehicle which has already earned a reputation in Belgium.

WESTON MOTORS inform us that in the recent reliability trials, held under the auspices of the Automobile Club of America, from New York to Boston and back, a distance of 500 miles, two of their Weston steam cars (manufactured by Messrs. Grout Bros., of Orange, Mass.) went through without the loss of a single mark. Special arrangements were, of course, made for tank filling, but otherwise the cars were of standard design.

It is stated that the Mors Company has already sold its output for the whole of 1903.

ARRANGEMENTS are in hand to hold an automobile exhibition in the Idrotts Park, Stockholm, in May next.

THE HON. ARTHUR STANLEY, M.P., has been elected Vice-President of the Roads Improvement Association.

L'ASSOCIATION GENERALE AUTOMOBILE OF PARIS has voted a sum of 500 francs towards the cost of experiments with tarred roads in the Alpes Maritimes.

THE commandant of the North-Western Military Academy of Illinois, U.S.A., has organised an automobile gun detachment in connection with that establishment.

LAST week Mr. A. R. Atkey, of the Nottingham Automobile Club, sailed for South Africa. During his six months' absence, his local duties will be undertaken by Mr. M. R. Browne.

MR. J. BIGGS, managing director, informs us that the Whippet Motor and Cycle Manufacturing Company has taken over the business of the Whippet Cycle Syndicate, Limited (in liquidation), of the Whippet Works, Falcon Terrace, Clapham Junction, S.W.

A SPECIAL six-seated electrical motor-wagonette has just been completed by the City and Suburban Electric Carriage Company to the order of Baron Schimmelpenninck van der Oye, a member of the Dutch Legation in London. The vehicle is propelled by two 6-h.p. electric motors, which drive the rear road wheels through spur gearing. The accumulators have a capacity of running the car a distance of 80 miles at an average speed of 12 miles per hour.

"THE LIGHTNING CONDUCTOR," which, as we announced recently, was nearly ready for publication, is now on the bookstalls. It is a novel on novel lines, for the illustrations are photographs of scenery, and include reproductions of the Orient Express, Mr. Cecil Edge driving a car, Mr. Capellen—if we mistake not—dismounting from an automobile, and a view of the White Lion Hotel, Cobham, before which a gentleman who was prominent in motoring circles two or three years ago is standing. The opening scene of the story, which is published by Messrs. Methuen and Co., begins in the Oak Room at the White Lion, the proprietor of which, we may note in passing, makes no charge for motor-cars standing in the yard whilst their passengers refresh in the hotel.

AMONG the latest novelties for lady motorists introduced by Messrs. A. W. Gamage, Limited, are the "Adele" combination mask and wrap and the "Desiree" combination mask and hood.



In the "Adele," the combination of clear fine mica, firmly attached to the face shape of silky net, allows an unimpeded vision, with free respiration and ventilation; the pure Japanese silk wrap is attached firmly to both mica and net, and a simple arrangement of elastic and ribbon is drawn around the hat or toque, and is pulled together in gathers at back and front to the neck; the front gathers are so arranged that they can easily be loosened for a lady to use her handkerchief without disarranging the wrap in the slightest. The "Desiree" hood has the same combination of mica, net and silk, and covers hat, head, and face completely, preventing dust getting into the hair or blowing in the face, at the same time giving an uninterrupted and clear view, with free breathing and ventilation. The hood is easily attached, buttoning up the side with four small buttons, and, having the same ingenious arrangement of draw silk as in the Adele wrap, a lady is at no inconvenience, though fully protected from dust and sun.

EVIDENCE of the progress of automobilism comes to hand in the *Canterbury Times* of New Zealand, which, we understand, has commenced a series of Motor-Car Notes for its readers.

OIL MOTOR-CARS OF 1902.*

By CAPTAIN C. C. LONGRIDGE.

(Continued from page 671.)

Valve Area.—In this year's motors, there is among the best makers a marked and very praiseworthy tendency towards increased valve area. Where the sluggish-acting automatic inlet valve is retained, the difficulty with high piston-speed of ensuring a full charge is increased; and, in such cases, if 80 ft. per second for induction and 100 ft. per second for exhaust are to be at all approximated, it is evident that the valve areas can scarcely be too ample. There is little doubt that the sharp blast considered necessary in the aspiration method of carburation to secure proper suction and mixing of the petrol has hitherto militated against the use of large-sized inlet pipe and valves. The necessity for this sharp blast is purely imaginary, as there are many very obvious ways in which the difficulties, real or apparent, are easily overcome. So far as the author is aware, no clear rules for determining the valve areas of explosion engines have been published. There is no difficulty in calculating the induction-valve area, but the problem of the exhaust valve is less simple. In any case the common practice of making inlet and outlet valve of equal area cannot be right.

Carburettors and Carburetting.—These are roughly divisible into two systems—*aspiration carburettors*, and *positive-feed carburettors*. Of the two, the latter, in the author's opinion, is unquestionably the better system. Most aspiration carburettors draw the petrol from a jet, communicating with a constant-level chamber or reservoir. The result is inaccurate and faulty petrol supply, since the force of the suction varies with the speed of the engine. Rich charges are thus obtained when the engine is racing, and poor charges when it is slowed down from over-load—the reverse of what ought to be. Makers are now recognising this defect, and are introducing devices more or less closely approaching positive measurement. As instances of the introduction of positive fuel measurement in petrol motors may be cited the Koch pump, the Gobron-Brillié bucket measurer, the adjustable stop-jet in the Mercedes Simplex, &c.

There is a good deal of evidence to show that the problem of carburation is at present eliciting the attention of inventors—a sign that something yet better is wanted. To take one among many, Messrs. E. F. Bradley and W. R. Pidgeon have recently published a new design of carburettor. They found by experiment, as might have been surmised *a priori*, that, to get the maximum power at any number of revolutions per minute, the jet of the carburettor must be larger for low speeds than for high ones, and, as it is difficult to adjust so small a thing as the hole in the jet, they insert a small air-spring valve in the air-pipe between the carburettor and the induction valve. This auxiliary valve opens wider and wider as the engine speed increases, closing again as it decreases, thus decreasing or increasing the suction on the jet. At starting, as the jet is a large one, the petrol supply is also large and the engine starts readily, then as it speeds up the air-valve comes into action, and automatically letting in more air reduces the mixture to and maintains it at the proper proportions.

In connection with carburation, the author raises the point whether it be better to carburate the incoming air, or to first introduce the air and then carburate it, that is, add the fuel, at the end of the compression stroke. This latter method avoids all possibility of premature explosion, and thus enables higher compression to be used. On the other hand, it is urged that the charge will be imperfectly mixed, and give imperfect and irregular combustion. The author is doubtful whether for petrol and gasoline there is anything in this objection, or whether, if there is anything, it is not more than discounted by the advantage to be gained. It is certain that a number of petrol motors run, and run successfully, by merely injecting the petrol into the cylinder and letting the air and heat do the rest.

On the whole, the author thinks that, for petrol at least, a good deal more stress is laid on pre-mixing than need be, and that carburation at the end of the stroke, inasmuch as it admits the use of higher compressions and has another important advantage, is probably as good as, if not better and more economical than, the more ordinary method. It probably requires high compression.

The Fuel.—The consideration of the fuel used is a very important portion of the subject. It seems to the author astonishing that petrol should have been so long in use and yet so little known about it. He believes he is correct in stating that in this country at least neither the maximum explosion pressures of various petrol mixtures, nor the times of attaining maximum pressure, nor the rates of cooling are yet ascertained. Under these circumstances makers, as far as carburation is concerned, must be working more or less in the dark. A few years ago Dr. Boverton Redwood contributed some valuable information on the subject. The results of his experiments are as follows:—

"With seven volumes of the liquid (pentane and gasoline) to 100,000 volumes of air the combustion is a silent one, while with four times that proportion of liquid the mixture also burns without explosive violence. With between eight and nine volumes of liquid to 100,000 of air, there is a marked increase in the energy of the combustion, and, when the quantity of liquid is augmented to 10.5 volumes, a sharp explosion occurs. When the proportion of liquid is increased beyond about seventeen volumes there is a perceptible decrease in the violence of the explosion, with corresponding gain in the volume and duration of the flame, and with twenty-one volumes of liquid to 100,000 of air the explosion is as mild as with 8.4 volumes."

* Abstract of Paper read before the Institution of Mechanical Engineers

These results, adequate for Dr. Redwood's purpose, are not sufficiently comprehensive for the requirements of the motor manufacturer. For his purpose, estimation of the value of any explosive mixture involves knowledge, not only of the maximum explosion pressure as one factor, but also of the rates of cooling as another factor. It is only from the faculty of producing pressure and the capacity of resisting cooling, that we arrive at the mean pressure which determines the true efficiency of the mixture. The determination of these factors is still wanting. It is, however, likely that the deficiency will soon be supplied, for the author is in a position to state that the necessary experiments are in progress. The results will be awaited with considerable interest, and there is little doubt that they will establish the value of petrol-measuring devices for carburettors when efficiency and economy are rigorously followed.

Under the head of fuel it may be noticed that the motor-cars of to-day, more especially those of French makers, show a tendency to acquire greater range—that is, to be equally suited for the consumption of either petrol or alcohol. Is this a precursor of the supersession of the refined product of nature by the purely artificial production? That is a question for the chemists to decide. There is, however, an interesting phenomenon which the trial of alcohol has made sufficiently prominent to merit attention. The point is clearly put in an article in *Engineering*, on "French Spirit Motors":—"In theory, the consumption of spirits for an equal power is 1.8 times the consumption of petrol; in practice, however, the presence of water in the spirits increases the elasticity and efficiency of the power, and the proportion is only 1.25 to 1. . . . Spirit motors have more elasticity than petroleum motors, and work more softly; the pressure of the explosion can be increased without disadvantage to the machine, the expansion curve being very regular. . . . It has been asserted, from results of tests carried out in Germany, that the efficiency of spirit motors is 23 per cent., against 15 per cent. for petroleum, and 13 per cent. for steam engines."

Why should the presence of water in the alcohol motor give this increased efficiency? Before attempting a reply, it may be stated that the same phenomenon has been observed in the petrol motor; for, if the published reports are to be credited, the addition of water to the charge in the Banki engine reduced the consumption to 0.45 pints per b.h.p. per hour. There, again, in general terms, the advantages claimed were greater economy, greater elasticity, and smoother running.

In July of this year, Mr. C. Rainey, at the author's request, made some experiments with water injection in a petrol motor. Owing to want of appliances no very close work could be done, but the general results reported by Mr. Rainey are these:—(1) That while maintaining the petrol supply constant, the addition of water gave increase of power and cooler running; (2) that this effect was maintained until the water reached a quantity equal to the amount of petrol; (3) that a larger quantity of water interfered with the sparking, and caused frequent failures of ignition, which, after a short time, failed altogether.

As far as the author is aware no very complete explanation of these better results has so far been published. The advantages of water have been described as a contribution of mechanical energy in the form of steam, as a cooling agent obtaining increased charge volume and higher compression, as an absorber of the violence of explosion, etc. To these explanations the author will add another. During the recent testing with tube ignition of a petrol motor, in which the cylinder wall developed porosity, admitting moisture to the combustion chamber, a sudden advance in ignition was observed, together with an increase of exhaust temperature, leading to burning of the valves. The author considered the following to be the possible reason:—Assuming the cylinder charge to be pentane, C_5H_{12} , the addition of water or aqueous vapour in contact with the incandescent tube might lead to partial decomposition, carbon combining to carbon monoxide, hydrogen being liberated. In other words, water-gas would be formed. The advance in ignition would be due to the greater inflammability of the gas, and may be illustrated thus:—The molecular weight of pentane being 72, 256 of oxygen would be required for its perfect combustion. On the other hand, the molecular weight of the water-gas, $CO + H_2$, being 32, the oxygen needed for complete combustion would be 48. One part by weight of pentane, therefore, would require 3.5 O, and one part of water-gas 1.5 O. This at once shows why the ignition is advanced, the greater inflammability of the water-gas being due to the lesser amount of oxygen wanted for combustion. The increased temperature of exhaust might be accounted for by assuming that the nascent water-gas, burnt with a fierce heat and acting as an extended flame carrier, produced more rapid and complete combustion of the charge. Unfortunately, the testing department in question is entirely destitute of any laboratory or appliances for following up questions of research, and the author was unable to analyse the exhaust gases, and thus determine whether the hypothesis of more complete combustion was correct. The above is not an isolated case, nor is it confined to one size or type of motor nor to tube ignition only, the same facts being observed when electric ignition is in use. It has been suggested that earlier ignition is due to the explosion gas entering the water-jacket, and, by driving the water from the cylinder walls, increasing the heat of the combustion-chamber. But there are a number of arguments against this suggestion, and the phenomena of earlier ignition and hotter exhaust when a little water is present, with increase of power and cooler running when a large and regular supply is added, need another explanation.

Treated mathematically, as a purely thermal problem of profit and loss, it can, no doubt, be shown that, whatever be the physical condition of the water at the beginning of the compression stroke, and whatever be the laws of specific heat, the addition of water to the charge is an entry on the

wrong side of the balance-sheet of an explosion motor; and that the advantage of water injection can lie only in the possibility it gives of employing much higher compression without risk of premature ignition; of obtaining heavier charges; and of reducing heat loss through the cylinder walls. But does this academical statement meet the whole case? Does it explain the phenomena above? Does it satisfactorily explain the increase of power without the increase of compression, to which Professor Meyer attributes the results of the Banki motor? And does it explain the remarkably high and maintained mean pressure of that engine when water is used?

Several arguments might be advanced for the entry of an additional factor into the problem, the possible improvement of combustion by the presence of water vapour. The idea is not new. Proposals to improve combustion by decomposing the fuel with steam or aqueous vapour occur in many patents. The more perfect combustion by simultaneously and together evaporating water and vaporising oil is ascribed by Altmann to an oxidising action of the water vapour. Under the influences of high temperature, the close contact of compression, with the physical and chemical disturbances of explosion, it does not seem impossible that water vapour may cease to be inert, and, under certain conditions, may promote the splitting of a hydrocarbon into light gases, olefines, hydrogen, burning at lower temperatures (1,124 degs. F.), and into heavier residues, carbon monoxide, etc., requiring a higher temperature (1,200 deg. to 1,350 degs. F.) for their combination with oxygen. It would be to the presence of these light gases that earlier ignition might be due, while the hotter exhaust might be attributable to the later, and probably better, combustion of the heavier products, by reason of the rapid and extended initial inflammation. Communicating with the author on this question, Mr. H. J. Bult, F.C.S., wrote: "The decomposition of petrol in the presence of water might take the form you suggest, and could be explained by the equation: C_5H_{12} (pentane) + $H_2O = C_2H_6$ (ethane) + $CO + C_2H_4$ (ethylene) H_2 ." But he expressed an opinion that the reaction might rather be more in accordance with $C_5H_{12} + H_2O = C_4H_{10} + CO + H_2$. Another reason for attributing the phenomena possibly to decomposition is, as Mr. Bult proceeded to add, that it is well known, when petroleum compounds, especially those belonging to the paraffin series, are superheated, they partially decompose into olefines and gases, at the same time leaving a deposit of carbon. The author's suggestion, therefore, is that the presence of water vapour, at a certain temperature, may disturb the chemical equilibrium of the oil at the critical point, hastening and promoting its decomposition. That a hydrocarbon, even without the presence of water, would, in the combustion chamber, decompose into light and heavy constituents, seems very probable—the result being combustion and heat evolution more or less of an irregularly progressive nature. Comparing the oil with the gas engines, using similar compressions, the ratios of maximum pressure to compression in oil motors are, if anything, higher than those in gas engines; while the ratios of mean pressure to maximum pressure are much lower. May it not be legitimate to attribute the high initial pressures of the oil motor to the rapid inflammation of volatile gases, and the low mean pressures to the slower and imperfect combustion of the residual products of the decomposition? It is claimed that the addition of either hot or cold air to steam serves to lower the point of condensation. Now, is it possible that some analogous action takes place when water vapour is mixed with the explosion gases? Is there a development of latent heat? Is there a marked retardation in the rate of cooling, and therefore a higher exhaust temperature? Is there a retarding effect on dissociation, and so the attainment of a higher initial temperature; or is there an acceleration in recombination after dissociation, and so the maintenance of a higher mean temperature? But, as Mr. Clerk puts it, without exception the actual pressure of explosion falls far short of the calculated pressure; in some manner the heat is suppressed or lost; for some reason nearly one-half of the heat present, as inflammable gas, in any explosive mixture, true or dilute, is kept back and prevented from causing the increase of pressure to be expected from it. There is, therefore, a very wide margin for greater initial heat development, and it may be that the presence of water vapour, true or decomposed, has some developing action on this latent potentiality. The whole question is obscure, and automobilists must not conceive the idea that even if water is proved to be a useful addition to the charge, the problem is at once solved. Probably correct employment of water will demand certain conditions that have yet to be studied, and may require a change in the motor design. Anticipating the objection likely to be raised, that water will corrode the valves and cylinder, the author replies that this does not appear to be the case. With alcohol, containing water, it has been found that where the curve of the motor was regular, indicating perfect combustion, the condensation liquid of the exhaust was neutral, and there was no attack of the valves and cylinder walls. Three years of experience with the Banki oil and benzine motors show no corrosion from the use of water.

In another direction also, and this time with more definite knowledge and purpose, improvements in fuel are under consideration. These lie in chemical additions of explosive nature as petrol enrichers. The idea is not new, and frequently recurs in past patents. There is no theoretical difficulty in chemically increasing the explosive power of petrol. But there are difficulties of a practical character which consists in finding an enricher that fulfils the two conditions—of not increasing the cost of the fuel per horsepower, and of not introducing any element of danger in its use. Picric acid has been experimented with, but it is manifestly dangerous to handle, and is said to leave a highly explosive deposit in the exhaust pipe and silencer. Bisulphide of carbon has been frequently suggested; but it will certainly need to be deodorised. Curiously enough, salt also has been recommended.

The effect of this ingredient, if any, would be due to the formation of chloride of nitrogen and hydrochloric acid, quite prohibiting its use. There are, however, other possible means of enriching petrol; and the author, in conjunction with Mr. H. J. Bult, is now considering one of a promising nature.

Ignition.—Lamp ignition, except as a standby, may be said to have disappeared. A little while ago some interest was excited by a new catalytic ignition. Such a method, however, has neither the flexibility, the inflammation capacity, the certainty, nor the suitability of properly designed electric firing. The only method, therefore, to be considered in detail is the electric. This divides itself into dynamo, accumulators, magneto-electric, or combinations. The dynamo is rarely used alone; more generally it serves to ignite the charge, while the surplus current goes to the accumulators, which are thus kept ready for emergency or for lighting purposes. This seems an excellent if not the best system. As regards accumulators the author's experience is that they never run nearly the mileage claimed and are otherwise troublesome. In this country, the best-known magneto ignition is the Simms-Bosch. In whatever form it is applied, electric ignition is a notable advance over previous methods. It provides absolute immunity against fire; it furnishes a spark well suited to explosive mixtures, it increases efficiency by enabling the charge to be fired at the moment of maximum compression, and it admits of the employment of higher compressions. Existing systems of electric ignition admit, among other directions, of improvement on two lines—automatic timing and automatic consumption of current. The timing of the spark should automatically adjust itself to the speed of the engine. To illustrate this by an extreme case, assume a motor running at high speed and the spark set to pass at the moments of maximum compression; if suddenly, by the application of the throttle or other cause, the speed is greatly reduced, premature

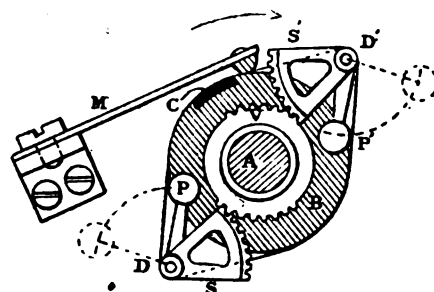


FIG. 3.

FIG. 3.—AUTOMATIC SPARK CONTROLLER. The fibre contact-breaker disc is mounted on a sleeve V, rotatable round the motor shaft A. As the speed accelerates, the centrifugal masses P P', pivoted on studs D D', are forced outwards, causing partial rotation of the toothed sectors S S'. The motion of the sectors by means of the sleeve V, loose on the shaft A, advances the position of the disc, so that the brush M establishes earlier touch with the contact plate C.

ignition will result, with considerable shock to the engine, crank-pin and bearings. But between this danger point and the period of correct firing is a gamut of speed variations, in all of which to maintain correct periodicity the timing of the spark should be altered. To repeat this in other words—for the matter is more important than many makers seem to think—with early ignition there is injurious strain on the engine, probable heating of the crank-pin, and undue wear on the crank-shaft bearings. With late ignition there is considerable loss of power, high exhaust pressure with increased strain on the exhaust valve gear, incomplete combustion, sufficiently prolonged, perhaps, to cause gradually burning of the valves, and possibly back-firing of the fresh charge. With regard to the period of normal ignition, the author's own view is that it might be well so to dimension the compression chamber and stroke as to produce at the dead points slightly more compression than it is intended to use for explosion, thus allowing the crank to pass the dead point and gather way before igniting the mixture at the working compression point. On the indicator diagram, the explosion line, instead of being vertical, would then slightly incline towards the expansion curve. In any case efficient running greatly depends on accurate ignition, and should be treated accordingly. At present timing is mostly left to hand regulation by the driver; but attention is now being given to automatic spark controllers, one of which is illustrated in Fig. 3. A second line for improvement is automatic regulation of the amount of current used. Naturally this is of chief importance where accumulators only are used. At present the flow of current is usually made by a brush brought in touch with a contact piece on a rotary disc. If this contact piece is made of sufficient width to ensure the passage of enough current when the motor is running at high speed, it will pass more than sufficient current when the engine speed is reduced.

(To be continued.)

CORRESPONDENCE.

WATER CIRCULATION TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Can any, among your numerous readers, explain how it is that after running ten miles the water in my tank boils, and I cannot bear my hand on the brasses at the end of the piston rod? I carry four gallons of water. My car has pump, radiator, and electric ignition. The engine is 5-h.p., the cylinder being 5 in. diameter by 5 in. stroke. The car is of the Benz pattern, with belt transmission. The grease in the cup on the crank turns to oil. When I hear of cars running many miles without unduly heating, I feel disheartened. I have had the combustion chamber attended to, also all pipes, etc., but it all makes no difference. Several have had a turn at the trouble, but all fail to tell me the cause. May I be more fortunate among your readers.—Yours faithfully,

PUZZLED.

HEATING OF MOTOR HOUSES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I had a Tortoise stove burning all last winter in my motor stable, quite satisfactory. An asbestos-lined screen in front, in case of overheating, is desirable. Re furring of boilers, I found the water-jacket, etc., partially furred on my petrol car, and half an inch of oil, etc., in bottom of water tank. This may be a hint to some.—Yours truly,

A. C. D.

CARS FOR TRAVELLERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to "W. J. S.," about eighteen months ago my requirements were similar to his. Requiring a car for working a medical practice in town, after due consideration, I invested in a Locomobile steam car, and have used it regularly since. I must say the vehicle has fairly fulfilled my requirements, but this type of car requires close watching and attention; the joints and packing require constant tightening and replacing—a work which can only be done by a skilled mechanic. The car is an excellent one for light work about town, where the roads are good, but it has one great drawback—the fire blowing out if the car is left standing any time. Many ingenious devices are used to overcome this fault, but their success is doubtful.

As to internal combustion cars, more than half their failures on the road are due to faults in electrical ignition, carburettor, and tyres. In my opinion, the most suitable car for your correspondent's requirements is the Roots and Venables; it is fitted with solid tyres, has tube instead of electrical ignition, and common paraffin is used, which practically ensures freedom from fire. My experience of this car is limited to a preliminary run, and I was agreeably impressed with its ease of running, though shod with solid tyres.

As to cost of running, a two-seated petrol car will run 20 to 30 miles on one gallon of petrol, a paraffin car about the same distance on a similar quantity of paraffin, and a steam car about 10 miles. The cost of fuel is, however, a small proportion in the cost of maintenance. In my case I would put it for a steam car per week: Petrol, 6s.; stabling, 6s.; repairs, renewal of tyres, 10s., on a weekly distance of 80 miles.

As to the query about Benz cars, the principle is similar to the present petrol cars, with this difference—the Benz was belt-driven, whereas the modern cars are nearly all gear-driven. Yet the Benz is a most popular and reliable car; hundreds of them are still doing useful work, and I believe one of the great secrets of its success was that it was shod with solid tyres.—Yours truly,

MEDICUS.

MECHANICALLY-OPERATED INDUCTION VALVES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am sure the majority of your readers will peruse with pleasure the paper read by Capt. C. C. Longridge, reported in your last issue. The author touches on several points of great value to the motor industry, and I notice he lays great stress upon the value of mechanically operated induction valves. Being deeply interested in this matter, I hope it will be made a subject for discussion. Some four years ago I experimented with a motor manufactured by the Progress Motor Company, and designed by Mr. E. J. West, which had the induction valve mechanically operated. I found that the burnt gases in the combustion chamber, due to the back pressure of the silencer after completion of exhaust stroke, would "blow back" though the carburettor, filling the pipes and carburettor with foul gas and dirt, instead of their being filled with a rich charge waiting the opening of the valve. I tried giving the valve "lead," but found the blow-out of the carburettor considerably increased (so much for scavenging), but by giving the piston the "lead" and so allow the burnt gases to expand in the cylinder almost to atmospheric pressure before opening the valve, the difficulty with the carburettor was overcome.

The motor was afterwards fitted with an ordinary automatic spring induction valve, and gave out practically the same horse-power on the testing stand as long as the valves did not stick or become dirty; only

then did the mechanically-operated valves show any advantage. Again, the spring automatic valve does not close immediately on the completion of the suction stroke with high-speed motors. The momentum of inflowing gases, and the inertia of the valve, keep the same open for an appreciable time after the end of the stroke—quite long enough to overcome the vacuum in the cylinder. It is worthy of note that in this position the piston is not moving so rapidly. The engine I refer to was well designed and had valves of ample size. Should this question not be raised at the meeting, I consider it is well worthy of discussion in your columns. I think it a pity to add unnecessary complications to a motor. With my present car (a Progress 8-h.p.) I have this year run over 9,000 miles without the slightest hitch, and can always depend upon doing forty miles per gallon of petrol with full load of four passengers up. Surely that is economical.—Yours truly,

H. J. WIMSHURST.

RAILWAY COMPANIES AND CARRIAGE OF PETROL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—We, along with the whole of the trade, have received the expected notice from the railway company re the carriage of petrol. I have been to see the railway company which have done our carrying, and asked them to give us the consideration our business should demand (we have paid in carriage during the past eleven months over £600), and have told them that if they are not prepared to carry our petrol as before we shall take all our cars at the port of entry and bring them to our depot by road, thus taking away from the railway company the carriage that we, as one company, have paid. I suggest that a meeting of the trade be called and that a united resolution be passed that all cars coming into the country be driven from the ports and delivered by road, wherever possible. We are making our arrangements to run a car specially for carrying petrol from Gooles to Bradford, and hope to see a united movement made to bring the railway companies to a more sensible arrangement.—Yours truly,

THE BRADFORD MOTOR CAR CO.

POLICE TRAPS IN SUSSEX.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I trust you will allow me space in your valuable paper for the benefit of motorists who journey from London to different resorts on the south coast through Crawley, by giving them a special warning against the police in the neighbourhood, who are lying in hedges and ditches to catch them. It seems to me, and also my friends, that as soon as a policeman hears a motor-car coming from any direction, he takes the speed from the noise of the engine, and consequently stops his watch and states that they are then travelling at a furious speed. Surely something could be done to save the motorist from this unwelcome and unmanly way of catching them. The way they are trapped in this district is mostly by two or three plain-clothes men and one in uniform. I also wish to mention that the measured distances are from the West Sussex boundary, situated at the foot of Hoggs Hill, on the Brighton side of Crawley (a distance of about half a mile from the village) to the county boundary of Sussex and Surrey, situated on the London side, about one and a half miles below Crawley. I should therefore advise all motorists between these points to take care.—Yours truly,

SUCCESS TO THE MOTOR.

THE ROUTE TO LIVERPOOL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to your correspondent, I can strongly recommend the following route to Liverpool. Once out of the London district the road surface is good practically the whole way till Warrington is reached, seventeen miles from Liverpool, and the hills are not severe nor particularly numerous. According to the Contour Road Book in which this route is given, the steepest are only one in fourteen. The route I suggest is Holloway Road, through Finchley to Barnet, St. Albans, Dunstable, Stoney Stratford, Towcester, Daventry, Coventry, leaving thence by the Radford road to Kingsbury, Lichfield, Rugeley, Stone, Newcastle-under-Lyne, Holmes Chapel, Knutsford, Warrington and Liverpool. A great advantage of this route is that all the very large towns are avoided. The distance from London is about 200 miles. Those who take an interest in small cars might like to know I drove there and back this last April in a 3½-h.p. Georges Richard voiturette, air-cooled going, and with a water head returning, doing the double journey without a hitch.—Yours faithfully,

E. WILLIAMS MARSHALL.

THE NUMBERING OF CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I believe this important point is to be debated by the A.C.G.B. and I. next week. Those of us who are opposed to this need no better declaration of our views than that officially issued by the A.C.G.B. and I. itself a short time ago. In a circular manifesto to the County Councils of England and Wales the Club, in 1901, very wisely said:—

"18. English gentlemen have the greatest repugnance to having their private vehicles identified and disfigured by numbers, and this objection is equally strong whether their carriages are drawn by horses or propelled by motor power. The numbering of a gentleman's private carriage would be such a departure from the accepted conditions of life in this country

that it would lead the public to believe that a man who prefers to use a vehicle propelled by an engine to one drawn by a horse is, in the eyes of the authorities, a person likely to misconduct himself. The stigma implied would prevent gentlemen from purchasing motor vehicles if the numbering were insisted upon.

"19. The driver of a numbered motor vehicle would be subject to continual prosecution, since any idler or prejudiced person might, irrespective of the truth of the complaint, state, without warning or notice to the party informed against, that the vehicle was being driven at an excessive speed. It would rest with the driver of the motor vehicle, although taken unawares and thus prevented from obtaining witnesses, to prove to the contrary. In view of the opposition which has always existed in this country to the introduction of a new form of locomotion, the number of persons who are prejudiced against motor vehicles must for some time be considerable, and the continual oppression to which the driver of a motor vehicle would be subjected would probably lead him to abandon the use of motor vehicles for private passenger traffic upon highways.

"20. There is no just reason why the proposed compulsory numbering should apply more to motor vehicles than to dogcarts and other light vehicles drawn by horses, which are frequently driven at a speed of at least fifteen or sixteen miles an hour, and cannot be stopped or directed with the same facility as a motor vehicle.

"21. . . . owners of motor vehicles have a right to claim the same privacy in respect of their motors as is permitted in the case of other private vehicles.

"23. The Committee have also been informed by several intending purchasers of motor vehicles, that if their carriages are to be labelled with numbers they will decline to adopt a method of transport which would be subject to such an unfair and offensive regulation. This is incontrovertible evidence of the damage which will be done, if this proposal were adopted, to what otherwise must be a valuable and important industry."

If we add that Scotsmen and Irishmen also agree with the sentiments above attributed to English gentlemen, then there seems no need for the opposition to say anything beyond asking the Club Committee why they have so suddenly eaten these very carefully weighed and very true utterances of last year. The more one thinks and talks of it to fellow-motorists, the more does it seem imperative that the whole thing should be left in peace till the rapid education of the whole people is completed, and then, perhaps two years hence, the Government and Parliament might take up the consideration of the legislation dealing with the whole subject of road traffic; and this without imposing an ugly, degrading, and dangerous—from a police and J.P. persecution point of view—idea such as compelling a private carriage to have a huge inscription like 101666 stuck on it, suggestive of evil and a career based only on sufferance.

I am in favour of persons who drive at over (say) thirty miles an hour having a certificate of competency if you like, of all and every vehicle on the road having lights, and of other necessary laws—if carried out all round. But why we should ourselves ask to have number-plates as if we were licensed beggars, is going to a very doubtful extreme which cannot be undone. I have made inquiries among English lawyers and I find it is the same as in Scotland—in any appeal in a criminal matter the Supreme Court will deal with points of law, the facts are for the court of first instance. And it could not be otherwise in justice. Hence, whether anything was done or was not to the common danger rests with the views of the lower court; and, therefore, no hope need be placed upon legislation as to appeals to take the place of the gradual education of the absurd Courts (of Justice?) which your English system of J.P.'s entails upon you. Moreover, Parliament in all common sense could never sanction a special law for one class of the community which gave it a direct or novel road to the Supreme Court.

I hope, therefore, that those who are opposed to numbering will not swallow the pill because coated with some doubtful matters about Appeal Courts or that Parliament will not remove the speed limit without plaques. Let time do its usual work in bringing sense to even dull and prejudiced folk.—Yours truly,

NORMAN D. MACDONALD.

In reply to "Puzzled," re "Kicking Engine," Mr. C. W. Pettit writes:—"I think he will find the error due to the cotter pin in the fly-wheel, or the bar across piston that holds the piston rod being loose—either of these will cause the kicking."

OBSTRUCTIONS ON THE ROAD.

At Jedburgh, N.B., last week, Alexander Allan, a farm servant, of Maxton, was accused of having on September 24th laid a large stone upon the highway leading from St. Boswells to Kelso by way of Maxton, between Riddleton-hill Road End and the village of Maxton, so as to cause an obstruction to a light locomotive belonging to Mr. Bertram Gibberd. The Provost said due consideration had been given to all that had been stated on behalf of the accused, and taking all the circumstances into account, the Bench imposed a fine of 10s. with 10s. expenses, or seven days' imprisonment.

DAMAGES AGAINST A MOTORIST.

At Lichfield County Court last week, before Judge Mullholland, Captain Harold Penington Robinson, of Measham, was sued for damages caused by his motor-car to a horse and trap belonging to Mr. Holt W. Ridley, estate agent for Sir C. Forster, Bart. On June 21st Mrs. Holt Ridley was standing

outside her dressmaker's house in Lichfield with the dogcart and pony, when Captain Robinson drove into the city in his motor-car. At its approach the pony became restive and unmanageable. Mrs. Holt Ridley shouted to the driver to stop, but on reaching the pony the animal swerved, slipped, and fell, breaking the shafts and doing other damage. Captain Robinson said he neither saw Mrs. Holt Ridley's hand nor heard her shout. The Judge said drivers of these vehicles should keep a look-out for signals, and gave judgment for plaintiff for five guineas.

HORSES AND MOTOR LURRIES.

In the Salford Hundred Court of Record, before Mr. H. S. Shee, K.C., an action was brought last week by John Hadfield, a carter, against the Manchester Motor Transport Company, Limited, to recover damages for personal injury, caused, it was alleged, by the negligence of the defendants' servants. It was stated that on June 25th plaintiff was loading his lorry at a warehouse in Mount Street, Salford, when a motor lorry came into the street, making a noise, which startled plaintiff's horse. As the animal bolted, the plaintiff noticed a woman with a child in front, and as the horse had got on the pavement and was making straight for them, Hadfield jumped on to the shaft to try and reach the reins. He was kicked off, however, and fell on the pavement, severely spraining his ankle. The horse was afterwards brought to a standstill. In his evidence the plaintiff said the motor lorry did not stop when the horse took fright, and the noise continued. If it had pulled up he was sure he could have stopped his horse. Mr. Overend Evans called evidence to show that the motor lorry stopped before reaching the street in which the plaintiff's lorry stood when the driver saw that the horse had taken fright. Moreover, the motor lorry did not make a scraping noise. The jury gave a verdict for the plaintiff, and awarded £20 damages.

REFUSING TO STOP.

At Bedford last week Albert Okins, of Rushden, was summoned for being the driver of a motor-car on the highway at Podington on July 26th which was not worked according to the regulations (Light Locomotives on Highways Order). Mr. Richard Orlebar, of Podington, stated that on July 26th he was driving a pony and cart past Hinwick House when he saw a motor-car coming. As his pony was shy and restive at motors, witness held up his hand to the driver, who, however, did not stop, though witness also shouted to him. The pony began to turn round, and he had difficulty in holding it. It got nearly across the road as the motor passed him on the grass. Witness called out again to the driver to stop, but he kept on.

Defendant elected to be sworn, and said that just before he reached Hinwick House he saw the trap. He was going about five miles an hour at the time, and watched the driver. When only five yards from him he held up his hand, but had witness stopped his car at that moment the engine would have made more noise, and as there was plenty of room to get by on the grass he decided to go on, so as to avoid an accident. When he was passing the trap the driver appeared to him to pull his near rein and bring the back of his cart towards the motor-car.

In answer to the Bench, defendant said there was not time to stop his engine, and he broke the law by going on because he believed that if he stopped Mr. Orlebar would be in a worse position.

Mr. Whitworth, after consulting with his colleagues, said they thought that defendant ought to have stopped earlier, though when he did pull up he did the best that was possible. On the whole they thought justice would be satisfied by the imposition of a fine of £3, with costs 9s. 6d. This was done as an example to show other people that the law must be obeyed.

TAMPERING WITH A MOTOR-CAR.

A SINGULAR case was heard at Nottingham County Court last week, in which Walter John Dexter, of West Bridgeford, sued George Robertson, formerly landlord of the Hop Pole Hotel, at Ollerton, and George Pinder, jun., of Edwinstowe, for £10 1s. 6d. damage to a motor-car. Mr. C. E. W. Lucas, for the plaintiff, said that on June 27th, Mr. Dexter, accompanied by his wife, drove his motor-car from Nottingham to Ollerton, where they put up at the Hop Pole, and had tea. When the plaintiff wished to return home he found that there was something wrong with the engine of the car, and he could not get it to start. After trying for a long time, he decided to go back by train, and return for the car in the morning. Mr. Robertson told plaintiff to push the car into the yard; the door would be locked at night, and no harm would come to the car. The next day Mr. Dexter went over to Ollerton with a man from Nottingham, and then found that somebody had been tampering with the car. It was afterwards discovered that a young man named Pinder had taken it upon himself to see if he could make the car go, but instead caused damage which cost £10 1s. 6d. to put right. Under the circumstances Robertson was claimed against for negligence as bailee, and Pinder for trespass. Mr. Day submitted that negligence had not been proved against the innkeeper, and his Honour agreed, finding that Robertson had taken the ordinary precautions of an innkeeper, and judgment was entered for him with costs. The defendant Pinder said he had succeeded in repairing other cars, and as he was out of work at the time, he thought he saw a chance to earn something. His Honour said Pinder should have asked permission first, and he would have to pay for the damage he had caused. Judgment was accordingly entered against him for the amount claimed.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Sohkull	W. Haughton, Woking	34 m. p. h.	£1, etc.
Shoreham ...	C. A. Fletcher	23 m. p. h.	£5, etc.
"	E. A. Cave	20 m. p. h.	"
"	H. Coombs, London	24 m. p. h.	"
Leeds	B. Brown, Darlington	20 m. p. h.	"
Ripon	J. P. Thompson, Belfast	—	£10, etc.
Elgin	H. W. Whitebread	—	£5.
Kingston ...	N. C. Maudslan, Chelsea	—	40s., etc.
"	F. J. von Laer, Hampstead	—	"
"	A. Pellant, London, W.C.	—	20s., etc.
"	W. J. Kay, Ditton	—	10s., etc.
Steyning ...	D. Caraux	28 m. p. h.	£10, etc.
Doncaster ...	Capt. E. Morrison, Newport Pagnell	—	£1, etc.
Wokingham ...	J. A. Miller, Westbury	—	£2, etc.
"	A. E. Newton, Reading	—	10s., etc.
"	H. Cross, Newbury	—	£2, etc.
*York	A. E. Walster, York	—	Dismissed.
Horsham	Sir J. Shelley, Bart. Horsham	—	£2, etc.
St. Ives	T. Martin, Acton	—	£1, etc.
Perth	E. Trotman, London	—	£7 10s.
"	A. Jones, Muthill	—	£3.
Woodbridge ...	J. Lindsay Scott, Melton	—	£2, etc.

Where no alleged speed is given it is understood to be above the legal limit.
* Motor-cycle cases

At Doncaster West Riding Police Court, on Saturday, Captain Ernest Morrison, Newport Pagnell, was summoned for driving his motor-car at a speed exceeding the 12-mile limit, at Austerfield, on October 2nd. Police-constable Brookes stated that he was stationed on the Great North Road in plain clothes, along with Sergeant Sowray, and about six o'clock defendant passed witness in his motor-car, coming from the direction of Bawtry. Sowray called to witness, and he referred to his watch, and discovered that defendant had covered a distance of a little over half a mile in 1 min. 10 sec. Sergeant Sowray said defendant also travelled over a stretch of road which had been previously measured for 1 mile and 172 yards, and he performed this distance in 2 min. 10 sec. A fine of £1 and £1 1s. 6d. costs was imposed.

At the East Ormesby Petty Sessions held at York on Saturday, A. E. Walster, fourteen, was summoned for driving a motor-bicycle at a greater speed than twelve miles an hour at Dringhouses, on Sunday, September 28th. At the conclusion of the case for the prosecution Mr. Dashwood Carter, who defended, made a technical objection. He said that there was no evidence before the Court that the Local Government Board regulations, under which his client was summoned, existed. No authorised printed copy of the regulations being put in, the Bench had no legal evidence before them that twelve miles an hour was the limit for motors. The Bench dismissed the summons under the technical objection, and Superintendent Knight intimated his intention of summoning the defendant again under the Light Locomotives Act for driving at the rate of over fourteen miles an hour.

At Woodbridge Petty Sessions, last week, Mr. John Lindsay Scott was charged with "driving a light locomotive" at a greater speed than twelve miles an hour, on October 13th, at Martlesham. The defendant did not appear, but the Chairman said a letter had been received from Mr. Scott, apologising to the Chairman of the Bench for his absence, and stating that it was impossible for him to be present. Police-constable Lord stated that on Monday, October 13th, he received a telephone message from Supt. Staunton at the County Police Station, Ipswich, at eleven minutes past four, and in consequence posted himself at the milestone in the Thoroughfare at Woodbridge. At twenty-one minutes past four Mr. Lindsay Scott came up in a white motor-car, in which were two other persons. In reply to the Chairman, the witness said he was asked the time by his watch through the telephone. Supt. Geo. Staunton, stationed at the County Police Station, Ipswich, said he was in the Chief Constable's office on the 13th October, and at 7½ minutes past four he saw Mr. Lindsay Scott drive his white motor-car past the window in the direction of Woodbridge. He called up Woodbridge by the telephone, and spoke to Police-constable Lord, whom he asked the time by his watch, and he replied, "Seven minutes past four o'clock." He (Supt. Staunton) looked at his watch, and it was twelve minutes past four. He gave the officer certain instructions, and received a telephone message from him at 30½ minutes past four. He (the Superintendent) measured the distance from the point where he saw the motor-car at Ipswich to the milestone in Woodbridge Thoroughfare, marked "eight miles to Ipswich," and found the distance was seven miles, 1,026 yards. He calculated the rate at which the motor-car had covered the distance and found it to be 31½ miles per hour. The distance was covered in 14½ minutes. Supt. Staunton said the Chief Constable desired him to state that he did not desire to strictly limit drivers

to the rate fixed by the Act, viz., twelve miles an hour, but "he" had to prosecute in flagrant cases, and in a case where some person was endangered. He looked upon this as a flagrant case. The Bench retired, and on their return the Chairman said they found that Mr. Lindsay Scott exceeded the pace allowed by law, but it did not appear that anyone was endangered. The fine would be 40s. and 8s. costs; in default of distress, seven days' without hard labour in His Majesty's Gaol at Ipswich.

THOMAS MARTIN, who was fined at St. Ives, is the driver of Mr. J. L. Rothschild. Defendant, who pleaded guilty, said he never exceeded six or seven miles an hour through villages or towns, but put on pace when the roads were clear, as in this case. He thought he was not exceeding twenty miles an hour, which pace he did his best to keep under. The Bench did not think it a bad case.

WITH regard to the cases at Bedale dealt with in our last issue Mr. W. P. Brigstocke writes:—"On October 14th I was summoned for obstructing the highway. A policeman, with two others, all in plain clothes, had placed their bicycles on the high road in front of my motor-car and refused to let me go on till I had given them my name and address. The Bench said there was an obstruction, but dismissed the case, as the policeman was on duty, and refused to state a case for a higher court. Thus, as the law stands (according to the Bedale Bench), 'Anyone driving a motor-car is bound to stop and give his name and address to any person who may demand it' for how is one to distinguish a policeman except by his uniform? This law has cost me over £30 to discover, but I am afraid I am not yet satisfied that it is correct. Perhaps you may be able to inform me. I may add that the Bench treated me in a very gentlemanly and not a vindictive manner, as, after fining me £5, they dismissed a similar case against my engineer, although I pleaded guilty on his behalf. It was never suggested by the police that either of us were driving dangerously—on the contrary, the police admitted that no one but themselves were on the road, which was perfectly straight."

MEASURED DISTANCES.

AN Oxford reader informs us that the police have a measured distance on the Henley-Oxford road between the villages of Nuneham and Sandford. The police have a measured quarter-mile at Dringhouses, near York. The measured half-mile on the London road at Ruscombe, Wiltshire, is still in evidence, the police securing three more convictions last week.

FATAL ACCIDENT AT HANDCROSS.

A VERDICT of "Accidental death" was returned at the inquest on Tuesday on the body of Henry Miachbloed, a French Swiss, aged 26, of Chadwell Street, London, who lost his life in a motor-car accident at Handcross, near Crawley, on Sunday. Captain Max de Bathe, of Victoria Street, London, owner of the car, said he considered that the deceased, who was his driver, lost his head when descending the hill, and inadvertently turned the steering wheel, causing the car to run up a slight bank and turn over. The deceased was killed instantaneously, having an extensive fracture of the skull. There was no side slip, and the brakes were applied, the car travelling at about seven miles an hour. The coroner said it was providential that all the persons in the car were not killed.

The car—a 16-h.p. Mors—had just been overhauled, and the deceased had only been in the captain's service a few weeks. The owner, accompanied by Mr. Arthur Cox, was driving down to Brighton, and all went well until Handcross Hill was reached. Here the car suddenly swerved, and running into the bank, was overturned. The driver was thrown out of the car and instantly killed. Mr. Cox and Captain de Bathe were also thrown from the car, the former sustaining serious internal injuries and being rendered unconscious, the latter escaping with a fractured collar-bone. Up to Tuesday night Mr. Cox was still lying at Crawley unconscious.

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COMMENTS.



were the wonder of the natives. In addition to his automobiles, the doctor has a Serpollet steam launch, with which he has, he informs us, made some interesting trips on the rivers in Indo-China.

ON another page of the present issue we reproduce two interesting photographs which have been kindly sent us by Dr. Yersin, the chief of the School of Medicine, at Hanoi, Indo-China. Dr. Yersin is an enthusiastic motorist and possesses two cars—a Serpollet steamer and a Clement-Panhard voiturette—which, when they were first introduced into the country,

The Petrol Question.

At the last meeting of the Executive Committee of the A.C.G.B.I., a long discussion took place concerning the recent circular issued by railway companies, in which they announce their determination to enforce Clause 2 of their Regulations governing the transport of inflammable liquids, by which the consignor undertakes liability in respect of damage which might be caused either by accident or by the carelessness of any parties from the time of leaving the consignor's hands until its delivery to the consignee. The Committee decided to appoint a Sub-committee to go into and report upon this matter, and the following gentlemen consented to serve:—Mr. J. Scott Montagu, Dr. Boverton Redwood, Professor C. Vernon Boys, Mr. W. J. Leonard, Major Lindsay Lloyd, and Mr. Staplee Firth. Meantime, it was decided to send a letter to the chairmen and general managers of the different railway companies, the Railway Clearing House, suggesting the expediency of a conference taking place at an early date between the chairmen of the railway companies interested, the Board of Trade, and representatives of the Club. Mr. Leonard undertook to furnish a statement, showing the number of trades involved, in order that organised action might be taken by the whole of the trades affected in conjunction with the Club to combat the attitude of the railway companies.

Petrol in Lincolnshire.

A MEETING of Lincolnshire automobilists took place at Lincoln last week, to consider the new regulations of the railway companies respecting the carriage of petrol. The chairman (Mr. C. W. Pennell) stated that there were three alternatives—(1) insurance, (2) water carriage, and (3) the formation of a limited liability company; but the first was at once dismissed as tending towards increasing the cost of an already expensive article. The second suggestion met with some support, it being pointed out that terms could be arranged with the water carriers at less than the railway rates for such places as Lincoln, Gainsborough, Boston, and other places connected with Hull by water. There are many towns, however, in Lincolnshire which have to rely solely on railway communication, and this eventually led to the meeting deciding to form a limited liability company for dealing in petrol and for supplying various

towns and villages in the county. Over twenty gentlemen at once expressed willingness to join. It was also resolved to ask the Lincoln Chamber of Commerce to appeal to the Board of Trade or the Railway and Canal Commissioners for a withdrawal of the terms at present insisted upon by railway companies.

The Sheffield Automobile Club.

At a general meeting of the Sheffield Automobile Club, it was decided to communicate with all the automobile clubs in England with a view to appointing a deputation to wait upon the railway companies and put before them the hardships that their action *re* the distribution of petrol would entail upon the whole of the motorists in the country. Mr. Harvey Foster, an enthusiastic motorist, was unanimously elected President of the Club, and Messrs. C. Harlow and Percy Thompson were elected auditors. The President invited the members to become his guests for the first Club meet.

The Petrol Question Practically Settled.

PROBABLY one of the most welcome items of news that we can present to provincial motorists this week is the fact that the trouble with the railway companies with regard to the question of the carriage of petroleum spirit is in a fair way of settlement. At the Railway Clearing House on Tuesday the general managers of the various railway companies met a large number of representatives of industries connected with tar distilling, petrol, and kindred substances, motoring users of petroleum spirit being represented by Sir. J. Thornycroft, Mr. Staplee Firth and Mr. C. Johnson, Secretary of the A.C.G.B.I. The injustice of the new consignment note was pointed out and finally, the railway companies offered provisionally to withdraw that portion of the offending clause which saddles the trader or consumer with full responsibility for damage to persons or property arising directly or indirectly from the inflammable quality of the goods. A committee, consisting of two representatives of the traders and two railway representatives, was formed to consider the question of a proper clause in the consignment notes of the various companies with regard to the carriage of inflammable liquids, the Committee probably conferring with the Board of Trade on the subject.—[At the moment of going to press, we understand, semi-officially, that a further hitch has occurred with the railway companies, and that the petrol distillers refuse to "ship" until the matter is made more clear. We further understand that counsel's opinion is being taken.]

The Oil Motor-Cars of 1902.

THE increased interest now being shown in motor-cars by engineers was again evidenced at the well-attended meeting at the Institution of Mechanical Engineers on Friday last week, when the discussion on Capt. Longridge's paper on "The Oil Motor-Cars of 1902" was continued. Mr. Worby Beaumont, while considering that there was no reason why horizontal engines were not equally as good as those of the vertical type, did not agree with the author that Europe was likely to follow America in adopting the horizontal form. With regard to economy of working, the question with the motorist was, in his opinion, not so much one of economy as of simplicity, and

therefore, in small cars at least, the simple engine, although not perhaps quite so economical as one of a more complex design, was to be preferred. Mr. Chambers, in a vigorous speech, urged motor manufacturers to devote attention to a simple car costing from £200 to £250 suitable for doctors and business men. These should be standardised and put through in lots of 500 at a time. The question of spare parts at a reasonable price was another point on which he laid stress—a point, being a motorist himself, on which he spoke from experience.

♦ ♦ ♦

Automatic Ignition.

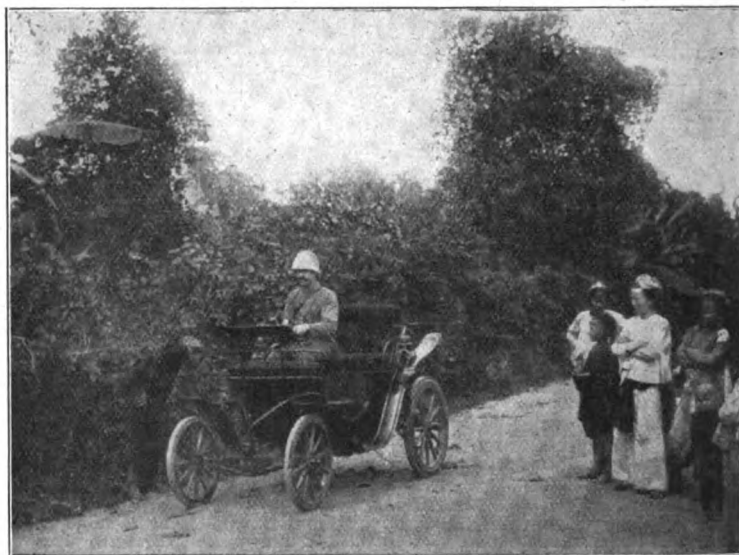
PROFESSOR BURSTALL dealt with the petrol motor from a technical point of view. In his opinion the bulk of motor troubles lie in connection with the ignition, and he himself preferred the magneto form. He considered that for economical working it was necessary to get at each suction stroke, the maximum amount of explosive mixture for a given volume of cylinder, the temperature of the latter, and the drawn-in charge to be kept as low as possible. He also

The first motor he designed had admission valves mechanically-operated, but he had experienced trouble in getting the valves to close at the right time. With regard to the material used for valves, he had found close-grain cast-iron heads fitted securely to steel spindles to be by far the best. By means of a sketch on the blackboard he illustrated the method adopted by the Wolseley Company to securely attach the heads to the spindles. He claimed priority in the use of cast-iron cylinders with aluminium water jackets, as he had never made a motor-car engine except in this way. Mr. A. New dealt with the question of steel cylinders, considering that their cost will be much greater than those of cast iron. Mr. Rainey recommended the use of a certain proportion of water with the oil in the crank chamber, while Mr. Sennett referred to Captain Longridge's proposed motor and pointed out that it was identical with that used by Butler on his motor-tricycle as far back as 1885. A number of other gentlemen, including Mr. Roots and Mr. Veitch Wilson, announced that they had some remarks to make, but that they would send them to the Secretary to be included in the proceedings. As many other members also desired to take part



Photos by]

AUTOMOBILISM IN INDO-CHINA. (See previous page.)



[Spido Gaumont.]

advocated the placing of the valves directly on the top of the cylinder head. Mr. Crowden followed with a few remarks, advocating water-jacketed pistons and a motor speed of from 400 to 600 revs. per min. The next speaker was Prof. Robinson, who gave particulars of some interesting experiments he had carried out with a 5-h.p. Hornsby oil engine. Without making any other alteration than connecting the feed-pipe to a gasoline tank, and, after heating the vaporiser for about ten to twelve minutes, he had run the engine for over an hour, the ignition being perfect although effected by the compression alone, the latter being from sixty-five to seventy pounds per square inch.

♦ ♦ ♦

Horizontal v. Petrol Motors.

MR. H. AUSTIN, of the Wolseley Company, was the next to mount the platform. Naturally, he dealt with the question of horizontal v. vertical motors, and took up a very liberal view, his opinion being that it was not an easy matter to say which was the better position, horizontal or vertical, good engines being made in both forms. The point to determine which type of motor to adopt was, he considered, the transmission mechanism. He was against the use of mild steel for cylinders, while after experiments he preferred the ordinary suction valve to the mechanically-operated one.

in the discussion, the President announced that it would again be continued on Friday evening, the 21st inst.

♦ ♦ ♦

A Case in Ceylon.

SOME tribute to the universal adoption of the automobile comes from Ceylon, where the first legal action in which a motor-car figures has just been heard. Mr. A. R. Marikar sued Mr. E. Money for the recovery of Rs. 25 as damages sustained by him, in consequence of his horse being frightened by the escape of steam from the defendant's motor-car. In his judgment Mr. White, the Commissioner of Requests, said:—"Horsed carriages have no greater right to the use of the public roads than motor-cars have, and it is not inconceivable that at some distant date they will be as extinct as sedan chairs are now. Of the particular type of motor-car to which this one belongs, it is in evidence that some thousands are in use in America and Europe, and that this one has been constantly driven in Colombo since February last. The discharge of steam when a certain pressure is reached is automatic, and beyond the control of the defendant. The defendant in this case, so far from displaying negligence, seems to have exercised particular care, for he stopped the car when he saw that the plaintiff's horse was getting frightened, and when the accident occurred the motor-car was stationary."

A Historical Parallel.

"I SEE no more reason why he should be mulcted in damages than why the first man who used an umbrella in London should have been assaulted by the mob as he was, or the stoker of the steam-roller assaulted with a whip by the driver of a trap whose horse shied at the steam-roller, an incident I witnessed on Galle Face. It is a matter within the knowledge of everyone that horses take fright at various objects. Some can hardly be induced to pass bullock carts, some have an unconquerable aversion to beef boxes and kerosene oil tins, some to coaches, some to tram-cars, some to steam-rollers, and others to bicycles. Other horses seem to mind nothing. Some years ago I was driving a horse in a dog-cart myself. It shied at the municipal cage on wheels in which stray dogs are or used to be collected, swerved, and broke the shafts, but it did not occur to me that an action lay against anyone. The defendant was driving a legitimate vehicle in a legitimate way, which cannot be said of the majority of drivers of horsed carriages in Colombo, and I cannot, from my point of view, hold him legally responsible for this accident. I find the plaintiff has no cause of action, and that defendant is not liable in the damages sustained by the plaintiff. Plaintiff's action is dismissed with costs."

The Right to the Road.

ACCORDING to the Nottingham "Daily Guardian" "the law gives pedestrians the first right to the road, and next to them horse vehicles have the prior right." Whilst the people who walk have an undisputed right to the pavement, they surely will not desire to have unrestricted use of the road. The middle of the road is not the place for pedestrians, and they must really learn to keep their place, which is on the pathway at the side. This is a point which those who write against automobiles in provincial journals should remember.

A Scottish Agriculturists' Resolution.

THE Scottish Chamber of Agriculture devoted a good deal of time and attention to the question of motor-cars at its meeting in Edinburgh last week. Mr. Hutchison, of Perth, introduced the discussion and said he hoped to see motor-cars numbered and registered. Far too excessive a rate of speed was maintained, and there was far too little regard for the lieges and others who, in the first place, had the right to the road. In Perthshire some cars were driven with circumspection, but other owners gave out that, fines notwithstanding, they would drive at any rate they pleased. Mr. Munro-Ferguson, M.P., moved that, in the opinion of the meeting, rules should be issued by the Board of Trade with regard to the registering of motor-cars and the holding of certificates by drivers of such cars. Mr. Hutchison proposed, as an addition to the motion, that in any regulations for motor-car traffic maximum rates of speed on broad and on narrow roads should be mentioned. This proposal was adopted by Mr. Ferguson, and the motion was unanimously carried.

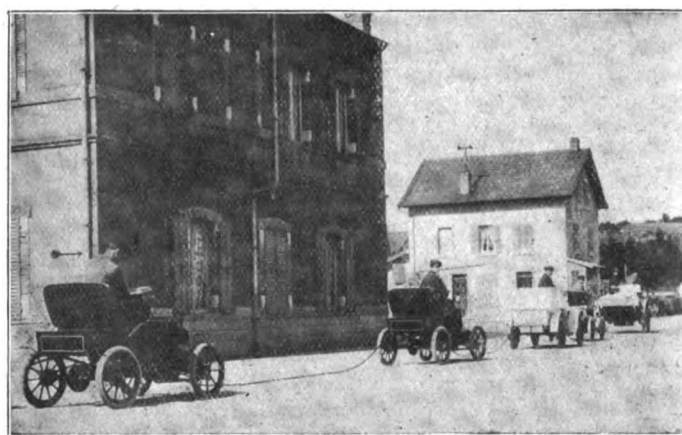
Roxburgh's Opinion.

A MORE reasonable attitude with regard to automobiles was taken at the October meeting of Roxburgh County Council at Jedburgh, when Lord Polwarth referred to the use of the highways by motor-cars, and said there was not the least doubt that there was a considerable amount of feeling, not on account of the use of motor-cars, but of their abuse. Much of the feeling arose from drivers of automobiles not only going at a high rate of speed, but not stopping when requested to do so. Horses would become accustomed to motor-cars, but not all at once, and courtesy should be exercised. He was afraid there was a tendency to what he might call rough riding over the feelings of the people. He thought this was unworthy of any gentleman, and believed that no gentleman in that district would do it; but

strangers came to the district with motor-cars, and did not know the people, and the people did not know them. He thought it was well that the actual state of the law should be known both to the public and to those who owned motor-cars, for the safety of the general public. He therefore suggested that the special clauses referring to automobile traffic should be printed, circulated, and exhibited, a proposal which was agreed to.

"Minutes to the Mile."

INSTEAD of using the term so many "miles to the hour," "Automobile Topics" of America suggests so many "minutes to the mile" should be employed. Apparently the idea is being seriously discussed by many motorists in the United States. Thus the phrase "twelve miles per hour" would become "five minutes to the mile," and it is claimed by the author of the proposed change that this would simplify legislative phrases very considerably. We do not see that it is likely to prove of advantage to anybody. What we want in this country is not a change of phrases so much as a reform of legislation and the abolition of the speed limit altogether.



"BABY PEUGEOTS" EN ROUTE TO ENGLAND.

Varnish—Its Loss of Lustre.

It not infrequently happens that motor-carriage bodies finished in apparently the most perfect style by the Napoleons of the varnish room soon lose surface lustre or "deadened." The motorist, inexperienced in the ways of varnish, and all that pertains thereto, naturally heaps maledictions upon the varnish when loss of gloss manifests itself. A little investigation, however, should enable him to perceive that if a finishing varnish is possessed of sufficient quality to hold the full brilliancy of its coat to the maximum limit in one instance, it should, other things being equal, do so in another. This being true, it becomes necessary to look to some prior cause for the trouble. Lack of uniformity in methods and mixtures is a prolific cause of the deadening. Moreover, the most approved varnish under the manipulation of some workmen goes to a greasy smear upon the surface, whereas, the same varnish under the magic skill of still other workmen develops the full strength of a superb brilliancy. The lustre of varnish depends in large degree upon the painter's skill in handling it under the brush. An insufficiently hard paint fabric is a strong cause of varnish deadening. When time is at a premium in the paint shop, and the general atmosphere of the shop is not equal to the work of oxidizing or hardening the paint as fast as the circumstances of the case suggest, then the process of crowding one coat of paint upon another, at the risk of "lifting," or softening up the preceding coat, is introduced. The direct and logical outcome of the process is "deadening" in all of its various and villainous forms.

The Scottish Automobile Club.

THE Committee of the Western Section of the Scottish Automobile Club have arranged for a series of meetings during the winter months of an informal and social character, in order that the members may have an opportunity of meeting one another under the auspices of the Club, when discussions will be introduced. The first discussion will take place at the Windsor Hotel, St. Vincent Street, Glasgow, on Monday, the 17th inst., at 8 p.m., when Mr. H. M. Napier will introduce the subject of "Motor Troubles."

The Question of Silence.

IN these enlightened days it is surely time that some consideration should be shown towards silence in automobile construction? Not very long ago we had the Reliability Trials, and, on the whole, they were a great success, and excellently organised, but no consideration was shown towards silent cars. If one half of the cars running on our highways were as silent as, say, the Mercedes car, the number of anti-automobilists would decrease by a very large percentage. It is quite a common thing to hear people say, "Well, I suppose motor-cars are all right, but they do make such a noise. I really could not drive about in them." Let us consider for one moment the great popularity of the little steam car; it is certainly a very reliable little vehicle, but it is its sweetness of running and its silence that sells it. It is high time now for more of our large manufacturers to commence taking the question of silence into serious consideration. Already a few firms have done so, but they are in a minority. A large number of automobiles are absolutely unnecessarily noisy; for instance, there are many cars with most inadequate silencers, and others extremely noisy about the gear. It is these little (?) points that influence the outside public to a very great extent, and the sooner this fact is more generally realised the better both for the public and the automobile industry.

Road Improvement.

At a meeting of the Council of the Roads Improvement Association, last week, it was reported that the Government were giving favourable consideration to a request of the association for the appointment of a small Departmental Committee to inquire into the existing system of highway administration and to some extent clear the ground for the appointment next year of a Royal Commission dealing with the general question of internal communication. The Council of the Association have also resolved to approach the Home Secretary with reference to the regulation of street traffic in London.

The Speed of Motor-Cars.

At a meeting of the Northwich Urban Council last week, it was reported that a resolution had been submitted to the Cheshire County Council urging that the speed of motor-cars should be restricted owing to the danger and annoyance caused by automobiles rushing through Northwich at a great speed. The County Council replied that at present the Local Government Order of 1896 prescribes speeds, and that the County Council could make no further regulations. The Main Roads Committee of the County Council were, however, taking the matter into consideration with a view of supporting a proposal that all cars should be registered.

Yorkshire Motorists Celebrate the Anniversary.

A WEEK-END run to Worksop has been arranged by the Yorkshire Automobile Club in commemoration of the sixth anniversary of the coming into operation of the Locomotives on Highways Act. The members meet to-day (Saturday), at Red House, junction of Wakefield and Pontefract roads, about

five miles north of Doncaster on the Great North Road, at 4 p.m., leaving at 4.30 p.m. for Worksop via Doncaster and Tickhill. The headquarters will be the Red Lion Hotel at Worksop, and it is expected that a number of members who have signified their intention of joining the run, wet or fine, will return on Sunday afternoon.

Alcohol Motors.

SOME time ago, when interest was very keen in France with regard to the use of alcohol for motor-cars and its possible good effect on the industry of the country, we suggested that the Department of Agriculture and Technical Instruction, which has done so much to revive the industries of Ireland, should give the matter its attention. Since then the subject has been closely studied in Dublin, and although the Department is not in a position to directly aid such an industry, the Hon. Horace Plunkett and his associates would doubtless assist the work as far as they could. Certainly the attitude of the Department would be friendly—and possibly, if they were convinced that the utilisation of alcohol in automobiles would extend an Irish industry, their good offices might be obtained in giving effect to the wish of some motorists to run the next Gordon Bennett race in the Emerald Isle.

Motor Highways.

THE proposals which have been put forward to commence the construction of a great motor highway from London to Scotland are, considers the "Engineering Magazine," bound to take actual shape before many years have passed. Such a highway, studded with electric charging stations at convenient intervals, and confined rigidly to pneumatic-tyred vehicles as a matter of course, would give an enormous development to the serious side of automobilism. It is certain that very high speeds on ordinary roads, owing to the danger of swerving and skidding, are akin to the delights of skating over very thin ice; but on a specially-constructed and specially-reserved road there seems no reason why the power of the machine should not be the only limit to the speed attained.

Improvements in Accumulators.

THE accumulator or storage battery, which may be said to be the sole dependence of the electric vehicle, has been much improved since its first application to this work, and recent developments point to even more marked advancement in the direction of lessened weight and cost, greater capacity within the limits of the vehicle, and decreased cost of upkeep, all of which promise a wider field and larger use for electricity as a motive power. If the increasing use of electric vehicles leads to the multiplication of charging stations, the limits of their usefulness will be still further extended.

A DEPUTATION from Crewe Town Council recently travelled to London to purchase a motor steam fire engine. While on a trial trip, the vehicle somehow got beyond control of the driver and two or three of the party were thrown out and slightly injured. But for the accident the Council would probably have purchased a motor-engine, but at the meeting last week the deputation recommended the purchase of a horse-propelled steam fire engine instead of a motor, which the Council agreed to.

THE Continental Caoutchouc and Gutta Percha Company are manufacturing a motor tyre, called the "Extra," in 90 mm. and 120 mm. sizes, which is specially suitable for heavy cars, and lasts longer than the ordinary make of tyre. We are informed that that these "Extra" tyres are largely used in France, and as they have given every satisfaction there, they will doubtless meet with a corresponding success in this country. We have a pair of these 120 mm. "Extra" tyres on our Mercedes, and so far have driven over 2,000 miles without a puncture.

BALLOON HUNTING.

RESPONDING to Mr. Mark Mayhew's note, announcing that a balloon, carrying despatches, would ascend from the Crystal Palace at mid-day on Saturday last, the writer expressed the most willing desire to form one of the corps of Automobile Volunteers whom it was proposed should follow the balloon with a view to the capture of the missives mentioned. The particular balloon was the Vivienne, with a capacity of 35,000 cubic ft. of gas, and the aeronauts were Messrs. Pollock and Leslie Bucknall, the owner. Mr. Frank Butler also intended ascending, but the carrying capacity of the balloon was limited, and would not rise with the weight of a third person.

Our start from town was made with the view of reaching the Palace at twelve, and while en route Dr. Hutchinson was passed on his Benz. As usual in South London, the roads were up, the

experienced on Brixton Hill, one stripping off a tyre and the other sending us straight across the road on to the pavement, where our progress was gently interrupted by a garden gate.

Our 40-h.p. Mercedes was not the first car at the Palace, Mr. Butler's 8-h.p. Renault having preceded us. This was a very handsome car, which Miss Butler drives, and the Limousine body nicely sets off its simple proportions. Upon reporting ourselves it was found the start had been postponed till two o'clock, and the information certainly did not afford any pleasure, as we had hurried from business with a view to being punctual. Better arrangements, it is hoped, will be made in future, and times fixed should be adhered to or means taken to notify those intending to be present of any alterations. Other cars continued to arrive, including Mr. For-dyce's 12-h.p. Darracq, Dr. Hutchinson's 10-h.p. Benz, Mr. Overton's 10-h.p. Georges Richard, Mr. Roger Fuller's 10-h.p. Panhard, Mr. Midgley's 16-h.p. Napier, 7-h.p. Panhard, 16-h.p.



PRINCE HENRY OF PRUSSIA AT THE HELM OF HIS "LOCOMOBILE" STEAM CAR.

[Allgemeine Automobil Zeitung.]

process of "electrifying" the trams proceeding, and slow progress in the rear of an odoriferous cart was made, the Benz car behind likewise getting the full benefit of our "exhaust." The doctor, tiring of his position, mounted and crossed the temporary rails, muttering "*that* would be his only chance of passing our car." The traffic then was found shortly afterwards diverted to a side street, and the last we saw of our friend was his speeding merrily away in a wrong direction, declining to take any heed of our loud "pip-pips" of warning. The Palace was duly reached without incident, but we cannot leave this portion of the journey without mentioning that although the roads were quite dry the "cable" rail always seems to cause a car to have a tendency to "side slip." Why this is so we do not know, but of course in wet weather the tendency is aggravated, and many and uncomfortable have been the "side slips"

Dechamps; Dennis car, Mr. Hutton's 10-h.p. Panhard, with workshop body; Mr. Farman's 30-h.p. Panhard, with racing body; Mr. Rolls' 10-h.p. Panhard, and a second 12-h.p. Darracq.

Punctually at two o'clock the balloon, with its ballast, baro-, hydro-, thermo-, and other metric instruments, quickly rose from the ground and soared away towards the east. Several of the motorists had left their cars near the entrance, and directly the passengers were seen to enter the "basket," these dashed off in the direction of Bromley. The wind was blowing about twelve miles an hour, and soon all the cars were away on the chase, our own "forty" being one of the last to leave. The "field" had already begun spreading in various directions and proceeding cautiously down the hill, Mr. Rolls' car was followed, and when he made for a southerly route we did ditto—until, not liking his dust, our car had to pass, and so for that day our ways were parted. The roads

the car was travelling over were all new to us, but keeping our goal in sight we continued through the Ravensbourne estate until, to our astonishment and gratification, we came out at Bromley. A sporting inspector on horseback suggested our taking the Seven-oaks road, and as this agreed with our own inclinations, the journey in that direction was continued, although the country folks kept on waving us to the left. After a time, and when within about two miles of Riverhead, it was seen the balloon was still going east, and that we were off the track. It was determined to take the first opening to the left, and this looked like the entrance to a farm. However, up this lane we proceeded, it being just sufficiently wide to take the car. The adage is an old one which says "it is a long lane that has no turning." Well, this was a very long lane, miles in extent, with innumerable turnings, long gradients, with sharp, curly twists, necessitating, for the first time since we have had the car, putting the Mercedes on her first speed. Several stoppages were made and embankments climbed, with the view of seeing that the prey did not escape. However, ultimately a ridge of hills hid

imagine it certainly must have been the first, although one slope had two "danger" boards on it—but that was another lane, just before the Maidstone road was struck, a few miles the London side of Wrotham. Immediately opposite the mouth of the lane was an inn, without a sign, but the words in large gilt letters, "Dartford Brewery Ales." From the bystanders an inquiry was made as to whether a balloon had been seen about there lately, and information was given that the Vivienne had passed over the house about ten minutes previously; that two cars had been in waiting, and that as the balloon was sailing along in a straight line, about twenty miles an hour, the motorists had dashed off in pursuit. We speeded after them, over a lonely straight road, with a beautiful surface, and continued until within two or three miles of Maidstone. Not seeing anything of the balloon, and believing that she had come to earth, we decided to retrace our steps, and so turned the car London-ways. Returning, Mr. Hutton was met, and he was gaily pointing forward, looking as if he intended being in at the finish. Mr. Overton was next seen, with a burst outer cover; and



A HUNGARIAN MOTOR POSTAL DELIVERY VAN. (See page 701.)

the balloon from view, after we had been watching it pass through a most lovely valley, with its grappling irons down, the passengers evidently enjoying the delicious sport of trailing. At one spot it looked as if it would drop or else would fail to clear a clump of trees, but the balloon gaily rose, crossed the hills, and was lost to sight, alas, for the remainder of the day. Devonshire lanes are familiar to us, but these particular lanes were narrower, steeper, rougher, more circuitous, than any ever met before. They were lovely lanes, though; the autumn tints were beautiful, the passages through the woods novel, the grass-covered soil soft and springy, the quagmires "squashy," and at times the boughs of the trees were rent asunder by our Limousine top, causing the fear at times that the frail structure would not stand such rough treatment. The country was superb, and to those lanes we are indebted for having seen more beauty in Kent than our previous knowledge of the hop county ever led us to suspect. At one spot, on the top of a high ridge, a wagoner with a team of horses was met. His pipe dropped from his mouth as with astonishment he spluttered, "I never expected to see a motor up here, master." We should

that was the last of the cars seen on Saturday, November the 1st. And the chronicler, in conclusion, says, May there be during the month many more such days, so bright and balmy, affording pleasure equally alike both to the huntsman and the motorist!

The sport of balloon chasing is a most exhilarating one, but when the next "meet" takes place it might be suggested that arrangements be made with the aeronauts for them to descend at a certain time or else to undertake to continue their voyage until nearing the coast. Motorists would then know what to do, and would not be likely to give up the chase, so long as it was known the direction the balloon had travelled and they had the certain knowledge that it was still up aloft.

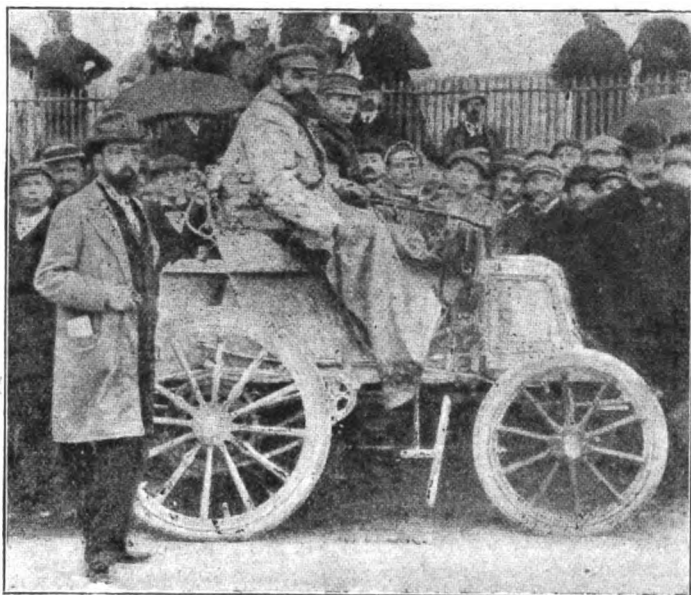
We have since learnt that the Vivienne descended at 4.45 at Staplehurst, a spot ten miles south of Maidstone, and that Mr. Hutton captured the despatches. Inquiring of Mr. Bucknall whether he had seen any of the motor-vehicles *en route*, he writes that several were seen through the glasses, including our red car, near Wrotham. The Mercedes, he states, "appeared simply to skim over the ground."

CONTINENTAL NOTES.

By "AUTOMAN."

THE Paris-Madrid motor-car race is the engrossing topic in French automobile circles for the time being, and on all sides the proposal meets with approval and support. M. Edouard de Perrodil recounts in the "Velo" his cycle ride with Henry Farman from Paris to Madrid in the famous "Velo-Toro" race. Two points stand out salient in this article, the first being the bad roads in Spain, and the second the enthusiastic reception in Madrid. With regard to the roads, the route taken in Spain by the cyclists was the following, namely, Behobie, Saint-Sebastien, Tolosa, Alsasua, Vittoria, Briviesca, Miranda, Burgos, Valladolid, Mojados, Olmedo, San-Christobal, Villa-Castin, Madrid.

THIS route contains two bad sections, the one on each side of Valladolid, and the other just before arriving at Madrid. The roads are described as morasses of mud or dust with large stones buried unseen, with here and there a better surface, only to lead into lakes of dust. Then, again, on the plains of old Castille there are miles and miles of straight flat good roads, where



M. RENÉ DE KNYFF ON THE PANHARD RACER OF 1898.

THE EVOLUTION OF THE RACING CAR—A FIVE YEARS' CONTRAST.

high speeds may be indulged in, and where there is literally no traffic.

THERE are two chains of hills to cross. The first, the Pyrenees, are not very steep, either to climb the seven miles on the northern side or to descend on the southern, but the second, the Guadarrama, on the southern side, is exceedingly steep and dangerous.

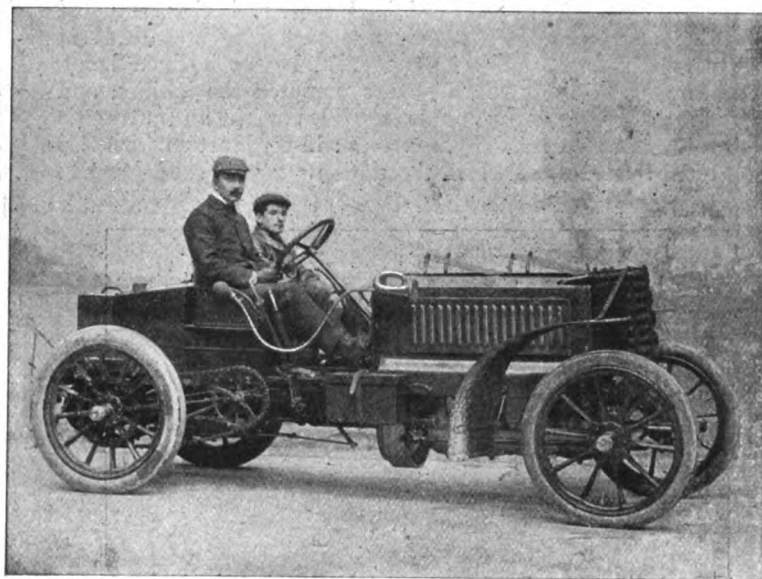
THE A.C.F. has chosen two Panhards and one Mors to challenge the Gordon Bennett Cup next year. These two firms have been informed of the decision, and have accepted the mission. The choice of the drivers is left to the makers.

THE death of M. Buchet, which occurred suddenly last week, is a distinct loss to the automobile industry. He was only 42 years of age, and was present at the hill-climbing trial at Gaillon three weeks ago. He was suffering from a boil in the neck, which he neglected, and which caused his death. Buchet was a self-made man, beginning life as a simple mechanic. He will be chiefly remembered from the *culasse* which bears his name and from the fact that he supplied the motor in the airship in which M. Santos Dumont won the Deutsch prize.

THE action of the "Auto-Velo" in attributing the "Coupe de Regularité" in the Paris-Vienna race to the motor-cycles has been the subject of criticism by the trade, and this has culminated in a letter being addressed to the "Auto-Velo" and signed by no less a personage than the Marquise de Dion. In consequence, the "Auto-Velo" has decided to give two "coupes de regularite," one for motor-cycles and the other for motor-cars. The firm of Georges Richard have therefore been declared winners of the second "coupe."

THE Rhenish Automobile Club held a hill-climbing competition from Heidelberg up the Konigstuhl on Sunday, the 26th ult. The distance was 4.6 miles, and the difference of level 1,500 feet. In the heavy-car section the winner was Herr Opel on a 20-h.p. Opel-Darracq (10min. 15sec), while the light-car class was won by Herr Thum, of Mannheim, on a Benz (22min. 5sec.).

UNDER the title of "Les Coupes de Pioule" the Automobile Club du Var is organising a race meeting to be held in January next, starting and finishing at Pioule, and visiting *en route* Vidauban, Draguignan, Lorgues, Carces, Cabasse, Flassans, and



M. TESTE ON THE PANHARD RACER OF 1902.

Le Luc. The distance is about 50 miles, the course having to be covered twice by the heavy and light cars and once by the voiturettes.

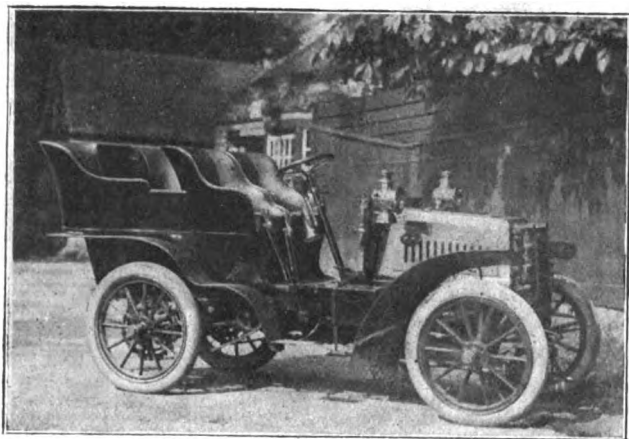
ONE of the competitors in the recent 500-mile reliability contest in the United States fixed a horse shoe to the front of his car for good luck!

THE Board of Trade have received from the Collector of Customs at Port Louis, Mauritius, a copy of a resolution, passed by the Council of the Government of Mauritius, remitting the Customs duties or direct taxes on automobiles, steam road engines and trucks, during the period from July 1st, 1902, to June 30th, 1903.

"IGNITION Devices for Gas and Petrol Motors" is the title of a little work by Mr. S. R. Bottone, which has just been published. (London: Guilbert Pitman.) The author is well known in connection with electrical ignition matters, and, as may be expected, deals very clearly with the various systems of ignition. The work is preceded by an introductory chapter treating of structural details, choice and management of automobiles. The lengthy index provided should enhance the value of the book, which may be recommended to motorists anxious to get some idea of the principles underlying the ignition arrangements on automobiles.

THE "EARL" PETROL CAR.

WE had an opportunity the other day of inspecting a new car of French manufacture known as "the Earl," which is being introduced into this country by the Great Central Garage, Ltd., and of which a general view is given herewith. As will be seen, the vehicle follows the now generally-adopted lines. The engine, which is located under the bonnet in the fore-part of the frame, comprises two vertical cylinders, 4in. diameter by 5½in. stroke, and at a normal speed of 800 revolutions per minute develops 9½-h.p. Electric ignition is adopted, while the water circulation is maintained by a friction-driven pump and radiator. The water-jacket extends well round the valve chambers as well as the cylinders. The transmission gear is on the lines of the Panhard system, the power of the motor being conveyed through a pedal-operated friction-clutch to the gear-box, thence by bevel gear to the differential shaft, which is connected with the rear road wheels by two side chains. Three speeds forward and a reverse motion are provided, these being controlled by a single lever. The frame is built of wood, with steel strengthening plates, while the road wheels are of equal size, and shod with 800 by 85 pneumatic tyres. A powerful hand-brake on the differential shaft is operated by a pedal, while emergency brakes, actuated by a hand lever, are fitted to drums connected with the hubs of the rear wheels. Steering is controlled by an inclined hand-wheel, on the column of which are mounted the ignition and throttle levers. The engine is provided with an automatic governor acting on the exhaust valves; in conjunction with this is a pedal by means of which the engine can be slowed down to



any desired degree. As regards the carriage work, this is a comfortable tonneau body of the Roi des Belges type, upholstered in real leather. The car, which is speeded up to thirty-eight miles per hour on good roads, is claimed to be able to climb any hill with a full load; it appears to run very quietly and with an absence of vibration.

THE annual dinner of the Aero Club will be held at the Carlton Hotel, W., on Tuesday, the 25th inst.

IN connection with the railway companies' action with regard to the carriage of petroleum spirit, Messrs. Strettons, Limited, Cheltenham, inform us that they have made arrangements for a continuous supply of petrol and motor-spirit.

THE second balloon v. motor-car event will take place at mid-day, on Saturday, the 15th inst., from the Crystal Palace. The balloon "The Graphic," 45,000 feet, will be piloted by Mr. Frank H. Butler, member of the Aero Club, accompanied by the Hon. C. S. Rolls. Two prizes will be given for the cars that capture the dummy despatches; the first prize being a long brass motor-car horn, and the second prize a box of cigars. The cars must all start from the Crystal Palace.

THE "P.M." ELECTRICAL IGNITION FOR PETROL MOTORS.

AS mentioned in a recent issue, Messrs. Peto and Radford Ltd., are introducing into England the "P.M." system of electrical ignition for petrol motors—a system which has already met with considerable success in France. To deal first with the self-regulating contact breaker, this is characterised by the absence of mechanical tremblers and platinum screws. The contact breaker is composed of—first, a cam of insulating material, in which is embedded a metal projection or beak, which is in constant connection with the metal of the motor, and is made the negative pole; second, a rigid insulated stem of metal,

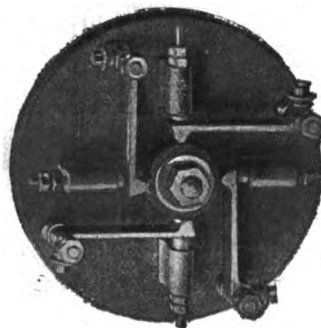


FIG. 1.

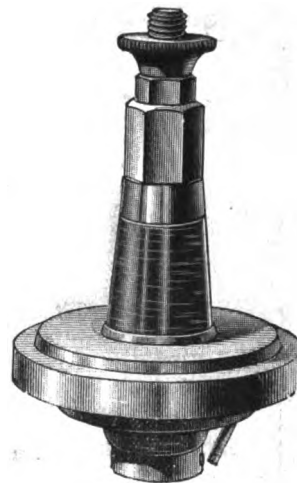


FIG. 2.

working like a dynamo brush, and connected to the positive pole. The cam is slightly eccentric, and is so constructed that the stem or metal brush will only be in contact at the moment that the metal beak passes it. To prevent any displacement of the brush a spring buffer, which can be regulated and set, ensures a rubbing contact, without any vibration, at the correct moment, and it is claimed, totally avoids any chance of misfiring. The contact also cleanses itself by the rubbing action. The sparking is advanced or retarded by oscillating the base plate, as in other systems. The contact breaker is made for one, two, or four cylinders, the latter being illustrated in Fig. 1. It is pointed out that in use the metal cover supplied with each apparatus should be filled with thick grease. It is claimed that the apparatus which is intended to work with coils without tremblers will work equally well at speeds ranging from 1,100 to 2,200 revolutions per minute.

Fig. 2 illustrates the "P.M." sparking plug adapted for use with Panhard motors. These plugs are composed of a steel pin, the stem of which is first of all enclosed through its entire length in leaves of mica, rolled in tube form. Discs of mica are slipped over this and strongly pressed together under hydraulic pressure, between the head of the pin and the upper nut, and finally a brass mount in any of the various forms and dimensions according to the type of motor. It is claimed that the plug is free from all ill effects due to changes of temperature, and proof against deterioration because of the absence of need for using packing in the joints.

It is not only the motor-car industry which is being hampered by the railway companies' new regulations. They affect tar distillers probably to a greater degree. A meeting of the Association of Tar Distillers, to consider the position, is to be held this week, when it is likely arrangements will be made for a meeting representing all sections of the London Chamber of Commerce.

MOTOR-CYCLING NEWS.

WE are asked to mention that the runs of the Motor Cycling Club are not speed events, and anyone having trouble on the road can be sure of assistance from fellow-members. This was well illustrated on last Sunday's run, when, owing to tyre troubles with one machine and a broken free-wheel on another, between Marble Arch and Harrow, which all the party stayed to put right, the delayed troop were so late at Harrow that the other contingent had gone on, no doubt having given the Londoners up. The late arrivals, including the captain, then decided, as it was about lunch time, to run to Rickmansworth. The return was via Uxbridge. There were about eighteen members at the Marble Arch, and ten at Rickmansworth.

TO-MORROW (Sunday) the Motor Cycling Club will hold a run to Buntingford, the meet taking place at the Marble Arch at 10.30 a.m.

THE Quadrant Cycle Company have sent us a copy of a useful little hand-book to their 1903 motor-cycles, of which a brief description was given in our issue of the 25th ult. We give a general view of the motor-cycle herewith, and may add that two sizes are being made—2-h.p. and 3-h.p. A Quadrant motor-tricycle is also being made with motors on similar lines.

AT the second series of consumption trials, held at Dublin on Saturday last by the Motor-Cycle Union of Ireland, some startling figures were obtained relative to the economy of the motor-bicycle. At the first trials, a fortnight before, one machine accomplished over twenty-one miles on a pint of petrol. At the second trial this record was beaten by five machines, and the winner compassed a distance of no less than twenty-nine miles. The trial was so prolonged that darkness fell, and the winner, recognising the great risks he was running, stopped before his tank was empty. He had travelled at a much higher speed than the others, and yet, despite this, he appeared to have enough petrol remaining to carry him up to the thirtieth mile had he elected to continue. The following table shows the results :—

	Miles.	Yds.	h.	m.	s.
1. Shaw (1½-h.p. Excelsior)	29	—	in	1	18 42
2. Summers (1½-h.p. Excelsior)	28	1710	..	1	26 29
3. Ball (1½-h.p. F.N.)	24	—	..	1	7 49
4. Huet (2-h.p. James)	23	880	..	Not timed.	
5. Evans (1½-h.p. Singer)	23	—	..	Not timed.	

It must be said that the arrangements were very badly carried out, the "pint" measure employed being a whisky bottle, which rather generously interpreted the exact meaning of an Imperial pint. A five miles race was also decided, but, owing to conflicting testimony of the numerous lap-keepers, no satisfactory result was arrived at, and the real winner remains unknown. Our Irish friends seem to have a delightful way of mismanaging their contests.

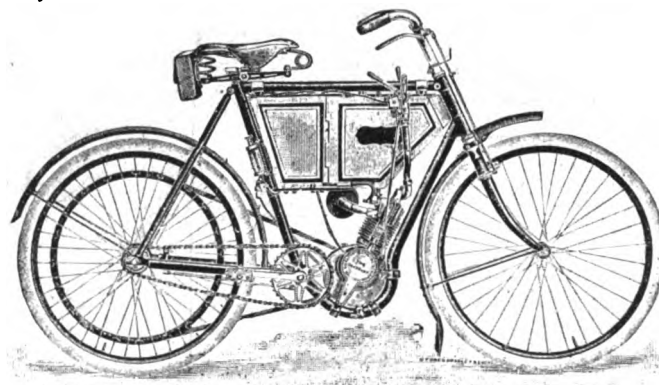
"To sleep is natural; I suppose that is why I was asleep on Sunday morning last when a member knocked me up," writes Mr. J. Edge, the reporting Hon. Secretary of the Liverpool Motor-Cycling Club. "Although too late to take part in the morning run I went round to the start, and there found only five motor-cycles and about a dozen policemen. As two of the members were in doubt as to their having enough petrol with which to get home, I promised to run out after dinner and meet them with a supply. A little after two o'clock I started in charge of the relief expedition. Reaching Warrington at about 3 p.m. I came in sight of Latchford Bridge and the returning members. They reported a nice run out and a good dinner at High Leigh Farm, where they met other motor-cyclists from Manchester. Taking the country road through Cronton on the return journey, one or two fast sprints were indulged in, which so affected one machine that it needed spiritual assistance. This was promptly

given by my spare tank and proved most beneficial. The run finished in good style, and was thoroughly enjoyed by all who took part in it."

MR. S. BRIGHOUSE, the coroner for South-East Lancashire, arranged an inquest at Woolton for a quarter to six o'clock on Monday last week, but did not arrive until seven o'clock. On arrival, the coroner said it was very seldom he was late, but explained that quite recently he had gone in for a motor-bicycle, and after two or three preliminary runs he thought he knew all about it. He started out, but his troubles came quickly. He could not get the mixture right, and when he did manage to reach Gatacre Brow he had a puncture. He added that if any of the gentlemen of the jury were ever late under similar circumstances he would not only forgive them, but at the same time would be heartily sorry for them!

MESSRS. JOHN CHILD MEREDITH, LTD., are issuing a small booklet dealing with the motor-cycle in general, and the Liberty in particular. In this they give instructions as to the cause of stoppage, the regulation of the carburettor, how to find faults in the wiring; also instructions as to preparing and charging accumulators, instructions how to keep the same in good condition, etc. The booklet is intended, of course, to refer in particular to their own specialities, but it will be found useful by all motor-cyclists, who would do well to apply to the firm for a copy.

OUR French contemporary *L'Auto Velo* has decided to organise a motor-cycle competition, to take place in February next. It is to be known as "Le Criterium du Quart de Litre," and is to be only for those machines which are fitted with motors in which



THE NEW QUADRANT MOTOR-BICYCLE.

the displacement of the pistons in the cylinder approximate to one-quarter litre. The motors which are eligible for competition may therefore have a single cylinder with a piston displacement of 250 cubic centimetres, or a pair of cylinders of one-half this size.

THE Beeston-Humber motor-bicycle has been almost entirely re-designed for 1903. The h.p. has been increased from two to three, and a throttle on the induction valve fitted by which any speed from five miles to thirty-five miles per hour can be obtained. A Longuemare spray carburettor will be provided instead of the surface type. A longer wheel base has been given the bicycle, and a new method of starting has been designed, which does away with the pawl and the ratchet used this year. Immediately the engine is started the intermediate gearing over-runs the bicycle bracket axle automatically; but in the event of the bicycle being required to be pedalled home, the bracket axle can by an ingenious device be instantaneously uncoupled from the intermediate gearing of the engine. The circuit breaker has been removed from the brake over the front wheel to the end of the handle-bar. The engine crank-case has been so designed that the oil from the crank chamber is circulated through all the bearings and keeps both the bearings and the commutator continually lubricated.

HERE AND THERE.

THE Chief Constable of Derbyshire has, we learn, just purchased an 8-h.p. Beaufort car.

A PAPER on electric automobiles will shortly be read before the Institution of Civil Engineers by Mr. H. F. Joel, A.M.I.C.E.

THE Gobron-Brillie Company have opened a depot for the sale of their well-known cars at 47, Albert Gate, Knightsbridge, S.W.

AT a meeting of the Birmingham Association of Engineers on Saturday last, Mr. Hugo Gibson read an interesting paper on the Diesel oil engine.

THE Cambridge Autocar Company, Limited, inform us that they hold a large stock of petrol, which they get down by road from London in their own motor-van.

AT Condover, near Shrewsbury, Mr. A. Constantine, of Handsworth, has been fined 10s. and costs for driving a motor-car past a wagon drawn by three horses without giving notice of his approach.

MESSRS. S. HICKS AND COMPANY, of River Street, Truro, are catering for the wants of motorists by keeping a stock of petrol, oils, greases, and small spare parts. Before next season they hope to add an inspection pit to their equipment.

THE annual dinner of the Yorkshire Automobile Club will take place at the Great Northern Hotel, Leeds, on Friday evening, December 5th. As the membership of the Club is now over one hundred, it is expected there will be a large gathering of members and guests.

FOR the 1903 season the Humber

Company are bringing out a 20-h.p. four-cylinder car; it will be on the lines of the 12-h.p. four-cylinder Humber car with the exception of a larger engine and proportionate strengthening of the gear and parts throughout.

MESSRS. S. F. EDGE, LIMITED, have secured space at the French Automobile Show, to be held in December next. The new four-cylinder 10-h.p. Napier will be shown publicly for the first time, as well as a 16-h.p. double *tonneau* and a Gordon-Bennett model Napier.

THE Lonsdale Motor Company, Limited, has been registered with a capital of £2,500, to adopt an agreement with H. M. Lonsdale, and to carry on the business of manufacturers of and dealers in motors, cycles, etc. The registered office is at 41, Waterloo Street, Hove.

MR. F. PARKER, of High Street, Slough, writes stating that although he signed the consignment note, the railway company refused to carry twenty cases of motor-spirit because the boxes were not dovetailed. He has got in a large stock by road, which he can supply any week day, while on Sundays it can be procured from the Crown Hotel, Slough.

EWART-HALL, LIMITED, has been registered with a capital of £25,000, to acquire the business of W. Ewart-Hall, and to

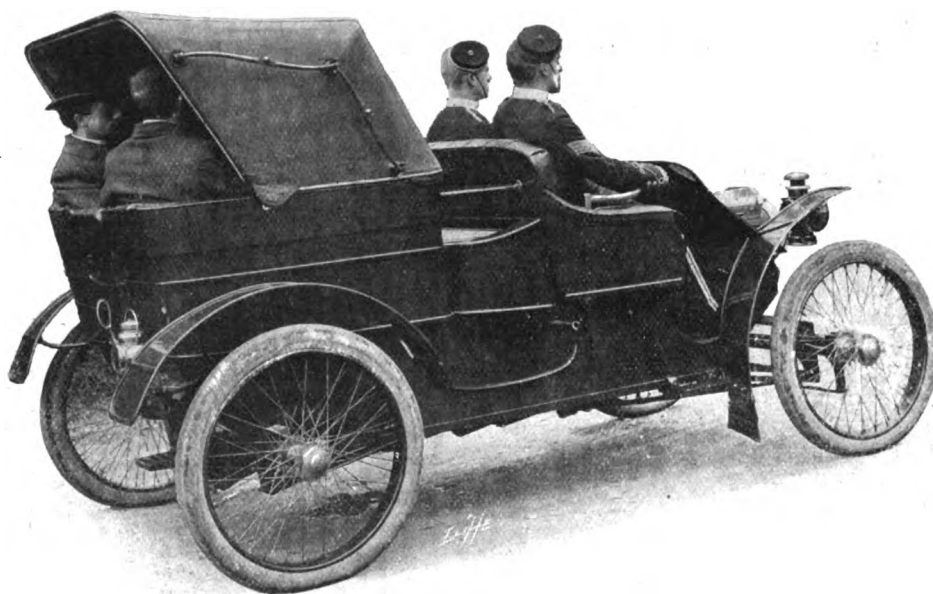
carry on business as manufacturers of motor or self-propelling vehicles, cycles, and carriages of all kinds. The new concern is opening a large motor garage and showrooms in Nottingham. The buildings are being fitted up with electric light, inspection pit, washing yards, etc., and there will be accommodation for over one hundred cars.

WITH the rapidly growing membership of the A.C.G.B.I., it has become evident that the garage accommodation within the Club premises themselves will not be sufficient. It has been decided, therefore, to take advantage of an offer, subject to satisfactory terms being arranged, to lease large premises within hailing distance from the Club-house, which, besides accommodation for fifty cars, will provide ample room for the growing number of officials and clerical staff of the Club.

UNDER the title of the Carl Oppermann Electric Carriage Company, a new company has been formed with registered offices at 2, Wynyatt Street, Clerkenwell, E.C., to develop the electric carriage and accumulator business carried on by Mr. Carl Oppermann. The authorised capital is £50,000. An influential board has been secured, with Mr. Carl Oppermann as managing director. We understand that arrangements are

now being completed for the acquisition of a large and centrally-situated site for a garage, where every facility for the storage, maintenance and charging of electric automobiles will be available.

THE accompanying illustration shows one of the cars which has been completed by the Lanchester Engine Company, Limited, for the War Office. The whole appearance is very smart, the coach work being finished khaki colour, with a relieving line of red and the Royal cipher of the same colour in the side panels.



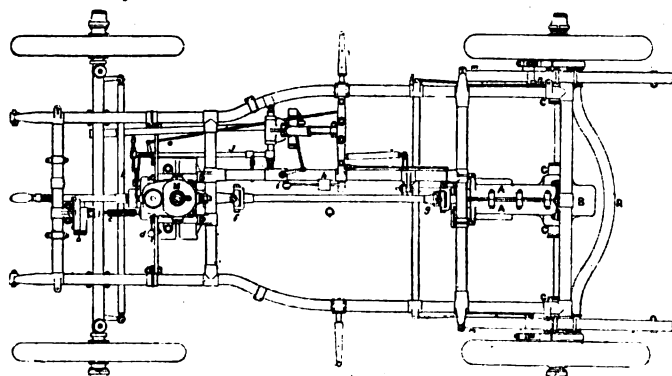
THE 10-H.P. LANCHESTER BUILT FOR THE WAR OFFICE, WITH HOOD SWUNG FORWARD FOR BAD WEATHER.

The car, which is a standard 10-h.p. Lanchester, has just been through exhaustive trials on the road, under the supervision of Major F. Lindsay Lloyd, R.E., non-stop runs of 100 and 150 miles respectively being completed over a route which included the well-known Edge Hill, the ascent of which was easily accomplished with a full load. A novel feature of the car is the combined hood and dust shield, providing ample protection alike against dust and bad weather. The hood is centrally hinged, so that it can be used as a dust hood with the back resting on the rear of the *tonneau*, while in bad weather it can be turned over in the position shown in the illustration, so that the occupants of the *tonneau* are shielded from the rain.

ANOTHER new De Dion-Bouton motor-vehicle for the 1903 season is a 10-h.p. car, with two-cylinder engine and four speeds and reverse. The gear of this car will be made on the Panhard sliding sleeve system. The gear case will be bolted direct on to the differential case, and the whole fixed to the frame. The power will be conveyed to the road wheels by the De Dion Cardan axle. This car is being made specially for the English market, to meet the requirements of those who desire a vehicle with the standard type of clutch and gear transmission. For those who prefer the De Dion expanding-clutch system, arrangements are being made to supply the same car with a new-pattern three-speed forward and reverse gear of this type.

A COMPANY has just been formed in Mulhausen, Alsace, to be known as the German De Dion-Bouton Motor-Car Company.

THE Houk Automobile Company has secured the English agency for the International Motor-Car Company's Toledo petrol and Waverley electric vehicles.



PLAN OF THE NEW DE DION VOITURETTE. (La Locomotion.)

- | | |
|--------------------------------------|------------------------|
| A. Change Gear. | C. Cardan Axle. |
| B. Bevel Gear and Differential Case. | M. Motor. |
| | Q. Longitudinal Shaft. |

MR. J. ROBSON, Butterlaw, Kenton, Newcastle-on-Tyne, has been appointed agent for the Straker heavy steam vehicles in the North-eastern counties.

Two more suits have been brought by the Whitney Motor-Wagon Company, of Boston, U.S.A., for alleged infringement of patents on steam vehicles. The concerns proceeded against are the Prescott Automobile Company, and Messrs. Grout Brothers, Orange, Mass.

MR. A. J. ALLGOOD, of the Cinque Port Cycle and Motor Works, High Street, Sandwich, informs us that he is always able to furnish motorists with petroleum spirit, he not being dependent on the railway companies for supplies.

IN a recent issue we mentioned that the Hungarian postal authorities had placed an order with Messrs. Cudell and Company, of Aix la Chapelle, for a number of light delivery vans to be used in the conveyance of mails between the G.P.O. and the railway stations in Budapest. We are this week able to give, on page 696, an illustration of one of the vehicles. It is equipped with a 10-h.p. double-cylinder governed motor, the transmission being similar to that of the Cudell light car recently described in the *Journal*.

Two policemen who gave evidence at the West Ham Police Court in a charge against a publican of permitting betting have admitted in cross-examination that they wrote up their reports together. Their note-books were called for, and found to tally almost word for word. Mr. Gillespie, the magistrate, in dismissing the case, said it was a most objectionable practice for policemen to make up their reports in each other's presence, and to compare notes. We hope the police in other districts will take note of the remarks of the West Ham magistrate.

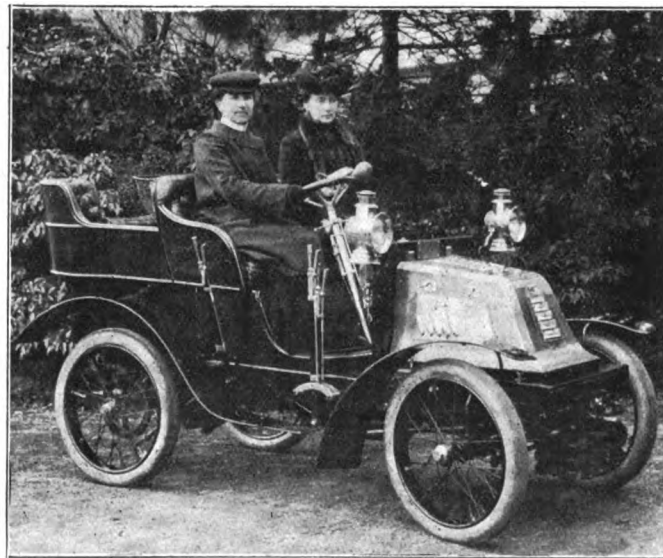
THE accompanying photograph represents Mrs. Edward Kennard driving her sister, Mrs. Kennedy. The car is a Progress, and has one of the new 9-h.p. De Dion engines, fitted with a wipe spark and Carpentier's high-speed trembler coil, which quite does away with all back firing. Mrs. Kennard can start the car with the greatest ease generally at the second or third turn of the handle. The car, a short time ago, with two up, accomplished a non-stop run of 105 miles, returning the following day without a hitch. It has two speeds and reverse, a Mulliner tonneau body, and is exceedingly smart, both as regards appearance and performances. It has done a mile in 1 min. 50 sec., and on good roads will average close on twenty-four miles. Altogether the owner considers the car does great credit to the maker. The photo was taken by Mrs. Kennard's son, Lieut. M. A. Kennard, R.N., who has recently been invalided home from the Mediterranean.

ARRANGEMENTS are being made to establish a public service of steam-cars for the transport of passengers, mails, and goods at Braidwood, Victoria.

MECHANICALLY-OPERATED inlet valves for petrol motors appear to be the order of the day. Among the Continental firms which have now adopted them are the Cannstatt Daimler, Peugeot, Mors, Darracq, Hautier, Rochet-Schneider, Pascal, etc.

IN connection with the Anniversary Run to Oxford to-day (Saturday) we learn that the Automobile Agency, 16, George Street, will supply Messrs. Carless, Capel and Leonard's petrol, or the Anglo-American Oil Company's Pratt's motor spirit, providing that early orders for the same be given to them: Messrs. Coxeter and Sons, Limited, Broad Street, petrol and motor spirit; Messrs. Eagleston and Son, Ironmongers, High Street, petrol and motor spirit; R. Foort, 19, Queen Street, petrol; the Oxford Cycle Company, 68, St. Giles, and 7, Michael's Street, petrol and motor spirit; Messrs. Morris and Cooper, 48, High Street, and 100, Holywell Street, motor spirit; and Messrs. Spencer, Sons and Co., 90, High Street, motor spirit.

ELECTROMOBILE COMPANY, LTD., has been registered with a capital of £50,000 to manufacture or cause to be manufactured, buy, hire, sell, let on hire and deal in motor-cars and motor-carriages and their components, fittings and accessories, to carry on the business of automobile, store and garage keepers, suppliers of electricity and motive power, &c., and to adopt agreements (1) with the British Electromobile Company, Ltd.; (2) with the Gloucester Railway Carriage and Wagon Company, Ltd.; (3) with Greenwood and Batley, Ltd.; (4) with T. G. Chambers; and (5 and 6) with T. H. Weguelin and E. Schenk. The first directors are T. H. Weguelin, E. Schenk, and T. G. Chambers, managing director. The registered office is at 4, Bloomsbury Place, W.C.



MRS. KENNARD ON HER "PROGRESS" CAR.

AMONG the prizes offered by the Worshipful Company of Coach Makers and Coach-Harness Makers of London for competition among British subjects engaged in the trades of coach making and coach-harness making and members of drawing and technical classes in connection with such trades, resident in the United Kingdom of Great Britain and Ireland is (1) a silver medal and £6 6s. and (2) a bronze medal and £4 4s. for a design (side view, and front and back views) for a motor-car to carry four persons. The drawings have to be made to a scale of three inches to the foot, on one sheet of paper 6 feet by 4 feet 6 inches. The general design is the main feature; no details of machinery are required beyond what would be visible on the sketches asked for. All drawings are to be delivered at the Hall of the Company, Noble Street, St. Martin's-le-Grand, London, on or before the 30th April, 1903.

THE LIMIT OF ABSURDITY.

FOR an absurdity in the way of anti-automobile ordinance, the idiotic production of the Waukegan Town Council is about the limit. It provides, among other things, that all drivers of automobiles in Waukegan must have a license from the Waukegan or some other municipality.

The clerk is authorised to issue licenses to all persons who apply, upon the payment of two dollars for each license.

Drivers shall be furnished with badges bearing numbers corresponding to that license; the license must always be in full view.

The speed limit shall be six miles within the district: Bounded on the north by Grand Avenue, on the east by Sheridan Road, on the south by Water Street, on the West by the Waukegan River; in any other part of the city the speed shall not be over ten miles an hour.

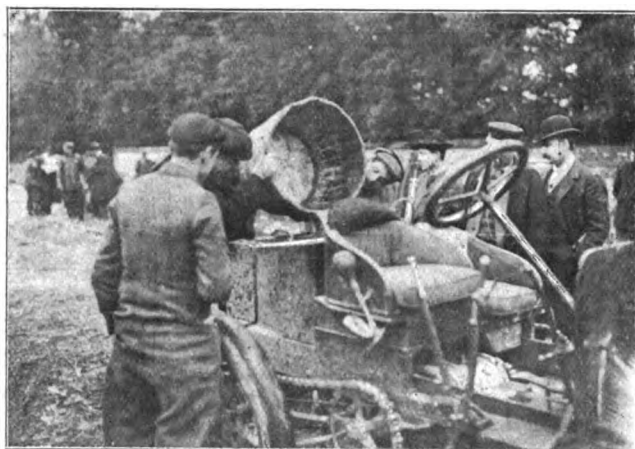
Upon meeting horses, drivers of automobiles must slacken speed to four miles an hour.

All cars must have gongs or bells not less than four inches in diameter, to be sounded at every street corner.

No part of the machinery of the vehicles shall be left running while standing on the street without an attendant.

Penalties for violation of the ordinance shall be not less than five dollars for the first offence, nor less than twenty-five dollars, nor more than 100 dollars for each subsequent offence.

The foregoing regulations have been seriously considered by an American municipality. Doubtless some English rural council would be willing to approve of their adoption, together with the following:—



A THIRSTY CAR.

When within sight of ladies on the footpath automobiles should be reversed and proceed in an opposite direction.

In the event of ladies coming in both directions, the motor-car to be stopped, the passengers dismounting in the meantime.

On the rear, front, and sides of automobiles should be large placards giving the number of the car and the age of the driver.

Neglect of any of these provisions will be punishable by imprisonment.

THE Sleaford Rural District Council has decided not to take any action in the agitation against the speed of motor-cars.

IN addition to their 8 and 15-h.p. cars, the Mors Company are bringing out two new models for 1903—an 11-h.p. and an 18 h.p. vehicle. Both will have four-cylinder vertical engines, the latter having mechanically operated inlet valves.

THE Leyland Motor-Transit Company, Limited, has been registered, with a capital of £10,000, to adopt an agreement with the Lancashire Steam Motor Company, Limited, and to carry on business as joint-stock carters of passengers, rail, and forwarding agents, as agricultural carriers, etc.

THE ANNIVERSARY RUN TO OXFORD.

THE vehicles entered for the run to Oxford on the 8th inst., according to the list available at the time of going to press, are as follows:—

Official Name.	Owner.	Make.	H.P.
Ace	Mr. C. Cordingley...	Mercedes	40
*Arizona	Mr. E. W. Peall	Renault	8
*Audax	M. T. P. Appleby	M.M.C.	20
*Australia	Mr. S. F. Edge	Napier	16
Alsirdur	Mr. R. W. Buttmer	Decauville	10
*Anglo-Saxon	Mr. G. W. Barnes	Mitchell	2
*Albany	Locomobile Co.	Locomobile	5½
*Baba	Mr. W. Ewart Hall	Oldsmobile	4
Becky Sharp	Mr. H. C. Sharp	Napier	12
Bête Noire	E. Wickens	Panhard	10
*Blind Nan	W. Payne and Co.	M.M.C.	10
*Buffalo	Locomobile Co.	Locomobile	5½
Bogey	Mr. H. A. Hood	M.M.C.	7
*Briton	Mr. F. R. Goodwin	Star	7
*Butterfly	Mr. B. Reyner	M.M.C.	8
*Buzzer	Mr. G. D. Barnes	Dennis	10
Cardinal	Mr. E. H. Cliff	Darracq	16
Caesella	Mr. R. W. Brading	Daimler	6½
*Certiorari	Mr. E. de Wilton	De Dion	8
*Chelmsford	Clarkson - Capel Stearn	Clarkson and Capel	12
Cherub	G. F. Milnes and Co.	Milnes	8
*Chicot	Mr. E. W. Walford	—	7
*Clementina	Mr. W. H. M. Burgess	Clement	8
Clink	Mr. H. J. Chapple	Locomobile	4½
Corona	Mr. H. G. Abrahams	Peugeot	8
*Diana	Mr. H. H. L. Lewis	Daimler	6
Dick	Mr. C. Friswell	Peugeot	10
*Doctor	Mr. W. P. Warren Smith	Hozier	8
Electricia	Electromobile Co.	Electromobile	5
*Ememsee	Mr. A. Burgess	M.M.C.	12
*Excelsior	Mr. H. Martin	Excelsior	2½
*Fidelis	Mr. J. M. Gorham	De Dion	4½
*Fireworks	Mr. W. J. Crampton	Decauville	10
Faithful	Mr. E. Soames	Daimler	7
Giddy Skid	Mr. L. Schlenzheim	—	—
*Good Hope	Mr. E. Martin	M.M.C.	12
Gondola	Mr. T. W. Rogers	Daimler	7
Goliwogg	Hon. A. Wood	M.M.C.	8
*Good Luck	Mr. E. R. Lowe	Excelsior	2½
*Hans	Mr. P. Brodtmann	Adler	8
Inez	Mr. F. S. Peall	Renault	—
Iris	Mr. W. J. Peall	Daimler	14
I Will	Mr. H. Hirst	Daimler	22
Jenny Wren	Mr. A. Hines	De Dion	3½
*Kiddie	Mr. H. Bennett	Oldsmobile	4
Kumfy	Mr. Ernest Owers	—	16
La Ruche	Mr. J. Tubb-Thomas	Benz	4½
*Le Petit Bleu	Mr. E. M. C. Instone	Daimler	22
*La Belle	E. J. Coles and Co.	Coles	7
La Pipe	Mr. F. Atherley	Pipe	15
*Microbe	Mr. H. R. G. Homfray	Gladiator	6½
*Matador	Mr. H. B. Taylor	Gladiator	6½
Magnet	Mr. C. Watney	Panhard	12
*Mammoth	Mr. H. Loeffler	James & Browne	9
Manikin	Mr. C. K. Gregson	Gladiator	12
*Maria	Mrs. Manville	Gladiator	12
*Memphis	Mr. G. Kenyon	Panhard	10
*New York	Locomobile Co.	Locomobile	5½
*Omrah	Mr. F. S. Hallows	Marshall	12
*Old Blue	Mr. J. P. Neave	Peugeot	10
Overtaxed	Mr. F. F. Wellington	Panhard	7
*Paratus	Mr. J. M. Gorham	Daimler	22
*Pax	Mr. J. van Hooydonk	Phoenix	2½
*Perfection	New Automobile Co.	Miesse	10
*Petrols	Hon. C. S. Rolls	Panhard	10
*Philo	Mr. C. Rhind-Tutt	Hurst & Lloyd	6
Pioneer	Simms Mfg. Co.	Simms	8
Phillard	Mr. R. E. Phillips	Rochet-Schneider	8
*Redivivus	Mr. C. L. Schwind	Daimler Co.	6
*Rocket	New Automobile Co.	Rochet	10
*Rambler	Mr. W. C. Allen	Jeffrey	4½
*Ripple	Mr. T. W. Staplee Firth	New Orleans	14
*Rever	Mr. W. Bramson	Napier	16
*Rustler	Mr. F. W. Leith	Gladiator	12
*Sea Gull	Mr. E. Manville	Daimler	22
Silent	G. F. Milnes and Co.	Milnes	8

*Singer ...	Mr. G. B. Palmer ...	Singer ...	21
*Slowcoach ...	Mr. W. Whiteway ...	Decauville ...	9½
*Soupac ...	Mr. S. F. Beevor ...	Daimler ...	6
*Soupape ...	Mann and Overton ...	Georges Richard ...	10
*Splitface ...	Mr. J. E. Hutton ...	Panhard ...	10
*Split Pin ...	Mr. R. H. Fuller ...	Panhard ...	10
Still ...	Mr. W. H. Astell ...	New Orleans ...	14
*Sunbeam ...	Mr. John Marston ...	Marston ...	10
*Surprise ...	Mr. T. B. Browne ...	James & Browne ...	9
*Solace ...	Mr. F. P. Armstrong ...	Mors ...	6
*Spry ...	Mr. C. R. D'Esteire ...	Ormonde ...	2½
Substitute ...	Mr. J. E. H. Benn ...	Wolsley ...	10
Sonning ...	Mr. E. Wilson ...	De Dion ...	8
*Safe ...	F. Laurie and Marner ...	Mathieu ...	8
*Talcab ...	British Auto Com. Syn. ...	Clement ...	11
*The Abbot ...	Mr. V. C. Abbot ...	Rochet ...	3
*The Automaton ...	Mr. D. Harper ...	Panhard ...	8
*Toronto ...	Locomobile Co. ...	Locomobile ...	5½
Thrupp ...	Mr. G. H. Thrupp ...	Darracq ...	9
*Toreador ...	Mr. J. Savory ...	Gladiator ...	12
*Torpedo ...	Mr. R. W. Leader ...	Century ...	5
*The Bee ...	Speedwell Motor Co. ...	Speedwell ...	9
*The Ghost ...	Speedwell Motor Co. ...	Serpillet ...	6
Tortoise ...	Mr. P. Gray ...	De Dion ...	4½
*Tourist ...	Mr. G. Iden ...	M.M.C. ...	20
*Traveller ...	Mr. E. B. Blaker ...	Dennis ...	2½
Turtle ...	Mr. J. Allen ...	Daimler ...	6
Una ...	Mr. G. F. Pedley ...	Brush ...	8
*Up-etmenot ...	Mr. F. H. Butler ...	Renault ...	9
*Unicorn ...	Mr. W. Gutmann ...	Weston ...	6
*Vera ...	Mr. H. F. Rees ...	Daimler ...	9
Victim ...	Mr. F. J. T. Horsey ...	Benz ...	12
*Viking ...	Mr. S. F. Edge ...	— ...	—
Xantippe ...	Hon. J. S. Montagu ...	Daimler ...	24
*Weary Willie ...	Mr. P. Simpson ...	Panhard ...	6
*Wee Devil ...	Mr. O. B. Colls ...	Century ...	6½
Zulu ...	Mr. F. A. Rodewald ...	New Orleans ...	9

* Those marked with an asterisk have been entered for Non-Stop Certificates.

THE ANNIVERSARY RUN ITINERARY.

The following is the route to be followed on the run to Oxford to day (Saturday):—

	Intermediate mileage.	Miles from London.
Hyde Park Corner ...	—	—
Barnes Bridge ...	—	—
Richmond Park (Roehampton Gate) ...	—	—
Richmond Bridge ...	—	—
Twickenham ...	—	—
Staines ...	—	17½
Virginia Water ...	3½	21½
Ascot ...	4½	25½
Wokingham ...	6½	32
Earley ...	4½	36½
Reading ...	2½	39
Purley ...	4½	43½
Pangbourne ...	1½	45
Basildon ...	2½	47½
Streatley ...	1½	49
Wallingford ...	6½	55½
Shillingford ...	3	58½
Dorchester ...	1½	60
Nuneham ...	3½	63½
Sandford ...	2	65½
Littlemore ...	1	66½
Rosehill ...	1½	68½
Oxford ...	1	69½

Lighting-up time, 5.21 p.m.

A blue flag—turn to the right. A lemon flag—turn to the left.

At the moment of going to press we learn that 222 entries had been received for the anniversary run to Oxford.

THE Midland Automobile Club has decided to join in the anniversary run to Oxford, and a good muster of members is expected.

AMONG the guests at the annual dinner of the A.C.G.B.I., which is to be held to-night (Friday) will be Lord Farrer and the Earl of Verulam.

FLYWHEEL WEIGHT.

THE object of the flywheel on petrol motors is to serve as a reservoir between impulses, so that the motor may not stop during that portion of its cycle when no working pressure is being applied to the piston. In the course of a recent letter on the subject to an American contemporary from Mr. C. E. Duryea, that gentleman remarks that "a heavy flywheel does not add to the output of the motor nor does it steady the running after the revolutions reach a point high enough to overcome, for all practical purposes, the tendency to stop between explosions. With a stationary gas engine running at 200 or 300 revolutions per minute, and missing sometimes four or five charges where it fires one, a heavy flywheel is a necessity, and largely on this account is associated with the internal combustion motor as an essential part, but some experiments to determine what flywheel weights are necessary may be both interesting and instructive. We formerly equipped our triple-cylinder motors having 4½ by 4½-in. cylinders with 140-lb. flywheels, most of this weight being in the rim, which was 3 in. wide by 18 in. diameter. We reduced this weight from time to time to 125 lbs., 100 lbs., 85 lbs., 70 lbs., 50 lbs., and 45 lbs., each time not only saving in weight but gaining in flexibility and rapidity of control of the motor, as well as a decrease in the vibrations received by the carriage body—clearly a gain in both directions. A further gain lies in the fact that a sudden throwing in of the clutch does not tend to strip the gears or jerk the vehicle with a light flywheel as with a heavy one.

"Since the aerial navigation problem has begun to attract attention more widely, we have been called upon to furnish motors for aeronautical purposes, and to this end have reduced the weight of the flywheel to 23 lbs., which reduction enables us to turn out with our regular castings an aeronautic motor developing 15 horse-power and yet weighing under 150 lbs. or 10 lbs. per horse power. This is done without the use of aluminium and with practically the same parts as used in our vehicle motors. Having flywheels of this weight, we improved the opportunity to fit them to vehicles, with surprisingly satisfactory results. With such a flywheel it is possible to slow the vehicle until the motor seems to have stopped, when on opening the throttle the motor at once romps away, taking the vehicle with it. We find, further, a perceptible decrease in the vibration transmitted to the carriage body, for the impulse of the explosion is expended in accelerating the motion of the flywheel and not in trying to revolve the vehicle in a reverse direction. At slow speeds there is a tendency to stop between explosions, but it is so seldom necessary to drive at this slow speed, using the high gear, that this is hardly an objection. The general impression, with the light flywheel when throttled low, is that the engine is running very smoothly and using fuel, but as soon as the throttle is opened it bounds forward like a spirited horse. What the limit of weight is has not yet been settled, but our regular 45 lbs. flywheels are certainly an improvement over their predecessors of two or three times their weight. Certainty of action, wide range by throttle and ample power, all of which can be had by the use of light-weight multiple-cylinder motors, will undoubtedly be leading features in the future."

MESSRS. FRISWELL inform us that Messrs. Wayte Bros., of Dublin, have been appointed agents for "Baby Peugeot" in the Leinster district of Ireland.

ON Monday a party of about fifty members of the Birmingham Association of Mechanical Engineers paid a visit to the works of the Motor Manufacturing Company, Limited, Coventry.

THE Creek Street Engineering Company notify us that they have removed from Deptford to more extensive premises in Lots Road, Chelsea, where they will in future be known as the Cremorne Motor Manufacturing Company.

MESSRS. SHIPPEY BROS. have, we learn, been appointed sole agents for England for the new Toledo steam cars of the International Motor Car Company. An illustration of one of the Toledo runabouts was given on page 670 of our issue of October 25th.

OIL MOTOR-CARS OF 1902.*

By CAPTAIN C. C. LONGRIDGE.

(Continued from page 687.)

To obtain automatic regulation of the current consumed, and at the time of sparking, the author has suggested using wedge-shaped contact pieces on the rotating disc, and allowing the disc under the direction of a governor an in-and-out movement on the shaft, Fig. 4. The action would be as follows:—As the motor speed increased, the disc would slide,

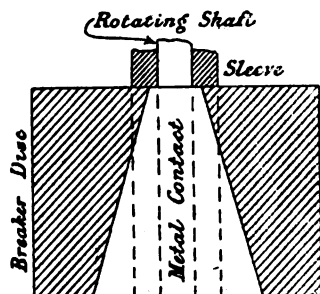


FIG. 4.—CONTACT BREAKER (AUTHOR'S), for obtaining automatic regulation of timing and current consumption.

say backwards, bringing the wider portion of the contact pieces under the brush; as the speed decreased the reverse would take place. This would give increased contact surface and earlier firing for high speeds with lessened surface and later ignition for slower speeds, that is, automatic regulation of current and sparking period.

Systems of Governing.—Governing is so intimately connected with valve action, charge formation, and ignition, that it may well be considered next. For the purposes of governing, the old "hit-and-miss," or total cut-out arrangement, has practically disappeared. In its place, four systems are in use. By far the larger number of car motors use a charge volume throttle, Fig. 5, usually a valve fixed on the induction pipe, but occasionally in the form of an inlet valve with variable lift. The throttle,

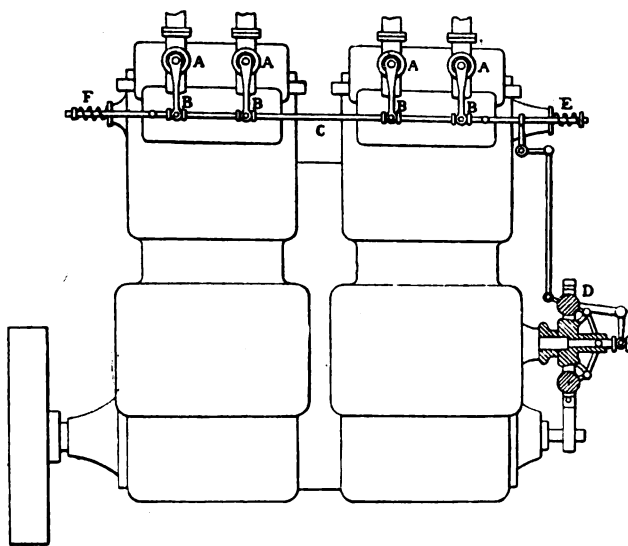


FIG. 5.—SYSTEM OF VOLUME THROTTLING (MORS). AA throttle valves on induction pipes; BB valve levers, C valve shaft, operating under the action of the governor D. Of the two springs E and F, the former is the stronger, and tends to open the valves. By the use of these springs, the valve action is more sensitive than when the governor alone is used.

worked by hand, or by the governor, or by both, reduces the volume of the charge admitted and thus slows down the motor. The author has no hesitation in condemning this system as theoretically bad. Incomplete filling of the cylinder reduces the compression, and thus renders the conditions for efficient and economical explosion less favourable. Again, the

induction of the charge below atmospheric pressure entails negative work—Thirdly, where jet carburation is used, the mixture is varied.

The second system, less general, is the exhaust throttle. The opening of the exhaust valve is retarded, a certain proportion of exhaust gas remains in the cylinder, the inlet valve opens later, and less fresh charge is admitted. In this case, there is a certain amount of back pressure, and the mixture is diluted with exhaust gases; but the cylinder being fully filled, the compression is preserved, and there is sufficient evidence to show that from this factor alone greater economy results. An illustration of the application of the principle is the De Dion Patent, No. 22762 of 1900, Fig. 6. Where this method of governing is adopted, correctness of mixture would appear very necessary. A third system, in very general use, usually in combination with one of the preceding methods, is by retarding the charge ignition. The effect of delayed ignition is to give the piston time to expand the charge, thus reducing the force of the explosion and the duration of its action on the piston. In other words, the full power value of the oil is not obtained. The method is, therefore, wasteful, and unless automatically coupled with the throttle valve, may, in the hands of a careless driver, lead to premature explosion.

The author inclines to think that the second, or perhaps a fourth, method would be the best, namely, governing by retaining the full charge of air, and reducing the amount of petrol. It might be thought that governing on this plan could not be extended over more than a 50 per cent. variation of speed, the "critical point" of the mixture being then reached. With the ordinary methods of carburation this would probably be the case. But by carbureting at or near the end of the compression stroke, it

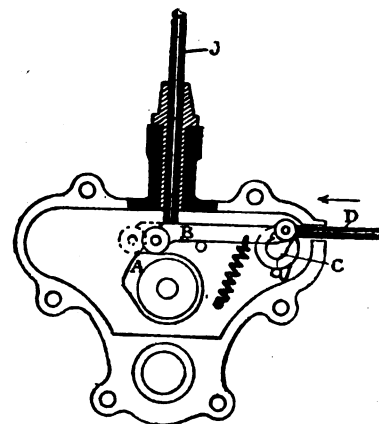


FIG. 6.—EXHAUST GOVERNOR (DE DION AND BOUTON). A cam acting, through lever B, on exhaust valve stem tappet J. B lever pivoted to crank C, and movable from right to left, by rod D. Any movement of the lever to the left decreases the lift of the valve, as may be seen from the dotted or maximum position of the lever, at which position the exhaust valve remains closed.

is likely that a far wider range might be covered. The difficulty of ignition could be met by setting the ignition plug in the course of the incoming fuel, thus ensuring locally a mixture sufficiently rich for inflammation.

Charge Expansion.—Having carried the subject as far as the ignition of the charge, there remain a few other points on which it may be wise to add a word or two before describing the application of the motor power to the car itself. The first of these points is expansion during the working stroke. As a direct object of design, no Otto cycle petrol-car motor on the market provides for increased expansion during the working stroke; indirectly, as a result of governing by throttling, greater expansion, under the action of the throttling, is obtained. The disadvantages of this method have already been noticed; loss of fuel value by reduced compression, negative work in suction below atmosphere pressure; and, if gain by increased expansion were in view, reduced power by the diminished weight of charge. Though it is doubtful whether in Otto cycle car-motors any attempt at further utilisation of the exhaust pressure would be successful, efforts in this direction are worth consideration. To overcome the disadvantages enumerated above, some inventors admitted a full charge to the cylinder, subsequently expelling a portion, thus giving greater expansion to the rest. Another method of procuring increased expansion by diminished charge is illustrated in motors governing on the exhaust. To reduce the fresh charge, more or less of the exhaust is retained in the cylinder. It is intelligible that the practice should be economical; for, though back pressure is created and the charge diluted, suction below atmospheric pressure is avoided, and, which is the main point, compression is preserved. Taken broadly, as a principle, increased expansion by charge reduction might, perhaps, be useful in designing motors liable to temporary demands for power in excess of their normal yield, as, for instance, in hill-climbing. In such case, the cylinder would be so dimensioned that a full charge would provide very high compression and increased power for use on occasions when a temporary increase of vibration, etc., would be of no consequence. For normal running, the reduced charge and lower compression would be employed. Against the advantage of this reserve power would be the

* Abstract of Paper read before the Institution of Mechanical Engineers.

slightly-increased dimensions and weight of cylinders, etc. On the other hand, provision of reserve power is, with single-acting Otto engines, the only way to reduce change speed gears to a minimum—a step much to be desired.

Other inventors have worked in quite a different direction, seeking greater expansion by increase of the working stroke. By lengthening the sweep of the piston during the working stroke additional expansion is obtained. A simple device for the purpose was recently designed by the author, the detail being worked out by Mr. A. Suggate. The modifications of the stroke will be easily understood from Figs. 7 and 8. The diagram shows teeth on a fixed pin in the cross-head to gear into a similar wheel fixed to the crank. The pin on the connecting rod is lengthened beyond the teeth to form a bearing, working in a block or roller, the latter sliding or rolling in a groove on the crank. This bearing takes up much of the thrust, leaving the teeth the work of keeping the pin in the proper

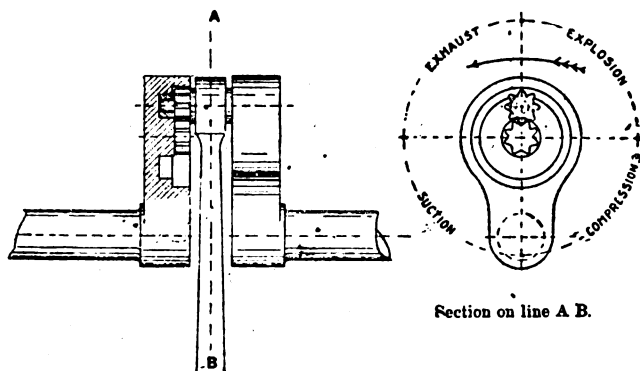


FIG. 7.—INCREASED EXPANSION GEAR (AUTHOR'S).

position in the crank. The shaft must, of course, be provided with suitable bearing. From the diagram it will be seen how the other strokes are varied during the cycle. Naturally it is not suggested that such gear would stand the shock of large engines, but for small powers the mechanism might serve its purpose. The cycle itself favours economy, for a light charge is used with high compression and increased expansion.

Other inventors again have aimed at increased expansion by additional cylinders. Excluding the system of compounding, which is not likely to be introduced in light motor-cars, adaptations of the above principle have found, and others may find, a possible application to motor-car work. A clever method initiated, perhaps, by the Atkinson engine and adopted in such motors as the Koch, Gobron-Brillié, Hyler-White, Pretot, etc., is the use of two pistons in one cylinder (in this sense two cylinders). The plan gives rapid and good expansion, but is attended with some obvious disadvantages, which, however, have not prevented it from finding favour with many automobilists.

Cylinder Cooling.—For any but the smallest motors, air-cooling, except as a supplementary aid, is impracticable, or, in any case, vastly inferior to water-cooling. This latter system may be subdivided into forced and natural. Of these, the former, by far the more general, is effected by pump, usually of the centrifugal type; the latter, by placing the water tank higher than the cylinders, circulation following the difference of temperature. The security of this system is its only strong point. In other respects it is inferior to forced circulation. Not only to maintain a given cylinder-temperature does the slower circulation require a larger body of water to be carried, but the very cause of the circulation is defective. In the jacket, water rises upwards round the cylinder, because it becomes hotter. It is thus placed in a condition to exert the least cooling effect where it is most wanted, round the combustion chamber and valves. The result is an increase in the natural tendency to unequal cylinder expansion, which adversely affects the casting, the piston rings, and general running of the engine.

Possibly the best method of all, and certainly the safest, would be a combination of the two systems. Where pump circulation alone is employed, it is advisable to provide against over-heating due to breakdowns. The safeguard usually supplied is a float glass on the dashboard, in which the position of the float indicates the maintenance of the circulation. But this requires the driver's attention, a demand to be avoided. A very ingenious French method for indicating the piston water circulation in gas-engines is to lead the discharge into a tank, fitted with a ball-cock, connected with the gas-valve. If the circulation fails, the tank water-level falls, the ball-cock sinks, cutting off the gas and stopping the engine before damage is done. On somewhat similar lines, the author recently suggested fitting on the pump discharge pipe a lift valve, so connected with the electric ignition or the petrol supply that, as long as the cooling water circulated, the valve and its connection remained in their normal position; but, if the pump failed, the fall of the valve back to its seat broke the electric current or the petrol supply and so brought the motor to a standstill. A mercurial tube in connection with the cylinder jackets offers another method of interrupting the firing, when, owing to a pump failure, the cylinder temperature becomes dangerously high.

The question of what is the proper cylinder temperature is one that admits of two answers, according to the standpoint taken, namely, that of

efficiency or that of power. A very considerable heat loss arises from the cooling of the explosion gases by contact with the cylinder walls and piston. Hence the higher the temperature of these latter, the lower their cooling effect. High cylinder temperature, therefore, conduces to efficiency, considered as the ratio of heat converted into work to the total heat imparted to the engine. Under this aspect, then, the cylinder walls should be kept as hot as they can be efficiently run. But, when power is considered, different considerations intervene. Other conditions being alike, the more charge that can be included in a cylinder of given dimensions, the more power will be produced by the explosion. Thus power depends on the weight of the charge. Now one charge, having half the absolute temperature of another, will have double its weight, and its explosion will generate proportionately greater power. Low temperature, therefore, by diminishing the heat of the incoming charge, favours increased body and therefore increased power. In 1896, Mr. James Atkinson stated that for every $5\frac{1}{2}$ deg. Fahr. by which the charge in the cylinder was reduced in temperature before compression 1 per cent. more power could be obtained from the engine. Low cylinder temperature results in easier lubrication, and, therefore, likely enough, in reduced friction, a possible factor in the increase of power.

Mufflers or Silencers.—Until very recently these have been considered merely as sound-deadeners, and their influence on engine power quite overlooked. Many of the silencers used were thus ridiculously small, giving rise to quite unnecessary back pressure. What is the proper volume ratio between the silencer and the cylinder the author does not know. Mr. W. A. Norris states that it should be a minimum of five to one. The point could be easily settled by any manufacturer that would take the trouble to make the simple experiment. That silencers are probably yet too small, and that considerable throttling still exists, is evident from the fact that certain American makers have added to the exhaust pipe between the cylinder and silencer a bye-pass valve, to free the exhaust, when more power is required. This method has been followed in the Brooke car and the Mercedes Simplex. To ensure immunity from fracture in case of back-fire, a relief valve is sometimes fitted to the muffler.

Communication of the Motor-Power to the Car.—(a) **Crank and Crank-shaft.**—As regards the position of Otto-cycle motor crank-shafts, the practice is to set the centre of shaft below the axis of the cylinder. The method is open to objections. All Otto-cycle motors are single-acting, high-speed engines of accentuated type, in as far as the initial pressure is greater, more violently applied, and more rapidly repeated—constantly in one direction, namely, on the downward stroke. This sudden blow, always applied in the same direction, throws a heavy strain on the connecting rod and crank-shaft, and, in large power gas-engines, necessitates crank-shafts of about half the diameter of the cylinder. This is one of the mechanically weak points of all engines using the Otto cycle. The question is whether the present practice deals in the best way with this defect. The prevailing method of locating the shaft line so as to intersect the cylinder axis, gives equal angularity to the connecting rod on its up and down stroke. The cycle, however, imposes all the working strain during the down stroke; consequently, construction should, perhaps, aim at keeping the connecting rod in the most favourable position to withstand pressure in this period of the cycle. In other words, the angularity should be reduced during the

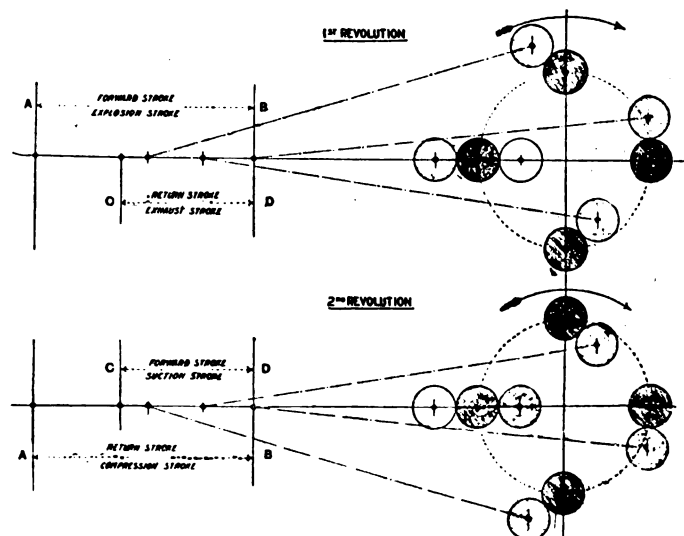


FIG. 8.—The dark shaded wheel is on the crank. The light shaded wheel is on the connecting rod. The plain circles show position of the wheel on the connecting rod at the end of the revolution. *Note.*—Maximum stroke of piston A B equals twice throw of crank plus pitch diameter $\frac{1}{2}$ of wheel. Minimum stroke of piston C D equals twice throw of crank minus pitch diameter $\frac{1}{2}$ of wheel.

working stroke, being proportionately increased for the idle strokes; less angularity when the pressure is great, more angularity when it is slight.

(To be continued.)

CORRESPONDENCE.

CHAINS ON MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

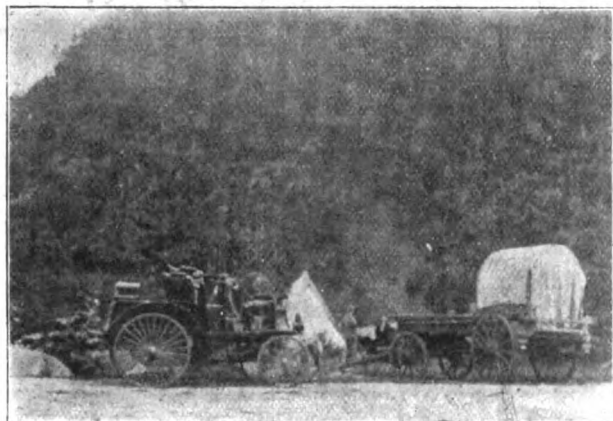
SIR,—Referring to the letter from D. E. Stephens on the above subject in your issue of October 25th, I have pleasure in giving my experience of the length of life of chains on a 6-h.p. Daimler, weighing about 19 cwt. I first tried "blocks," and had one pair run 3,410 miles. After using others over a distance of 3,000 odd miles, I discarded the "block" pattern in favour of "rollers," which I much prefer, and find have about double the life of the others. My first pair ran for 6,987 miles, and only having jumped off twice in that distance; though I should not like to say how many times the old blocks came off when they were getting worn. My practice has been to boil the chains in lard from time to time after first washing them in paraffin, and they are dressed with grease each day before use. As to tightness, motor-car chains should not be as tight as those on bicycles, and where the driving is done by a pair of chains they do not seem to want to be as tight as when there is only one. Chains should be adjusted when they require it, which in my experience is not very often. With regard to sprockets I am now using my second pairs, large and small (twenty-seven teeth and eight teeth), and the first lasted for 7,865 miles. All the chains I have used were made, I believe, by Messrs. Brampton, and considering the work they are required to do and the conditions under which it is done, modern chains to my mind leave little to be desired.—Yours truly,

EDGAR SOAMES.

AUTOMOBILISM IN SOUTH AFRICA.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—A mail or two back I sent you an account of the first journey from Port Elizabeth to Grahamstown by motor-car. The distance is only eighty-six miles, but the difficulties of the road in gradient, deep wheel-tracks of heavy bullock wagons, sand, and drifts make it a tough job. Mr. Galpin, of Grahamstown, tried it some months ago on a large car, but failed, getting



A SOUTH AFRICAN SNAPSHOT.—THE OLD AND THE NEW.

only about thirty miles and then completely breaking down. My little 4½-h.p. geared Benz did it in splendid style, averaging ten miles an hour, exclusive of stops for refreshments and one stop to repair broken steering spring. Your reproduction of the same car coming up Van Staden's Pass was a great improvement on the original. A few months ago mine was the only motor-car here, now there are several, and there are over twenty more ordered and on the way.—Yours faithfully,

W. E. ALCOCK.

Port Elizabeth.

WATER CIRCULATION TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—A very probable cause of the trouble experienced by your correspondent "Puzzled" is an inefficient circulating pump. It is increasingly obvious that a really efficient circulating pump (for car use) is a rarity, seemingly due to the fact that the importance of this accessory is generally underrated, and consequently inadequate attention is given to its design. If the large centrifugal circulating pumps used with marine surface condensers were not far more efficient than the former, we could not have the splendid results that are regularly effected in rapid ocean passages, and weeks of continuous steaming without a hitch. If this throws any light on the trouble that "Puzzled" complains of, I shall be glad, and he may be further interested to know that I have designed a really good little circulating pump of high and tried efficiency.—Yours truly,

SIDNEY H. HOLLANDS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to "Puzzled" in your issue of 1st November, it is difficult until one knows the exact relative position and details of his water tank, water-jackets and radiators, to give a definite opinion as to the cause

of his trouble, but several explanations present themselves:—1. Insufficient lubrication in the cylinder; 2. Faulty pump, such as breaking of the cogs therein; 3. Slipping of the pinion on the pump shaft or spindle, whereby the pump is not rotated, though externally it appears to do so unless one carefully notes whether the spindle is also rotating with the pinion or not; 4. A "steam lock" in the water-jacket, which prevents circulation. I have had experience of each of the above, and, until I found it out, was considerably puzzled over the last. The remedy in each of the first three is obvious; and, as regards No. 4, it is only necessary to disconnect the unions on the pipes leading from the water-jacket and run the engine till water gushes out, then connect up again.—Yours truly,

"T."

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—If "Puzzled" will introduce a piece of wire with a small hook at the end into the short water pipe which enters the water-jacket, he will probably feel and hook out a small plug of asbestos or tow mixed with red scale, which has been acting as a bad valve, stopping circulation when the engine is running. When the car is at rest the water percolates through and fills the jacket, making one think circulation is all right; as the engine works, however, it uses up this water and overheats. I was five weeks finding this out on a car of similar type.—Yours truly,

A. FENNINGS.

"MOTOR-TRICYCLES" OF B.C. 700!

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The old saying, "there is nothing new under the sun," is exemplified in a passage in Homer's *Iliad*, Book XVIII., line 368-380, where three-wheeled automobiles are mentioned as being built by Vulcan. As Saturday is the sixth anniversary of Emancipation Day (first stage) for automobiles, this appears to be an appropriate occasion for bringing this record to light. The translation freely rendered by Pope is as follows:—

368. So they. Meanwhile the silver-footed dame
Reach'd the Vulcanian dome, eternal frame!
High eminent amid the works divine,
Where heaven's far-beaming brazen mansions shine.
There the lame architect the goddess found,
Obscure in smoke, his forges flaming round,
While bathed in sweat from fire to fire he flew;
And puffing loud, the roaring billows blew.
That day no common task his labour claim'd:
Full twenty tripods for his hall he framed,
That placed on living wheels of massy gold,
(Wondrous to tell) instinct with spirit rolled
From place to place, around the blessed abodes
Self moved, obedient to the beck of gods:
For their fair handles now, o'er wrought with flowers,
In moulds prepared, the glowing ore he pours.
Just as responsive to his thought the frame
Stood prompt to move, the azure goddess came.

This takes the date of the first idea of motor-cars back some two thousand six hundred years!—Yours faithfully,

H. R. BELCHER HICKMAN.

SUPERHEATERS FOR STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I bought one of Messrs. Strickland and Co.'s superheaters about three months ago and find it a splendid thing, economising both water and petrol on my Locomobile to an astonishing degree. Twenty gallons of water will now carry me over forty miles, and with three gallons of petrol I can do fifty-five miles. My car used to average fourteen miles an hour, now the speed is a good eighteen. The fitting and fixing being simple, I did this myself, no alteration being needed in engine, lubricator, lubricating, or glands. Drivers of these handy little cars who are troubled with back-draught should shorten their chimney to about eighteen inches, and fit an elbow about three inches long on each end opening upwards. I have used a similar contrivance for the last six months and my fire has not blown back once. "Forced draught" is wasteful and unsatisfactory in every way.

A pilot light is badly wanted on these cars, for a very slight side wind will extinguish the fire when the automatic regulator has damped it.—Yours truly,

ROBERT CROSS.

AN INCIDENT NEAR IPSWICH.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Last week, while driving an 8-h.p. Gobron-Brillie in company with a friend from Ipswich to Bury, we nearly overtook a horse and cart, but upon the driver thereof holding up his hand we stopped, and my friend got out and went towards the horse to lead it. The driver would not wait for my friend to come up, but instead drove on; we followed slowly some way behind till again the driver put up his hand, and again we had to stop. The driver then opened a gate and took his horse and cart into a field, and we drove on and stopped a mile or so further on for tea. On again joining the car I was accosted by a policeman who demanded my name and address, saying that the horse (which I have mentioned) had run away in the field. Is one responsible for horses in fields? and has a policeman

a right to demand one's name and address when manifestly one has done nothing contrary to the law? I gave mine after first obtaining that of the owner of the horse which won't face motors.

We had no idea that the horse had run away till the policeman told us, on going back to investigate matters, both man, horse, and cart had vanished.—Yours truly,

J. REGINALD EGERTON.

A MOTOR QUERY.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Can any of your readers inform me why a petrol-motor should not be designed to give two propulsions every other revolution instead of one, by exploding the mixture at each end of the cylinder. The chief objection I see is the need for extra parts, such as piston rod, stuffing-box, slide blocks, etc., entailing greater liability to break down; but would not the increased power, without necessarily increasing the weight in proportion, be more than sufficient to counterbalance this? I presume there must be some great mechanical disadvantage, owing to its absence in the market, as far as I am aware.

May I also express my fervent hope that Mr. J. D. Hill will meet with the success which he so well deserves? The misguided "Robert," when pulling up an innocent motorist driving, say at 10 miles per hour, and swears it is twenty, is probably under instructions to allow a "factor of safety" of two.—Yours truly,

O. B.

MR. W. F. PEARE, of Waterford, writes: "In your issue of the 25th ult., referring to the military manoeuvres in Ireland, you say:—'The Duke of Connaught's Napier experienced a mishap, and while it was under repair his Royal Highness had a seat on Major Nugent's Brooke car.' I wish to correct this, as it was distinctly the reverse which occurred. On the second day of the manoeuvres the Brooke car, on which his Royal Highness was travelling, had a mishap. Mr. W. G. D. Goff, who was following, took his Royal Highness on board his 16-h.p. Napier, and continued to drive him during the remainder of the manoeuvres."

MR. J. G. KIRSTEN writes: "'Vulite' is mentioned by your correspondent, Mr. Frank Thatcher, in the issue of the 25th ult. Will that gentleman kindly inform me the name of the makers of this?"

BRAKE AND MOTOR-CAR COLLISION.

At the Brompton County Court, last week, before Judge Stonor, Albert Olley, Enfield, brought an action against Mr. Owen Macklin, job-master, Fulham, S.W., claiming £10 in respect of damages to a motor-car and lamp, said to have been caused through negligence on the part of a man in the defendant's employment. The plaintiff's case, briefly, was to the following effect. On June 18th last, having attended the Ascot Races, he was returning to London along the Datchet road. When about a mile below Colnbrook he came up to two brakes, and blew his horn. He passed one of the brakes, the driver of which shouted, "Take the ——— thing away, or I'll smash it up." They were all going at a walking pace at the time. Suddenly the driver whipped up his horse, and one of the poles of the brake came "bash" into the back of the motor-car, forcing it against the brake in front. The back of the car was smashed in, and a fine lamp, valued at £7, was destroyed. The plaintiff went on to speak as to the identity of the driver of the brake. For the defence, Edward Rhymes, the driver of the vehicle in question, stated that the road at the spot where the accident occurred was very narrow, and the motor-car stopping dead right in front of the brake, it was quite impossible for him to prevent the accident. His Honour said he did not believe that the driver of the brake drove deliberately into the motor-car, as had been suggested; but he thought that the evidence pointed to contributory negligence on the part of the driver of the motor-car. There would accordingly be judgment for the defendant, with costs.

THE MOTOR POWER COMPANY, LIMITED, v. GILLING.

This was an action brought before the King's Bench last week by the plaintiff company to recover the sum of £320, the balance of the price of a motor-car supplied to the defendant, Mr. G. M. Gilling. The defendant admitted that the plaintiffs were entitled to credit for £320, but he said that it was a condition of the agreement to purchase the car in question that the plaintiffs should provide a competent driver. His case was that the plaintiffs, in breach of the condition, had negligently supplied an incompetent driver, with the result that an accident occurred and the car was rendered worthless. He counterclaimed £600 damages.

It appeared that in February last the defendant ordered a Gladiator light motor-carriage from the plaintiff company at the price of £320, and in addition to this the defendant was to hand over to the plaintiffs his old Locomobile. On February 15th the plaintiffs delivered the Gladiator to the defendant, who gave a cheque for £320, which was postdated February 18th. On the Sunday the defendant went in the motor-car to Croydon, and was driven by a man named Passmore, who, according to the plaintiffs, was engaged by the defendant. Unfortunately, the roads in Croydon were slippery and the car had a side-slip, with the result that the driver lost control of the vehicle, and it ran into a lamp-post. The driver was seriously injured and the car was damaged. Thereupon the defendant stopped the cheque which he had given to the plaintiffs, a course which

they contended he had no right to take. The defendant wrote complaining of the incompetence of the driver, who, he alleged, had been supplied by the plaintiffs, and he counterclaimed damages from them for an alleged breach of a condition to supply a competent driver. A good deal of evidence was given on both sides, but in the end the jury found a verdict for the plaintiffs for the amount claimed, and judgment was given accordingly.

A MOTOR-CAR CONTRACT.

In the King's Bench Division last week the Lord Chief Justice tried the case of "Ellis v. Keene." The plaintiff, Mr. Frank Ellis, of East Putney, sued Mr. L. Perry Keene, Putney Bridge, to recover £100 paid for a motor-car, the consideration of which had, he said, failed. Mr. Lincoln Reed stated that the plaintiff saw a petrol car at defendant's establishment. The price asked was £130, which was to include some painting and redecorating. Finally, £100 was agreed upon as the price without any redecorating. The car was, however, to be overhauled. Plaintiff was taken by the defendant for a run round Richmond Park, and after the return journey the balance of the purchase money (£95) was paid. Later the car was sent to plaintiff's house, but on that day it would not go at all. Subsequently it was agreed that the car should be exchanged for a steam vehicle, for which plaintiff was to pay another £10, and certain alterations were to be made. For the defence Mr. Mears said the car was chosen by plaintiff at defendant's works, and was all that it was represented to be. If the car did not behave properly after that it was because it was not treated properly. As to the steam car, no bargain was arrived at. In the result the Lord Chief Justice came to the conclusion that the original contract was determined by consent of the parties, and there was a bargain made that in consideration of Mr. Ellis allowing the £100 to remain on account of the steam car and paying another £10, Mr. Keene was to deliver the steam car within fourteen days. Judgment would, as the defendant had not fulfilled that contract, be entered for the plaintiff for £100 and costs.

PETROL STORAGE AT BRISTOL.

THE Bristol Motor-Car Company was summoned last week for selling two gallons of motor-spirit without a licence, contrary to the Petroleum Act of 1871. A fine of 10s. and costs was imposed, the Bench taking into consideration the statement for the defence that the spirit was sold by a lad not in the employ of the company, and contrary to the stringent rules laid down by the defendants. H. B. Lowe, of Redcliffe Street, Bristol, was also summoned for selling a gallon and a half of motor-spirit, in contravention of the above Act. The spirit was sold to Inspector Gotts by a servant of the defendant, the employee admitting that he had been instructed by his master not to sell the spirit. A fine of 10s. and costs was imposed.

A CLAIM FOR COMMISSION.

At the Brompton County Court on Friday week, before Judge Stonor Mr. T. H. Schultess Young, described as a motor-car maker, 149, Ebury Street, S.W., brought an action against the Speedwell Motor and Engineering Company, Limited, 50, Albert Gate, W., claiming £26 5s. as commission, said to be due in the introduction of business. Plaintiff's counsel explained that the Pall Mall Motor and Cycle Company, in which his client had been one of the two partners, had some business transactions, about May of last year, with a Dr. Fenton. This gentleman was desirous of disposing of a "Baby Peugeot" car, and purchasing a more expensive one, and he arranged with the Pall Mall Company that if they sold his car for £150, any other car he might purchase should be bought through them, so that they might get a commission in the usual way. Subsequently, having inspected various cars, and discussed with the members of the Pall Mall Company the merits, etc., of the different makes, Dr. Fenton agreed to buy a Renault car from the defendant company for £350. The doctor fully explained at the time of purchase that he was buying the car through the Pall Mall Company, and in a written agreement the defendant company agreed "to allow a trade discount of 7½ per cent." on the car in question. The defendants, however, failed to supply a car to time as agreed and of the colour stipulated, and Dr. Fenton in consequence cancelled the order. The learned counsel maintained that the commission had been earned, but the defendant company disputed the claim. In cross-examination, Dr. Fenton said that, beyond referring to the Renault cars, among others, in course of conversation, the Pall Mall Company did nothing towards finding him the car which he had agreed to purchase. When the defendant company asked for longer time in which to get the car from Paris he waited for more than a week, and when one ultimately arrived he understood from the company's communication that he would have to get it painted the colour he had ordered at his own expense. That was why he cancelled the order and claimed the return of £100 deposit. The judge said it appeared to him that if anyone was entitled to the commission it was Dr. Fenton, who, of course, could hand it over to the plaintiff if he so desired. A difficulty in the case also was whether the plaintiff could rightly claim the commission, seeing that the arrangement was that he and his partner—who had now disappeared—should receive it. The partnership had never been dissolved, and so it still subsisted. Counsel for the plaintiff: Will your Honour allow the claim to be amended to "Young, trading as the Pall Mall Motor and Cycle Company"? The Judge: As the action stands on the record there can be no doubt that it is in the wrong name. The case was then adjourned.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Horsham	H. Coombs, London	—	£2, etc.
Swansea	G. Thomas, Swansea	18 m. p. h.	Dismissed.
Middlesbrough	A. Smith, Linthorpe	—	£2, etc.
Methwold	— Le Plain, Hockwold	—	£5, etc.
Epsom	H. Ward, South Norwood	—	£3, etc.
Kingston	W. Mosenthal, Paddington	—	£7.
Stonehaven	J. B. Gow	—	£5, etc.
Horsham	F. Copping, Maidenhead	34 m. p. h.	£2, etc.
Brighton	C. Browne, London	24 m. p. h.	£2, etc.
Staindrop	F. Livesey, Bishop Auckland	—	£2, etc.
Oxford	R. D'Oyly Carte, London	19 m. p. h.	£2, etc.
"	Wm. Bennett, Warborough	19 m. p. h.	£5, etc.
Cambridge	Lionel de Rothschild	—	£2, etc.
Retford	H. A. Day, Bayswater	30 m. p. h.	£5, etc.
Guildford	A. H. Royle, Kensington	19 m. p. h.	£3.
"	A. Ruis, Oaklands Park	18 m. p. h.	"
"	A. Bradbury, Teddington	19 m. p. h.	"
"	A. T. Thomas, Woking	18 m. p. h.	"
Oxford	E. R. Lowe, Sunninghill	21 m. p. h.	£1, etc.
Solihull	Harvey Du Cros	35 m. h. p.	£3, etc.
Norman Cross	J. H. Pick, Stamford	—	£4, etc.
Shoreham	Major Turner	18 m. h. p.	£3, etc.
"	S. Speakman	16 m. h. p.	£5, etc.

Where no alleged speed is given it is understood to be above the legal limit.
 * Motor-cycle case.

ON the authority of the solicitor of the Automobile Club, the announcement is made that a motorist has the right to appeal to Quarter Sessions against any verdict provided the fine exceeds £5.

At the Horsham Petty Sessions, last week, H. Coombs, of London, was summoned for driving a motor-car at an excessive speed at Crawley, on October 12th and October 17th. Defendant pleaded not guilty. Sergeant Beacher said defendant drove a motor-car on October 12th over a measured quarter of a mile in 36 secs., or at a rate of 24 miles an hour. Mr. Paul Nolke, defendant's employer, said they were not travelling at an excessive speed. The car was out of order, and it was not possible to go fast. In regard to the second offence, on October 17th, Sergeant Beacher said defendant covered the quarter of a mile in 41 secs., or 22 miles an hour. Defendant was fined 40s. and costs in each case.

In the case against J. Thomas, at Swansea, police-sergeant Hopkins said the car was going at eighteen miles an hour, but could not swear who was driving it. Defendant denied being the driver, and the magistrates dismissed the case.

At Cambridge Petty Sessions, Lionel de Rothschild, student, of Trinity College, was summoned for unlawfully driving a light locomotive, to wit, a motor-car, on the highway, at Trumpington, on October 12th, at a greater speed than was reasonable or proper, having regard to the traffic on the said highway. Police-constable Day stated that he was on the Trumpington road on Saturday, October 12th, at 2.15, with Sergeant Warren. He pointed out to witness a certain place where he stood and waited for motor-cars. Witness saw the defendant coming from the direction of Cambridge and driving his car at a very fast pace. Police-sergeant Warren, stationed at Chesterton, said, acting under the instructions of Superintendent Webb, he went to Trumpington, where he saw Police-constable Day. They compared watches, and at 2.15 p.m. witness placed him at a certain point in the village, and instructed him with regard to any motor-cars that might pass. Witness took up a position 600 yards away. At 2.51 the defendant passed witness at a rapid pace. Witness timed him exactly as he passed and found that defendant was driving at the rate of six hundred yards a minute. Twenty miles an hour in Trumpington was a dangerous speed. They had received a great number of complaints with regard to motor-cars. Defendant said he was the holder of a certificate of proficiency in motor-car driving in France. He could have stopped on the day in question before he reached any foot-passenger. Witness had never had an accident, and always stopped if he thought there was any danger. The Bench fined defendant £2 and costs.

IN the case against Mr. Claude Browne, police-constable Morris gave evidence that at 4.20 on October 16th defendant drove along Upperton Road towards the town at a furious rate—he should think quite twenty-four miles an hour. Defendant said it could not have been his car at all; he passed the spot earlier than was stated by the police, and he was not driving furiously. The Bench, however, considered the case proved, and imposed a fine of £2 and 12s. costs.

AT Norman Cross Police-court on Tuesday, J.W. Falmouth, who gave his address as the Automobile Club, Westminster, was summoned for driving a motor-car on the North road above the regulation speed. It was stated, however, that the defendant had given a name and address where he was unknown, and on the application of the police a warrant to arrest him was granted.

MEASURED DISTANCES.

A CORRESPONDENT kindly informs us that the police have a measured distance (200 yds.), in the Eltham Road, Lee, Kent, commencing from the Avenue towards the Weigall Road. It is the high road from

Lewisham to Eltham. A number of cars were stopped on Sunday last one old 6-h.p. Daimler standing charged with 30 miles an hour on its third speed.

In the furious driving case against H. Ward it transpired that the Epsom police have a measured furlong in the part of High Street commencing at the curve just after passing under the railway arch, near the Brighton Co.'s railway station.

Those taking part in the run to Oxford to-day (Saturday) would do well to note that the police have a measured quarter of a mile near Nuneham Courtenay.

MOTOR-CAR REPAIRS AT COVENTRY.

JUDGE INGHAM and a jury sat in Coventry County Court, on Tuesday, to hear the case brought by the Maudslay Motor Company against Mr. John Lindsay Scott, to recover the sum of £75 7s., for repairs to a motor-car belonging to defendant. The case did not go very far—not far enough to hear the defendant's version—but it was, briefly, that Mr. Scott, in the early part of this year, got into correspondence with Mr. Bamber about certain repairs needed to Mr. Scott's car. Mr. Maddocks, who appeared for the plaintiffs, said Mr. Scott set up two defences to the action (1) "I am liable to pay nothing, because I instructed Mr. Bamber to get the work done for me, and I am not the proper person to pay Messrs. Maudslay's account at all. (2) The price charged is too high for the work done." Mr. Bamber was, the solicitor said, a consulting engineer, and had no motor works of his own, as the note-heading he used clearly showed, and he was alleged to have stated that he should have to get the necessary work on Mr. Scott's car done by a firm. It was contended, for the plaintiff company, that Mr. Bamber had nothing to do with the account. The amount of the bill was £75 7s., including 5 per cent. commission to Mr. Bamber, and that, said the solicitor, would have to come off.

Mr. Maudslay and Mr. Bamber gave evidence, bearing out the agency of the latter. He said that having had a letter from Mr. Scott, he wrote to him, revealing his position as to the repairs. Mr. Wood called for a copy of this letter, saying his client knew nothing about it. Mr. Bamber said it was in his letter-book in London. The judge then said it was no good to go on with a case which would turn on the correspondence, and the correspondence not produced. There was no evidence of agency to go to the jury, and he therefore nonsuited the plaintiff company.

PETROL STORAGE.

At the Southwark Police Court on Tuesday, J. J. Fitzsimmons, of Westminster Bridge Road, S.E., appeared to two summonses for breaches of the Petroleum Acts. The defendant pleaded guilty. He said he was a bicycle and motor-car repairer, and the excessive quantity of petrol found on the premises had been drawn from a car which was under repair. Mr. Pidsley, who prosecuted on behalf of the County Council, pointed out that if the defendant was temporarily storing a quantity in excess of his licence, he should have given notice. Moreover, 30 lb. of india-rubber solution equivalent to 3½ gallons of explosive liquid, were found upon the premises. The defendant was fined £4 5s., including costs.

ACCIDENT AT SWANSEA.

At Swansea County Court, last week, Mrs. G. Mendellsohn, with her husband, of Swansea, brought an action against Mr. Pryce Trow, a motorist, for the recovery of £10 10s. damages for injuries, etc., through a collision on July 18th. Plaintiff said that on the day named she was proceeding towards Cwmdonkin Park, when defendant in his car, while turning into Walter Road, ran on to the footpath and collided with Mrs. Mendellsohn. Plaintiff had her dress torn, and sustained shock and injuries. The defence was that the machine on turning the corner struck a large stone, which caused the steering wheel to momentarily leave defendant's hand, and thus the car was brought on to the pavement. The car was going slowly, and there was no negligence. Judgment was given for plaintiff for £7 8s.

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COMMENTS.



WHEN we speak of "the Club" every motorist knows we refer to the institution in Whitehall Court, which held its annual dinner last week at the Trocadero Restaurant. As will be seen from the report on another page, the event was a repetition of former successes. The feature of the evening was the large number of members of Parliament present, the honours of the evening falling undoubtedly to Mr. T. P. O'Connor and Mr. Gibson Bowles. All the speakers recognised the absolute necessity of a change in the 1896 regulations, which have become antiquated hindrances to a promising industry, and when the time is ripe and opportune there should, with so many friends to automobilism in the ranks of members of Parliament, be no difficulty in getting a new Act, acceptable both to motorists and the general public, through the House of Commons.

The Oxford Run.

A NEW Act of some sort is much to be desired if only from the point of view of having an anniversary day in an earlier month than November, whose unsuitability for celebration tours has again proved itself. A year ago motorists enjoyed (?) a run through a dense fog as far as Staines; this year the way as far as Reading was made under climatic conditions of the most undesirable kind—blinding rain, the strong wind, and the sloshy roads almost making the most enthusiastic motorists wish for the comfort of the warm fire-side. About 230 cars entered for the run, of which 176 actually started. That 150 of these should have reached Reading is, under the circumstances, a matter of congratulation; indeed, so unkind were the elements, we should not have been surprised to have seen only half of this number at the biscuit town. While the motorists who continued the run showed a hardihood and enthusiasm worthy of all praise, we cannot blame those who, wet through almost to the skin, decided to retire from the tour.

November Too Late.

THE rain quickly converted the roads into lakes of mud, necessitating most careful driving to prevent side-slipping, and we are free to say that, with possibly one or two exceptions, no undue speeding was indulged in. So far as we can learn the only serious accident of the day was the collision between Mr. Atherley's car and a butcher's cart near Streatley, referred to elsewhere; the day was, however, full of minor incidents, the recounting of which, one to the other, made the dinner at Oxford a "noisy" event. While it cannot be denied that the tour was a great success, rain and mud notwithstanding, we feel that we are only voicing the opinion of the great majority of motorists when we say that November is too late in the year to hold anniversary runs, and that if we are to have another next year it should be held earlier, when the weather is more reliable.

Mud!

AFTER the experience of Saturday last the question of the proper encasing of the working parts of motor-cars again assumes importance. As regards the protection of ignition mechanism, driving chains, and gearing underneath the car a great many vehicles are lamentably deficient, and a run in weather such as was experienced on the journey to Oxford entails the covering of the whole of the vehicle, under and over, with mud, a considerable portion of which finds its way into the working parts. It should not be difficult to make the various moving parts of automobiles mud-proof, and the result would be not only a longer life, but a much sweeter and more economical running. Another point that may be mentioned as a result of Saturday's experience is that many makers have still much to learn in the way of providing suitable mudguards. Some of the American vehicles were minus guards of any kind, with the consequence that the passengers, not to speak of the cars, were a sight to behold. It was, however, not only the mud-guardless cars that carried mud-bespattered passengers; the same is true of many vehicles which were fitted with guards; hence our suggestion that more attention might be paid to the design and fitting of these necessary articles.

The Nottingham and District Automobile Club.

A REPRESENTATIVE gathering of this Club was to be seen at Hyde Park Corner on the occasion of the Anniversary run to Oxford, consisting of:—Mr. R. Millington Knowles, J.P., President, on his Serpollet, Mr. H. Belcher, on 12-h.p. Humber, who had as passengers Messrs. G. H. Kirk, W. Don Foster, and M. Ross Browne; Mr. Chas. Hardy on his new 12-h.p. Daimler, with whom were Mr. Lewis and Mr. P. Huskinson; Mr. Schwind and party on his famous and appropriately named Daimler "Redivivus." It is worthy of note that this car is one of the first turned out by the Daimler Company, and is still doing excellent work. At Oxford, Messrs. E. W. Wells and W. D. Wells, on Mr. E. W. Wells' 12-h.p. Daimler, joined the party, having driven from Nottingham via Coventry. To-night (Friday), a club smoking concert will be held at head-quarters, the "Black Boy" Hotel. During the evening the question of weekly runs through the winter will be discussed.

The Yorkshire Club's Anniversary.

THE most interesting run of the Y.A.C. of this year was held on Saturday last, picturesque Worksop being the venue. A start was made from Bradford at 3 p.m. amidst torrential rain. The actual meeting place of the various sections was at Red House on the Great North Road, about thirty miles from home, and at 4.30. After waiting for the laggards, the following cars started for Worksop via Doncaster and Tickhill:—Mr. Jackson and party, 28-h.p. Mercedes; Mr. Albert Farnell and party, 22-h.p. Daimler; Mr. Phoenix Jones and friends, 16-h.p. Panhard; Mr. A. W. Dougill (hon. sec.), 12-h.p. Loidis; Mr. Faiers and Mr. Broadbent, 11-h.p. Clement; and Mr. T. Cottage, 24-h.p. tricycle. Owing to the absence of signposts outside Tickhill, the usual errors of route were made in the darkness, and after traversing various by-roads and farmyards, experienc-

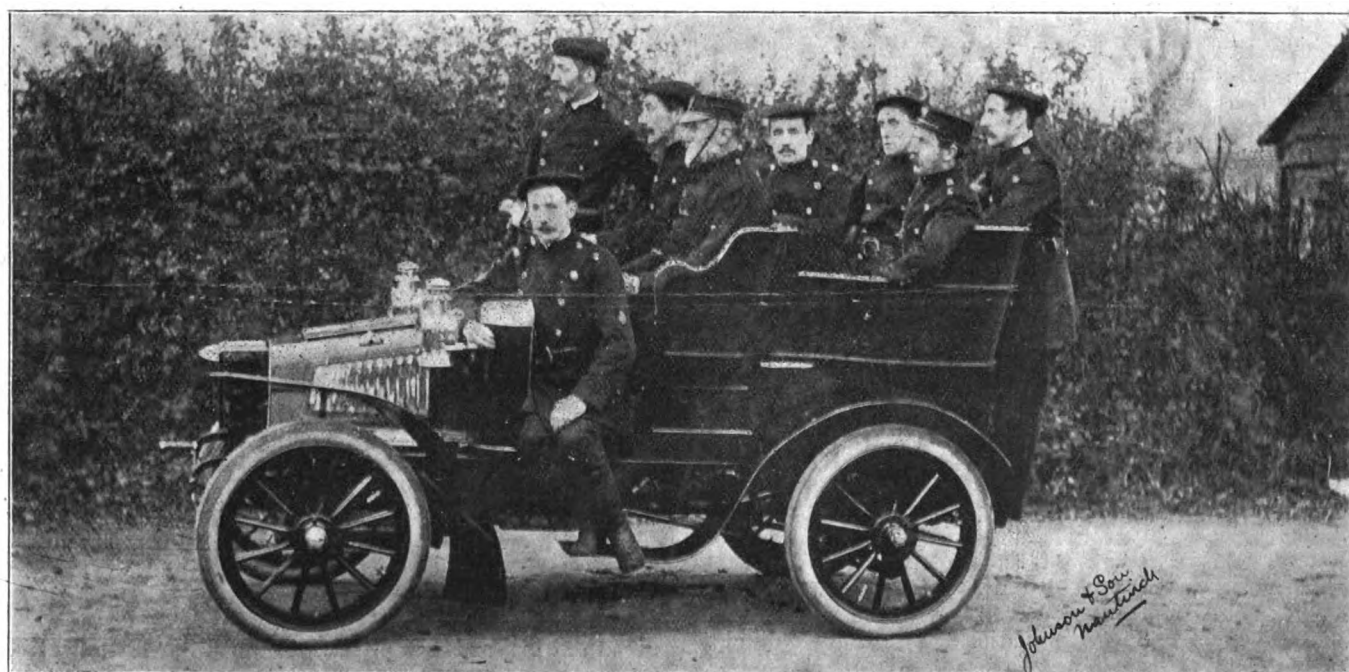
ing hair-breadth escapes from meres and ponds, the main road was gained and a speedy run to Worksop made. Owing to the greasy condition of the roads the tricycle entered one of the ponds, and was finally towed the remainder of the journey. The splendid accommodation of the Red Lion Hotel was taxed to its utmost, the stabling being full. An excellent dinner was presided over by the hon. treasurer, and after the usual loyal toasts, congratulating speeches were made as to the occasion of the run, and hopes were expressed that the present restrictions regarding speed would shortly be altered. Sunday morning was beautiful and bright, and after an interesting detour a start was made for the return journey at 11 a.m., and a delightful run was made back *via* Retford, Bawtrey, Pontefract and Leeds, Bradford being reached in the afternoon.

The Reading Automobile Club.

THE Reading Automobile Club held its annual dinner on Thursday last week, at the Queen's Hotel. The chair was occupied by the President (Dr. Truman). After the loyal toasts had been honoured, Mr. C. H. Dodd gave the toast of "Success to the Club." He expressed the hope that the members would

Another Surrey Resolution.

At the meeting of the Surrey County Council, at Kingston-on-Thames, on Tuesday, the chief-constable (Captain M. L. Sant) reported that owing to the rapid increase in the number of automobiles in the county the need of some means of identification had become a very pressing one. Sir William Vincent, Bart., moved "That in view of the widespread dissatisfaction with the provisions of the law as regards motor-cars, and of the difficulties attending its administration, this Council desires to urge upon the Government the importance of immediate attention thereto." The present state of the law, he said, cast an intolerable strain upon the police of the county, for there was scarcely a single motorist who used the roads of the county who paid the least regard to the law as to speed. They knew that motorists would never be content with such a low rate of speed as twelve miles an hour, and he thought they ought to meet them in some way or other. In France motorists were allowed to travel at 18½ miles an hour in open country roads, at 12½ miles in more populous places, but only at a walking pace in crowded and narrow thoroughfares. In this country a law to forbid a motorist driving to the common danger would, he thought, meet the



THE NANTWICH FIRE BRIGADE OFF TO A FIRE.

do all they could to enlarge the membership, there being plenty of people in Reading who took an interest in automobilism, who ought to be induced to join the Club and thus enhance its success. Mr. Paxton Petty, in response, remarked that for a young club they were doing exceedingly well. In time the Reading Automobile Club would perhaps attain to the position of being one of the leading provincial clubs in the kingdom. Mr. A. C. Major submitted "Our President," remarking upon Dr. Truman's thoroughness, enthusiasm and readiness to help in the cause of automobilism. The President, in acknowledgment, emphasised Mr. Petty's remarks respecting the social aspect of the Club. A good deal of correspondence had been going on lately respecting the formation of ladies' motoring clubs. He thought that in a few weeks' time a large and influential ladies' club would be started. Dr. Truman then proposed the health of the various officers. Mr. Major acknowledged the efforts of the Committee. Mr. Brigham, who also responded, spoke of the interest which attached to the Friday night meetings of the Club, when papers were read and discussions held, some of which were well worthy of a large audience. At present the Club had a membership of nearly seventy.

necessities of the case. But they ought also to have a means of identification such as a denoting number attached to every motor-car, with the number painted upon the lamp at night, and they ought also to have every driver properly certified. He urged that a strong representation to this effect should be laid before the Government. Major Kingsley Foster seconded the motion, which was carried.

Motor-Cars and Fire Brigades.

ON the occasion of a recent fire Mr. Henry Garner, of Nantwich, had an opportunity of demonstrating to the people of Nantwich and district the value of the motor-car in fire service. He had just come in from an eighty-mile run on his 1903-model Rex car when, five minutes after he had locked up the vehicle in his depot, the fire alarm sounded. Immediately he rushed off for the car and took the brigade of firemen, as depicted in the illustration, to the scene of the fire, six miles away, in seventeen minutes. Mr. Garner is the Cheshire and North Shropshire agent for these cars, and he tells us that the turnout proved a splendid advertisement, for he sold the identical car straight away, and has had a number of inquiries since. Being

a member of the Volunteer Fire Brigade he intends to put the cars to the same test on future occasions; his brother firemen seem to be looking forward to a similar experience, for these are, he adds, "the times when we are free from police restrictions."

Motor-Car and Electioneering Work.

DURING the recent municipal elections useful service was again rendered by motor-cars in several of the large provincial centres. At Bury St. Edmunds Mr. G. S. Cousins put his 6-h.p. Darracq to good use, the car being kept running continuously for over six hours. From Manchester, Mr. G. W. Ward sends us particulars of the work done in the Medlock Ward. He writes: "We started work at 8.30 a.m. bringing the voters to poll, myself driving the candidate's (Mr. W. B. Broadhead) 8-h.p. Progress, and Mr. Percy B. Broadhead driving a Darracq; we also had a big Daimler car. Others were promised, but, owing to the inclemency of the weather, they did not turn up. The morning was a trifle slow owing to the people not being home from work, but towards afternoon things began to be brisker, and the demand for the motor-car to take up the people became so great that we had to take as many as nine at a time in a car made to carry four. During the last three-quarters of an hour I myself took over a hundred people to the polling station. Notwithstanding the heavy loads we never had a breakdown of any kind, nor troubles with tyres. Had you been there to see the demand for rides and hear the remarks passed by those who rode, you would have been as delighted as we were at the good the cars did."

Inconsiderate Driving.

At the last meeting of the Executive Committee of the Automobile Club, Colonel Crompton drew attention to the fact that inconsiderate driving is on the increase, and that consequently the dislike for motor-cars is growing. He considered that unless inconsiderate and selfish driving be stopped the chances of securing the removal of the specific limit of speed will become more and more remote, and, on the contrary, automobilists would have to expect more severe restrictions than at present exist. Colonel Crompton stated that in his opinion the Club ought to do something to check the use of racing cars in this country, which are making the highways of the country almost unusable for other road users. He suggested that the Club should endeavour to identify the offenders, and, if they are members of the Club, to warn them that the continuance of that practice would end in their expulsion. A special committee, consisting of Sir John Thornycroft, Colonel Holden, Colonel Crompton, Mr. R. E. Phillips, Mr. Staplee Firth, Mr. Manville, and the Secretary, was appointed to consider what steps should be taken by the Club in this matter.

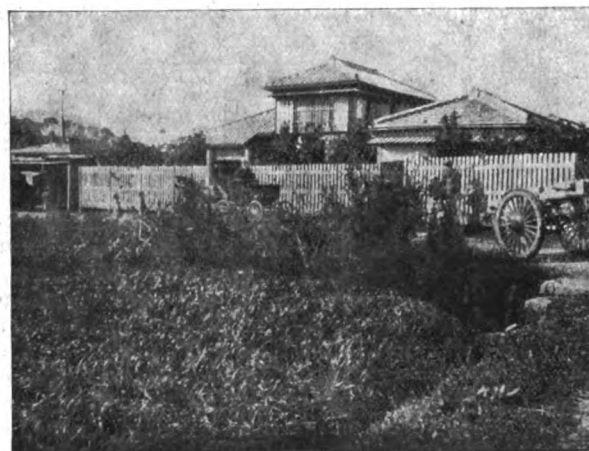
The American Reliability Trials.

Car.	Power.
Packard	Petrol
Packard	"
Prescott	Steam
Lane	"
Haynes-Apperson	Petrol
White	Steam
White	"
White	"
White	"
Grout (Weston)	"
Fournier-Searchmont	Petrol
Knox	"
Oldsmobile	"
Fournier-Searchmont	"
Fredonia	"
Foster	Steam
Fournier-Searchmont	Petrol

The impossibility of presenting one trophy to seventeen separate eligible competitors induced the Club to suggest to them that each be content with a gold medal and the honour of having his name inscribed on the cup, which would remain in possession of the Club itself. The suggestion met with ready acceptance, and that procedure will be followed.

Bells for Motor-Cars.

REALLY some of the motorists in Somerset will have to look to the worthy councillors of Yeovil, who have lately endeavoured to influence the rural and district councils of the country to reduce motor-cars to the level of steam trams and other antiquated and noisy means of conveyance. At the meeting of the Darlington Rural District Council a member moved a resolution—in terms suggested by the Yeovil Council—in favour of legislation prohibiting motor-cars from travelling at more than 10 miles per hour, or at more than 6 miles within 100 yards of a curve which cannot be seen round, and requiring a bell to be rung at 100 yards' distance from approaching animals or passengers. This was seconded and unanimously adopted. Elsewhere, at Steyning, Chesterton (Cambs.), Wirral (Chester)—to mention only a trio of prejudiced places—a similar resolution has been adopted, and it would seem that those who first suggested legislation are bringing a veritable avalanche upon motorists. It were far better to let well alone for a while—especially in view of the number of M.P.'s, County Councillors, Magistrates, and other leading men who are joining our ranks. As soon as they become a majority in public bodies the matter will right itself.



A LOCOMOBILE IN JAPAN.

Numbering Cars.

ANOTHER resolution passed by the Norfolk County Council is going the round of such bodies, and has received the endorsement of the Cambridge Council. It is to the following effect:—"That a petition be presented to the Local Government Board requesting them, either by legislation or otherwise, to secure, in the interest and for the protection of the public, that a registered number be so affixed on the back of every motor-car as to insure its identification in the event of any accident which may occur by reason of its improper use on the public highway." So that, what with bells and numbers, licences and other certificates, motorists will have to go forth on tours well armed.

In Scotland, too.

Now that the agitation has been revived in England, we are not surprised that it has extended over the Border, and the Lower Ward of the county of Lanark has confirmed the minutes of its Highway Committee urging the regulation of the speed of motor-cars, and compelling owners to affix distinctive numbers on their vehicles. Seeing that similar resolutions are

thus being adopted from one end of the country to the other, and that there seems an undesirable uniformity in the general view, it behoves motorists to be more than usually careful just now, not only with regard to their use of the road but also with regard to their public utterances. To label cars like hansoms, and to give them bells as though they were goats browsing on some mountain side, may appear advisable to some; but motorists will never tolerate such distinctions. They appear to be advocated for annoyance, certainly not for the protection of the public.

The Regulation of Air-Ships.

A GENERAL meeting of the Aeronautical Institute and Club was held on Friday last week, Dr. F. A. Barton presiding. Mr. O. C. Field, hon. secretary, read a paper on "Recent Disasters and the Factor of Safety." The chairman said the man who attempted to invent, make, and navigate an air-ship should have made many ascents in charge of an ordinary balloon, should be well equipped with a good knowledge of meteorology and of the general principles of motive power, as well as an ability to work out problems in the higher branches of mathematics, statics, and dynamics with absolute accuracy. Very few men had all the necessary qualifications. At the present time there were a very large number of people who were making or going to try flying machines. In the immediate future there would be a still larger number, and he foresaw the most appalling catastrophes unless something were done to prevent them, so far as was humanly possible. In the case of ships at sea various requirements of the Board of Trade had to be carried out.

Flying Certificates.

CONTINUING, Dr. Barton stated that the members of the Aero Club, the Aeronautical Society of Great Britain, and the Aeronautical Institute and Club would be asked to consider a scheme, of which the general outlines were that there should be constituted a central board of aerostation, which should have power to grant certificates to all aeronauts who had had sufficient experience and were able to take charge of an ordinary balloon, and to appoint a committee of experts who should examine every flying machine, navigable balloon, or air-ship before it left the ground. If every precaution had been taken the board would issue a certificate to the owner, who would then be empowered to send the machine up with a crew, provided that it had at least one certified aeronaut on board. If the board's certificate imposed certain limitations as to height and speed, and those conditions were infringed, thereby causing an accident, the owner would be liable to a criminal prosecution for neglect, refusal of examination also being penalized. If the experts reported that the machine was impracticable and was certain to come to grief, the board should notify the owner to that effect, and if he then attempted to make an ascent he would be treated like an ordinary homicidal or suicidal lunatic.

Motor-Car Imports and Exports.

THE returns now available relating to the British imports and exports of motor-cars and cycles during October last show an increase both as regards the imports and the exports. To deal first with the imports, 293 cars and cycles were imported into this country last month, the value of the same being returned at £92,320. The value of the "parts thereof" is given as £10,497, so that we get a combined total of £102,817, as compared with only £97,887 in September last. Some of these imports were only of a temporary character, being re-shipped to foreign destinations. Thus last month the re-shipments comprised twenty-one vehicles, amounting in value to £4,072, and £462 of parts, bringing down the net imports in October to £98,283. During the first nine months of the current year imports of foreign automobiles and parts into Great Britain have reached a net total of £901,114, representing over 3,200 cars and cycles. As regards the exports of automobiles of home

manufacture, the shipments during the past month amounted to thirty-eight vehicles of a value of £14,662. Of parts, the exports attained a value of £957, making a combined total for October of £15,619, as compared with £12,782 in September last. It is satisfactory to find that, so far as the year has gone—that is to say, during the ten months ending with October—282 British-built motor-cars and cycles have been exported, their value being roundly £123,000.

The 1903 Gordon Bennett Cup Race.

At the meeting of the Executive Committee of the A.C.G.B.I., on Monday, the question as to what action should be taken with reference to the selection of vehicles to represent the United Kingdom in the race for the Gordon Bennett Cup next year was considered. As a Napier car won the Cup, it was decided that one of the cars selected to defend it should be a Napier. As regards the other two defenders, it was agreed that constructors who desire to build vehicles for this race should be invited to send in their names not later than the 24th inst.

"Truth" and the Speed Question.

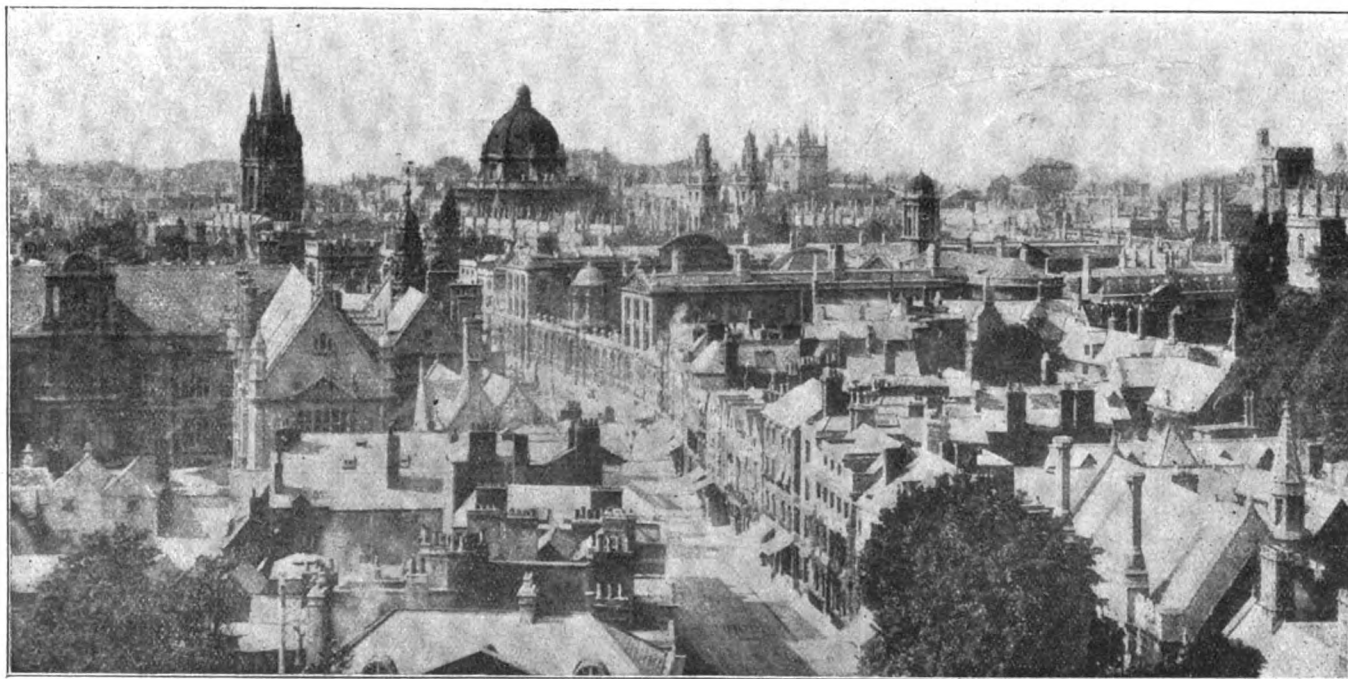
"TRUTH," in its current issue, deals very severely with the Yeovil proposal. In "Entre Nous" the editor remarks that, "now that every intelligent person recognises the absurdity and futility of the law restricting motor-cars to a maximum speed of twelve miles an hour, the Yeovil District Council have come forward with a proposal that the limit should be further reduced to ten miles an hour. They have asked District Councils throughout the country to support this egregious proposal, and some have eagerly done so, though the majority have declined to make such fools of themselves. While they were about it, these Yeovil yokels might as well have advocated a reversion to the old law requiring that a motor-car, like a traction engine, should be preceded by a man on foot carrying a red flag. There would be just as much likelihood of the adoption of this idea as there is of the success of the present movement for a ten-mile-an-hour limit of speed."

THERE is no alteration to report in the position of the petrol carriage question. One of the big suppliers, after the meeting last week, wrote asking the railway companies whether, pending the conference between them and the traders, they would carry petroleum spirit under the old terms. No reply having been received, the petrol distillers are still refusing to "ship" under the new consignment note.

AT their meeting last week, the Warwickshire County Council adopted a resolution in favour of levying additional excise duty upon motor-cars. The suggested increases are as follows:— (1) If the light locomotive unladen is less than 10 cwts., £1 1s.; (2) exceeding 10 cwts. but not exceeding 15 cwts., £1 11s. 6d.; (3) exceeding 15 cwts. but not exceeding two tons, £2 2s.; (4) two tons, £3 3s. These duties are proposed in addition to the fees for ordinary carriage licences but why motor-cars should be thus heavily taxed was not made clear at the meeting.

WE were sorry to notice that in the run to Oxford the new 10-h.p. Sandringham car, made by Mr. Frank Morris, of King's Lynn, met with a stroke of bad luck in Richmond Park, through a nut coming loose on the valve gear whilst climbing the hill. This car is interesting, inasmuch as the engine has cylinders and pistons identical with those he is now supplying to enable owners of old 6-h.p. Daimler type motors to attach them to their present base-chambers, and convert these useful old cars into 10-h.p. With the exception of the above slight stoppage the car ran through the tour without a single hitch, and on Sunday left Oxford at 10 a.m. for Lynn, which was reached at 8 p.m. the same night, the car having covered a distance of over 180 miles without a stoppage.

Anniversary Run to Oxford.



GENERAL VIEW OF OXFORD.

THE START.

AT the dinner at the Trocadero, on Friday evening last week, it was the subject of conversation that a number of cars had taken up their position at Grosvenor Place before seven o'clock that evening, ready for the run. Some doubt as to the accuracy of these rumours was expressed, and as a result, at midnight, several friends chartered a "four-wheeler" and drove to Hyde Park Corner, where sure enough the lights of a number of cars were seen. Mr. Johnson and several other members of the Club were on the spot, and it was soon perceived that the Baby Peugeot had secured premier honours; Mr. Lewin's 10-h.p. Peugeot was second; Mr. Friswell's "Dick," third; and then came Mr. Burford's Milnes "Silent"; Mr. Edge's 16-h.p. Napier "Australia"; Mr. Jarrott's 10-h.p. Napier, "Aaron"; a 12-h.p. Gladiator, an Oldsmobile, an 8-h.p. De Dion, a second De Dion, and a 10-h.p. Decauville. The rain was coming down pretty sharp and the prospect of spending a night in the "open" did not strike us as a very pleasant one. However, those in charge seemed happy and were contentedly eating their suppers.

Long before daybreak additional cars began to arrive, and at 9.20 a.m. we counted no less than 193 lined up at the starting point, the *queue* extending right down Grosvenor Place and round into Buckingham Palace Road; cars were still passing by with names on, and all around were numberless and nameless "cars" buzzing about, evidently having come to inspect the magnificent display. The opinion was somewhat freely expressed that the "tour" was a trade one, and disappointment was felt that there were not more privately owned vehicles present. However, be this as it may, the collection of cars was a very fine one, and the "anniversary" comes round once more to prove to the world that motorists are not "butterflies" and that, be the weather whatever it may, it will not deter users of cars from taking advantage of their favourite mode of travelling.

Never was such a variety of cars seen before, ranging as they did from a powerful 40-h.p. Mercedes down to the modest motor-bicycle. Pressure on our space this week prevents us giving

the full list of entries, but the appended table briefly gives the names of the varied types of vehicles.

Argyll.	Mors.
Adler.	Marshall.
Beaufort.	Malevez.
Brown.	Mathieu.
Brooke.	Miesse.
Benz.	Morisse.
Brush.	Marston.
Boyer.	* Mitchell.
Century.	* Morris.
Clarkson.	Napier.
Clement.	New Orleans.
Coles.	Oldsmobile.
De Dion.	* Ormonde.
Dennis.	Peugeot.
Daimler.	Panhard.
Decauville.	Prescott.
Darracq.	Progress.
Durkopp.	Pipe.
Dechamps.	* Phoenix.
De Dietrich.	Rex.
Earl.	Renault.
Electromobile.	Rochet.
* Excelsior.	Rochet-Schneider.
Firefly.	Rambler.
* F. N.	Star.
Gladiator.	Serpollet.
Germain.	Sinms.
Geneva.	* Singer.
Georges-Richard.	Toledo.
Humber.	White.
James and Browne.	Weston.
Krieger.	Wilson and Pilcher.
Locomobile.	Waltham.
Lanchester.	Wolseley.
Mercedes.	* Westfield.
M.M.C.	Zenith.
Milnes.	

* Those marked with an asterisk are motor-cycles.

The varied costumes of the motorists were a study in themselves—"umbrellas," fur coats, mackintoshes, and what not—and as the hour for departure approached engines were set in motion and the passengers made themselves as comfortable as possible,

ready for the run. The police arrangements at the start were of an excellent character, and punctually at 9.30 the "Sluggard," with Mr. C. Johnson, the Secretary of the A.C.G.B.I., headed off for Oxford. The scene at Hyde Park Corner for the next twenty minutes was one of great excitement. For some time after a number of cars lingered around the starting point, the lingering being probably due to the reluctance of their owners to start under such unpromising weather conditions, or perhaps, in a few cases, to a little temporary stupidity on the part of the cars themselves. No less than 176 vehicles bearing the name-cards issued by the Club were timed to have left Grosvenor Place at 10 a.m., this number comparing with 143 on the occasion of the run to Southsea a year ago.

AT READING.

At Reading the inhabitants had looked forward with great interest to the visit of the Automobile Club, on their anniversary run, and when in the morning it was seen that the weather would be unfavourable much disappointment was felt, as it was feared the strength of the muster would be impaired. The first car was expected about 12.30, and, notwithstanding the pouring rain, considerable crowds assembled to welcome the arrivals, some of those riding on vehicles innocent of mudguards causing

Most of the passengers on the cars were wet through, and very miserable and dirty some of them looked. After lunch the weather outlook was brighter. The sun shone, and, the inner man satisfied, pipes, etc., were lighted, and then began the "yarns"; several had experienced "side-slips," caused either by the grease or the swerving of cars in front. However, no real mishaps had happened, although several motorists had suffered from punctures, the causes being anything from a tin-tack to a four-inch nail.

Punctually at two o'clock a fresh start was made, and with promptitude and despatch the cars were sent on the last stage of the journey. At three o'clock there were still a number in the Station yard—in fact, some were still coming in—but as the proceedings had become desultory, we abandoned the scene and resumed our daily avocations.

BRAVING THE ELEMENTS.

BY PHANOMEN.

"THE Tour will take place irrespectively of weather."—So ran the head-line of the official programme of the anniversary run to Oxford, and, as events proved, it did take place "irrespectively of weather." In fact, for those who took part in the run on Saturday last there was altogether too much weather, or at least too much wet. The name of the car

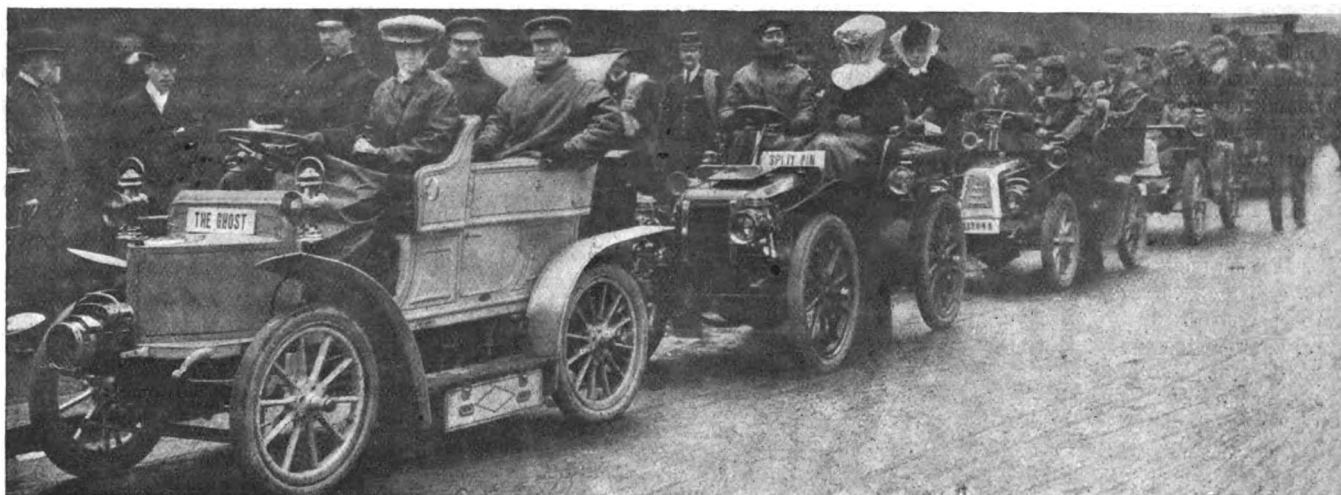


Photo by]

THE CARS AT HYDE PARK CORNER.

[Argent Archer.

great hilarity at their mud-bespattered appearance. The police arrangements in the town were eminently satisfactory, and when at 12.15 "Aaron" (Messrs. Jarrott and Napier) arrived, with the name of their car almost undecipherable, a way was soon cleared and the car driven to its position, standing in the order in which it was to leave; "Australia" (Mr. and Mrs. Edge and Earl Russell) advanced next, while the third car was a 16-h.p. De Dietrich, said to be owned by Mr. Jarrott, but having only a *mecanicien* on board; then came "Old Blue," Mr. Lewin; "Dick," Mr. Friswell; "Corona," Mr. Abrahams; a Gardner-Serpollet, "Steadfast," Mr. Dew; "Silent," Mr. Burford; "Egalite," Mr. Moffat Ford; "Soupape," Mr. Overton; "Viking," a Gladiator; "Split Pin," Mr. Roger Fuller; "Achilles," Mr. W. Munn; "Cautious," Mr. Cappellen; "Albany," a Locomobile; "Attractive," Mr. W. Glass; "Chelmsford," Mr. Clarkson; "Hermes," Mr. E. Richardson; "Aboras," Mr. Stocks; "Waif," Mr. Maudslay Brooke; "Freedom," "Ripple," Mr. Staplee Firth; "Rustler," Mr. F. W. Leith; "Certiorari," Mr. E. de Wilton; "L'Orvet," Mr. A. F. Mulliner; "Safe," "Tourist," Mr. G. Iden; "Namur," Mr. F. M. Oppermann; etc., etc.

Ample accommodation had been provided at the various and excellent hotels, and there was ample time for due justice to be done to the good things provided. The cars were drawn up in the Great Western Railway Station yard, and it is no exaggeration to say they were standing in a sea of mud.

which was to convey us to the University City inspired confidence—a confidence, which as events showed, was not misplaced. We formed one of the passengers on the 12-h.p. M.M.C. driven by Mr. A. Burgess, and which for the nonce was given the name "British." Picking up the car at Holborn Viaduct, we were somewhat late in arriving at Grosvenor Place, so that we found ourselves at the Victoria Station end of the long line of cars. With unfavourable meteorological forecasts, and a threatening sky, we had prepared for rain, but certainly not for the deluge which vented its fury upon us. Gradually we worked our way up Grosvenor Place, preceded by Mr. Rhind-Tutt's 6-h.p. Hurst and Lloyd "Philo," and followed by the 12-h.p. Dennis "Albatross." As we neared the official starter, camera after camera was focussed upon us, but finally, at about 9.45 a.m., we were off, heading our way through the crowded traffic for Twickenham. Ere Hammersmith was reached the rain began to descend, and the further we got, the worse it pelted. Across Barnes Common, along Priory Lane and into Richmond Park we went, and here the full force of the storm was experienced, and what with the rain and the wind, the lot of the enthusiastic motorist was not a happy one. Careful driving was necessary down Richmond Hill, the rain having made the roads "tricky," but this and the sharp turn over the bridge were safely negotiated. Richmond, favourite spot as it is, had no charms on Saturday—the question of the moment being how to keep out the

wet. Twickenham and its Green next came into sight, and once again the timekeepers did their duty in notifying the time allowance to Staines (9 miles). Our rate of progression was not fast, but at least it was sure, which could not be said of the four or five cars we had seen pulled up on the roadside. On the way

a non-stop run. It was a sodden-looking party which partook of lunch at the Great Western Hotel. No one seemed in any great hurry to restart, and we took advantage of the luncheon hour to hand our great-coats over to the kind attentions of "boots," who got them dried in the kitchen.



MESSRS. JARROITT AND NAPIER ON THE NEW 10-H.P. NAPIER CAR.

Photo by]

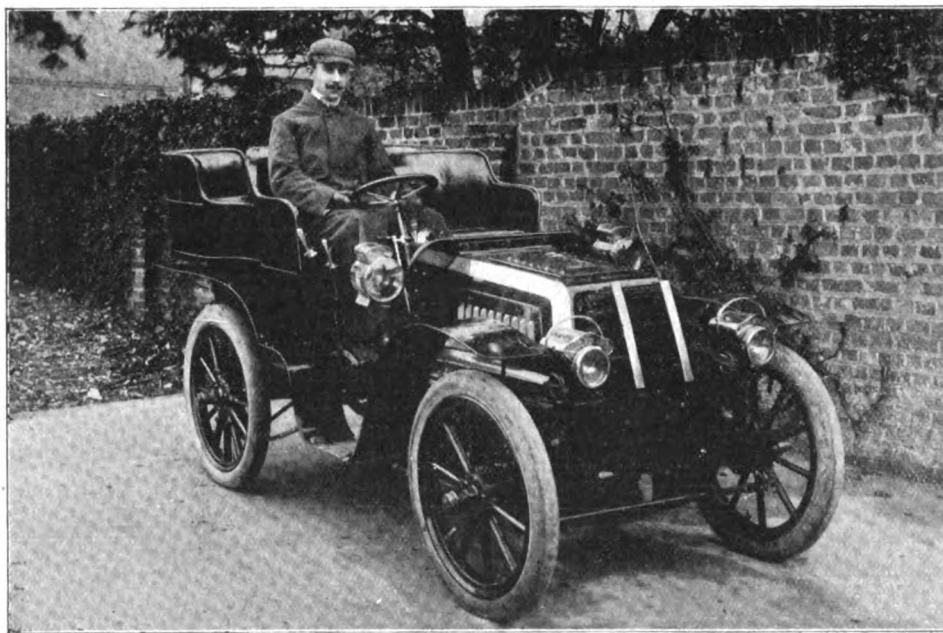
[Argent Archer.

to Staines we passed Mr. Richardson on his 12-h.p. Daimler, with which he had been unsuccessfully trying to demolish a small bridge, owing to the sudden slowing up of a couple of cars in front; fortunately the impact was skilfully fended by the driver, and only a crumpled mudguard resulted.

The rain still came down pitilessly, and while wet and "clammy" ourselves, we thanked our stars we were not in the plight of the luckless wights on a light American runabout, minus mudguards, who were literally covered with mud from head to toe. As we passed through Staines, it was clear that several had given up all idea of non-stop certificates, and had decided to retire—not hurt, but dripping wet. Without stopping, a poll was rapidly taken as to whether "British" and its party should follow suit, but, wet as she was, our lady passenger showed an enthusiasm for motoring that encouraged us to proceed. The run from Egham Hill down to Virginia Water is, on a fine day, one we always enjoy, but, varied as were the autumn tints of the leaves, they had, on Saturday, no attraction for us. Indeed, we began to abhor them after the wind had kindly, or unkindly, blown a few of the wettest into our faces. Ascot, where the horsey element was very strong, and Bracknell were passed, and still the rain came down. Wet as we were and, consequently, in anything but an agreeable frame of mind, we could not help smiling at the Wokingham tradesman who had hung out a sign-board, "Motorists beware," below which was hanging a policeman's helmet. The next stage of seven miles was safely negotiated, and at 1.12 p.m. we pulled up in the Station Yard at Reading, after

A considerable improvement having taken place in the weather, and lunch having revived the spirits of our party, the restart was made under more favourable auspices. Our time at the Reading outward control was 2.48 p.m., and following close on the heels of "Waddler," Mr. M. H. Buckea's 10-h.p. M.M.C., we ran through Tilehurst and Purley. At Pangbourne the beautiful scenery of the upper Thames began to reveal itself, the river bearing us company as far as Shillingford Bridge. As we reached Basildon a stir of excitement among the inhabitants, all making their way in one direction, led us to suspect an accident, which unfortunately proved to be true, for as we neared Streatley we found the cart of a Wallingford butcher smashed up, and a wounded horse lying on the roadside. We learned afterwards that the cart was driven as to lay right across the road just as Mr. F. Atherley's 15-h.p. Pipe car was coming towards it. Although the motorist did all in his power to avoid a catastrophe, the car struck the horse, and so injured it that it had to be shot. The damage to the car was not so serious, but the owner withdrew from the run.

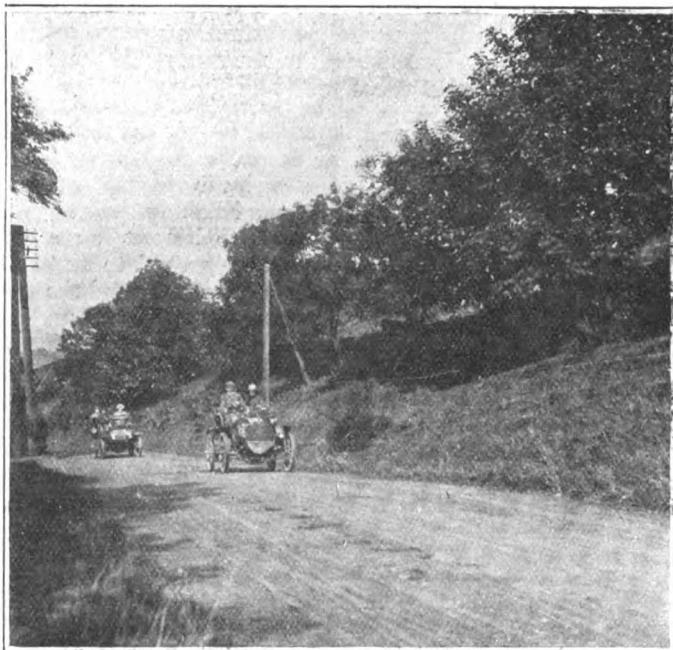
Moulsford, with its inn bearing the curious name of "The Beetle and Wedge," said to be derived from the implements used by stone-masons, and with its fourteenth-century church, gave way to Wallingford, another old, interesting place of historical renown. The many branches of trees strewn on the road bore



MR. W. GLASS ON THE 12-H.P. "FIREFLY."

evidence to the severity of the storm of the morning, but, fortunately, the mid-day improvement was maintained, enabling the last stages of the run to be made in comparative comfort. Crossing the river once more at Shillingford Bridge, we entered the county of Oxford and were soon in Dorchester, a straggling village, having

no interest nowadays beyond its church. Ere reaching Nuneham Courtenay a kindly-intentioned cyclist earned the thanks of all motorists by giving a warning by means of a notice board of a "police trap." We kept a sharp look-out, but, as we were almost an hour behind the leading cars, ne'er a policeman in uniform or in plain clothes did we see. Others, however, had not been so fortunate. A few minutes later we were at Rosehill, the last control, where our time was entered as 4.25 p.m., our driver being well pleased at having earned a non-stop certificate.



A SNAPSHOT EN ROUTE.

Little remains to be said of the run. Slowly we made our way through the crowded streets of Oxford, the townsfolk having turned out *en masse* to give us a right royal welcome. A little delay ensued in getting the cars into the large tents on Gloucester Green, which formed the garage, but eventually "British" was safely in position after its muddy seventy-mile journey. As already mentioned, we qualified for a non-stop certificate, which is evidence of the good behaviour of our engine and of the fact that the puncture demon for once did not favour us with his presence.

THE LOG OF "LE PETIT BLEU."

BY AJAX.

THE Meteorological Office, or whoever is responsible for our daily "weather," must be composed of gentlemen imbued with a strong antipathy to the automobile movement. Every succeeding year, upon the day chosen for the anniversary run, the climatic conditions appear to grow worse. So we were not at all surprised on the way to the "meet" last Saturday morning to read that we were to expect "gusty south-westerly to north-westerly winds, rain at times, etc., etc." It had rained considerably during the previous night, making the roads in a very wet and sloppy condition, but about eight o'clock things looked more promising, and we began to congratulate ourselves that once again the "prophets" were at fault. But, alas, they proved only too correct! Soon after we started at 9.30 the rain commenced, and by the time we reached Richmond Park it was blowing a gale. The driving rain was interspersed with hail, which made spiteful "digs" at one's features.

Under these trying conditions we considered ourselves fortunate in having a seat placed at our disposal by Mr. F. M. C. Instone, on his 22-h.p. Daimler, known for that day

only as "Le Petit Bleu." At various stages of the journey we passed some less fortunate than ourselves, stopping temporarily, the trouble generally being "electrical," caused by the excessive damp. "Le Petit Bleu" went through the whole run without any hitch or trouble whatever, under the skilful direction of its experienced driver.

Notwithstanding the threatening appearance of the sky there was quite a large crowd to see the cars start from Hyde Park Corner. Hammersmith Bridge was reached at 10.5, and the first official stop was made at Twickenham Green. We were particularly struck by the interest displayed by the general public along the whole of the route. Even in Richmond Park, where there was comparatively little shelter from the elements, numbers of cyclists and others, some of them ladies, were to be seen watching the long procession of cars. One lady we observed on the pavement at Richmond checking off the cars from the list given in the *Journal*, apparently quite oblivious of the fact that it was raining fast!

For some considerable distance the police appeared most friendly, and we had almost forgotten that such abominations as "traps" and "measured distances" had been invented. But, passing through Wokingham, we found a notice fixed on a string across the street advising, "Motorists, Beware of the Police." Underneath was hung, not a policeman but a helmet, which it may be presumed at one time adorned the head of a member of the force. Just before reaching Reading, the rain suddenly stopped, the clouds drifted quickly away, patches of blue sky began to appear, and lo! the sun was with us. It was a pleasant and agreeable sight after the experience of the previous three hours or so. The Great Western Hotel at Reading was reached at 12.50, where we stopped for lunch, to which most of us did full justice. It was amusing to hear a man draw the attention of his neighbour to the shocking state of his collar, and then to find that his own was just as bad! Never, we should imagine, was such an array of dilapidated monstrosities in the way of collars seen at an hotel luncheon—soft and squashy, and all colours of the rainbow, from contact with wet overcoats and mackintoshes.

A start was made soon after two o'clock to complete the day's journey. The streets of Reading were crowded by an



MR. W. B. KELLY'S 8-H.P. M.M.C. VOITURETTE WHICH MADE A NON-STOP RUN.

excited populace to whom the sight of so many cars at one time was apparently a novelty; quite as interesting, if not more so, than a travelling circus. The route from Reading to Oxford, via Pangbourne, Streatley, Wallingford, and Shillingford, is a lovely stretch of country. Occasional views of the river gave variety to the landscape, and in places where the trees still retained

their leaves the various autumnal tints were perfectly delightful. But, before long, our artistic studies were brought to an abrupt conclusion, and we were once more face to face with the stern realities of life. Near Dorchester, on a quiet and unfrequented part of the road, we observed in the distance two gentlemen cyclists dismounted. One of them held up to our view a notice containing only the two ominous words, "Police trap!" As we went slowly by, he kindly informed us that a little further along the road a measured distance had been prepared. Of course we

AT OXFORD.

OXONIANS boldly faced the slush and dirt, and patiently awaited the coming of the motor-cars. The fair sex were in the majority, but the mere males also made a brave show. The streets were lined with spectators, and the police so regulated the traffic that the procession was not interfered with—thus there was practically no break from the moment the cars left Rosehill. The hands of the clock had turned half-past four ere the first car passed—bearing the Israelitish name of "Aaron";



Photo by]

THE CARS IN THE STATION YARD AT READING.

[Argent Archer.

all thanked him for his trouble, and left him there to continue his kindly offices to others in the rear. We went slowly for some way, and there sure enough were two men in a gateway, and not far off a constable in uniform.

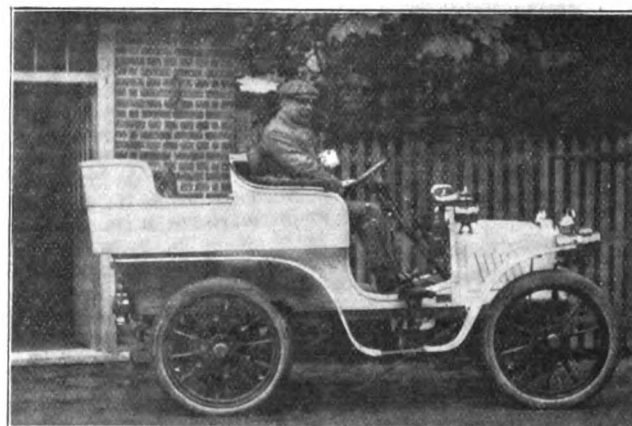
Soon after this incident occurred, and when about seven miles from Oxford, a gentleman in a dog-cart told us that the police were in hiding, and asked if someone would find room for him in one of the cars. Mr. Weigel gave him a seat, and he accompanied us to the "control" outside Oxford. Some con-

then came Mr. Moffatt Ford on a Decauville; Messrs. Edge, Friswell, Lewin, Burford, Overton, and others, in the order named. Some drew up at the hotels, depositing passengers and luggage, while others drove straight for the tents, coachhouses, or where else accommodation had been arranged. By far the largest number made for the tents, where more than one hundred and fifty cars were "housed" for the night, and we should like to "voice" the general opinion that the Oxford Automobile Agency, who were responsible for the arrangements, are to be congratulated



'I'VE GOT YOU.'

siderable delay was experienced at the last "control" waiting for the cars to assemble, and also to place them so that other traffic was not dislocated. We entered the city in procession at about ten minutes before five, the road being lined on either side by some thousands of interested citizens. We found that excellent "garage" accommodation had been prepared, large tents having been specially erected for the purpose. After seeing the car, which had carried us so well, safely housed, we made our way to the Clarendon to remove the stains of the plentiful supply of mud encountered on the run.



MR. R. E. PHILLIPS ON HIS NON-STOP 8 H.P. ROCHET SCHNEIDER.

upon their efficiency. No expense had been spared, not only in providing ample temporary storage tents, but these were provided with electric lighting and a plentiful water supply. There was no trouble either as regards petroleum spirit, for Mr. F. G. Barton, the manager of the Oxford Automobile Agency, had provided for all emergencies by having 10 tons of spirit conveyed by road from London to Oxford by means of a traction engine and three large furniture vans.

Besides the cars which bore legends, many came by Dashwood Hill and from other directions, while a strong contingent

journeyed from the Midlands. Cars continued to arrive all the evening, and by midnight it is computed there were not less than three hundred vehicles safely stabled in the good city of Oxford.

BIRMINGHAM TO OXFORD.

As stated in our last issue, the Midland Automobile Club decided to support the anniversary meeting at Oxford. A start was made from Birmingham at about 1.30 p.m., about ten cars braving the elements. The route followed was via Stratford-on-Avon and Banbury, and notwithstanding the rain practically all made non-stop runs. Among those who took part in the tour were Mr. Siddeley on the new Siddeley car, Messrs. H. Austin, Crowdy, A. Remington, Iliffe, and Duffin on Wolseleys, and Messrs. F. Lanchester, Millership, J. S. Taylor, and J. V. Pugh on Lanchesters.



Photo by]

THE SCENE AT ROSE HILL, NEAR OXFORD.

[Hill & Saunders.

AFTER THE RUN.

After the day's run an enjoyable reunion was held at the Clarendon Hotel, Oxford, Mr. Frank H. Butler presiding over the dinner. The company numbered 265, and was representative of every section of automobilism, including a large number of ladies, who, notwithstanding the shocking weather, had stuck to their cars in a way worthy of all praise.

After the repast the Chairman proposed the toasts of "The King," and "The Queen and the Royal Family." He referred to the deluge through which the motorists had passed, but which did not prevent the majority from making the journey. He announced that of the 176 cars which left London in the morning, no less than 148 had "reported" in Oxford by 7.45 p.m., the bulk of the absentees having given up the trip at Reading owing to the gale. Mr. Butler added that a number of telegrams and letters had been received, but contented himself by reading a telegram of greeting from the members of the Scottish Automobile Club, who that day had held their celebration at Luss, on the banks of Loch Lomond, and in which fifty-seven cars and 150 motorists had taken part.

The Royal toasts being duly honoured, Mr. E. Manville proposed "Success to Automobilism." He referred to the increased reliability of motor-cars, and considered the present speed regulations irksome. There was no harm in motor-cars running

at high speed on straight country roads, but he urged all motorists to have consideration for the other users of highways. He hoped that the run to Oxford would be the last in celebration of the 1896 Act, and that ere another year had gone by we should be celebrating the passing of a new Act.

Mr. R. J. Meeredy responded in a humorous speech, taking for his main point the question of running the 1903 Gordon Bennett Cup race in Ireland. He had suggested a circular route, sixty-two miles long, which the A.C.G.B.I. were sending a committee to inspect. He hoped it could be arranged to hold the race in Ireland, as it would encourage touring in that country. Ireland had both good and bad roads, but it was a fortunate coincidence that the good roads were amongst the most beautiful scenery. He was certain that motorists would receive a hearty welcome in the Green Isle.

Mr. Staplee Firth acquitted himself well in proposing the

toast of "The Ladies." After speaking a few minutes in a light vein, he came to the serious, and characterised the trapping of motorists by the police as disgraceful. At the same time, he, like Mr. Manville, urged motorists not to forget that others have an equal right to the road.

Mr. E. Shrapnell Smith responded for the ladies, and caused some amusement by speaking of "we ladies." On one or two occasions, however, he found it politic to become a mere man.

The Chairman next proposed "The Visitors," to which Superintendent Cole, the Chief Constable of Oxford, responded. He instantly met with a cheer by announcing that he had never had a measured quarter-mile. He had had a few rides on motor-cars which had made him acquainted with the great control motorists have over their vehicles. He pointed out, however, that the general public has, as yet, not got this knowledge, and urged automobilists to exercise more care and travel at a slackened speed when passing through towns and villages.

The health of the Chairman having been honoured, Mr. T. B. Browne gave the toast of "The Secretary," to whose energy in organisation the Club owed so much. The toast was drunk with great heartiness, but when called upon to respond Mr. Johnson was not to be found. And then, breaking up into small groups for petrol talk, the party gradually separated in good spirits, much satisfied with the results of the day's adventures, notwithstanding the pitiless rain and mud of the morning.

RESULTS OF THE RUN.

THE following applications for non-stop certificates have been received. Objections to them should be in the hands of the Club Secretary not later than Tuesday, November 18th, at noon. Other applications have been received, but in some cases the applicants have failed to have the times filled

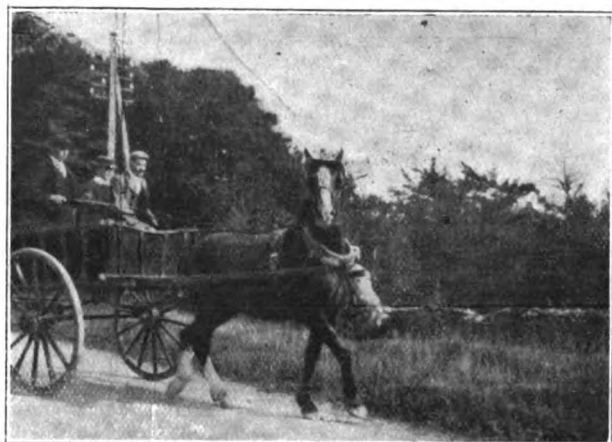
Official Name.	Owner.	Make.	h.p.
Certiorari ...	Mr. E. de Wilton...	De Dion ...	8
Chelmsford ...	Clarkson and Capel ...	Clarkson & Capel	12
Creeper ...	Mr. A. C. Wright...	Ormonde ...	12
Diana ...	Mr. H. H. Lewis ...	Daimler ...	6
Doubter...	Mr. A. F. Smith ...	Darracq ...	12
Fireworks ...	Mr. W. J. Crampton	Decauville ...	10
Flying Fox ...	Mr. S. B. Yoakes ...	Germain...	7½



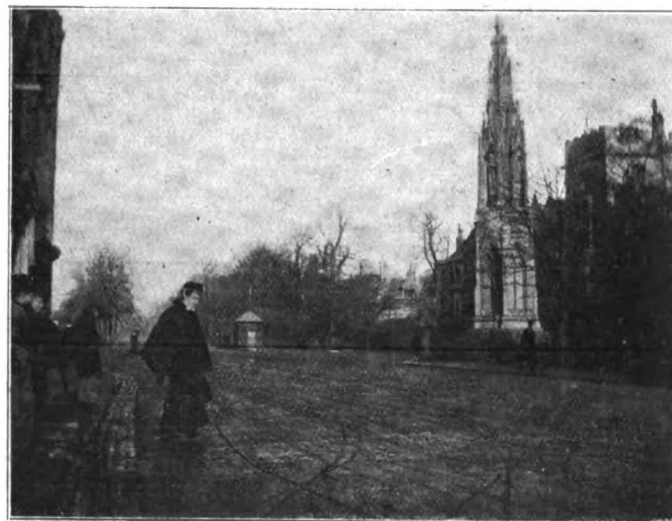
THE SUNDAY MORNING SCENE AT THE CLARENDON HOTEL, OXFORD. A WOLSELEY AND MR. CORDINGLEY'S MERCEDES PREPARING TO START. [Argent Archer.]

in on their time cards by the official timekeepers. The records consequently are incomplete, and certificates cannot be granted. In other cases the time records attached to the applications show clearly that the drivers have failed to adhere to the speed rules, and, as the Committee recognise that rules are useless which can be disregarded, the applications in such cases cannot be entertained. Complaints have also been received in other cases that drivers have broken the rules which prohibit passing in going down hill and in controls. These complaints are being forwarded to the drivers concerned, and if they can satisfy the

Irene ...	Mr. H. M. Simons...	Durkopp ...	10
Lenthall...	Rawlings Bros. ...	Marshall ...	12
L'Orvet ...	Mr. A. F. Mulliner ...	Gladiator ...	12
Mars ...	Mr. F. P. Marshall	Benz ...	10½
Noiseless ...	The Hon. A. Verney Cave	Wilson & Pilcher	8½
Patti ...	Mr. E. B. Palmer...	Singer ...	2
Petrolls ...	Hon. C. S. Rolls ...	Panhard ...	10½
Rambler...	Mr. W. C. Allen ...	Rambler ...	4½
Reliable ...	John Marston ...	Marston ...	10
Rosalind ...	Mr. J. H. Gretton	M.M.C. ...	7
Sluggard ...	Mr. W. Exe ...	New Orleans ...	14



A HORSE THAT DIDN'T LIKE MOTOR-CARS.



Club Committee that they are unjustified the names of the cars will be published in a subsequent issue.

Official Name.	Owner.	Make.	h.p.
Aboras ...	Mr. F. W. Stocks...	De Dion ...	8
Albany ...	Locomobile Co. ...	Locomobile	5½
Albatross ...	Dennis Bros. ...	Dennis ...	12
Anglo-Saxon ...	Mr. G. A. Barnes ...	Mitchell ...	2
Attractive ...	Mr. W. Glass ...	Firefly ...	12
Blind Man ...	W. Payne and Co....	M.M.C. ...	10
Bull Dog ...	Dennis Bros. ...	Dennis ...	19

AUTOMOBILE WHEEL MARKS IN OXFORD.

Soupac ...	Mr. S. F. Beevor ...	Daimler ...	6
Steadfast ...	Speedwell Motor Co.	Serpollet ...	6
Tempter...	Mr. H. Martin ...	Excelsior...	2½
Toronto ...	Locomobile Co. ...	Locomobile	5½
Tourist ...	Mr. G. Iden ...	M. M. C. ...	20
Violet ...	Mr. C. F. Wahl ...	De Dion ...	4½
Wanderer ...	Mr. S. D. Begbie ...	Century ...	12
Watsonia ...	Mr. H. Watkins ...	Durkopp...	10
Weary Will ...	Mr. P. Simpson ...	Panhard ...	6

SOME USEFUL NOTES.

IN changing speeds it is not necessary to completely depress the clutch pedal when coming from high to low; in fact, it will generally be found that a tap, just to release the strain on the gear wheels, is all that is required.

USERS of De Dion and De Dion type cars should notice that the trembler will usually require re-setting if accumulators are used in place of the dry batteries supplied with the car. If continual misfiring occurs after this change, couple up three of Peto and Radford's two-volt accumulators; the misfiring will then cease.

IF a steep hill is met with, and it is not known to the driver of the car, it is far better to start straight away from the bottom on the slow speed and go up slowly but surely.

IN a perfectly new car watch the nuts on the bolts that hold the back sprockets on to the wheels. These are liable to work loose, and should at once be tightened up.

NEVER leave a car with the engine running with only the hand-brake on (disengaging the clutch), the gear being in. A great many accidents have occurred in this way.

Do not leave a car with the clutch out when it is being



Photos by]

SCENES IN THE TEMPORARY GARAGES AT OXFORD.

[Argent Archer.

NEVER pour in petrol without a strainer; it may be done a hundred times without any harm resulting, but on the hundred and first occasion the carburettor may get choked, and if this takes place at night, the experience is not amusing.

IF the wheels of the timing gear of a car are not marked, mark them before taking them down, or there may be trouble about replacing them correctly. The exhaust valve should commence to open just before the end of the firing stroke, and should close exactly when the piston is at the top, previous to the suction stroke.

ALWAYS keep the hand-brake well adjusted, so that it may readily stop the car in an emergency. A foot-brake may often fail, or a chain may come off, and the hand-brake then is the only serviceable one.

washed, as the effect of water upon the leather of the clutch is detrimental.

ALWAYS turn off the petrol tap when the car is stopped, even if for a short time. Most carburettors flood, and consequently there may be some difficulty in re-starting the engine.

GREASE alone is not sufficient in a gear-box; heavy oil must be mixed with it, bringing the whole to the consistency of treacle.

THE question of lubrication of a new engine is very important. Be careful to set the lubricators to drip twice as fast as in a car of some eight or ten months' running.

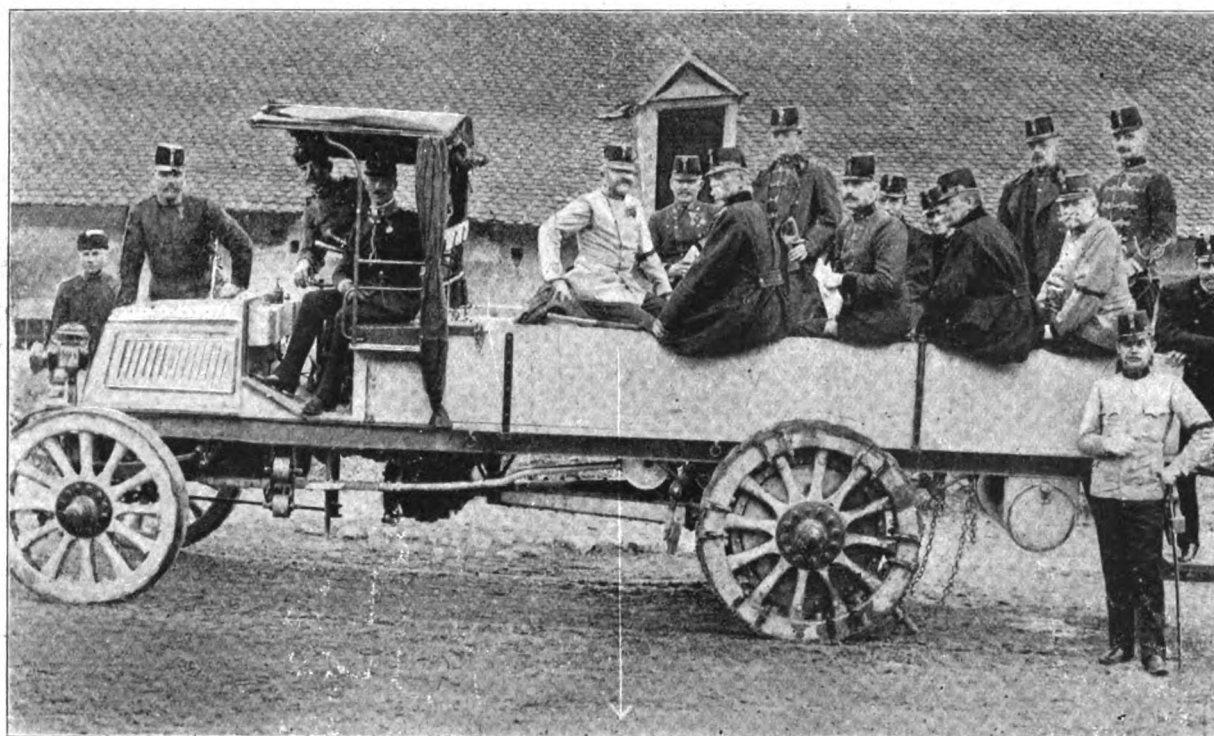
LUBRICATION.

IN connection with the article on this subject by Mr. Buttemer in a recent issue, the following remarks by Mr. A. L. Clough in "The Horseless Age," on the same topic, are not without interest. The constant aim in the design of an automobile is, considers Mr. Clough, to secure, as nearly as possible, absolute positiveness of operation of each part, together with the maximum of convenience. Uncertain and variable agencies should be trusted to as little as practicable. This is true of that important function—lubrication. Winter operation is sure to bring to the mind of every user of a motor-car this important subject and to accentuate the ordinary difficulties of oiling.

It would appear that in order to secure the necessary positiveness in lubrication the gravity feed must be largely discarded and the mechanically forced feed system generally adopted. The fact that lubricating oils have a different degree of viscosity for every change of temperature must generally put an end to the uses of the gravity feed system, where regular results are demanded. As everyone knows, with the gravity feed, if one starts his vehicle

of [the viscous condition of the lubricant. The lubrication commences with the starting of the engine and ceases when it is shut down; thus there is nothing to be turned on or off. The amount of lubricant pumped is proportional to the engine speed. There is no danger of a loss of oil through forgetting to close feeds when stopping, and no likelihood of cut cylinders or hot bearings by failure to open oil feeds when starting up. There is only one reservoir of ample size to be filled, and, if the quality of oil be judiciously chosen, it will serve in both the cylinders and bearings. Oiling by gravity is dependent upon the weather, and requires watching. Lubrication by pump is independent of conditions and automatic.

One matter connected with the subject of lubrication which demands attention is the disposal of spent oil. Now, it is generally allowed to drip disagreeably on the road, as it runs out of crank case and bearings. This is nasty and wasteful. If your friend calls upon you with his vehicle he leaves a slippery visiting card in the shape of a puddle of oil on the asphalt, which results in an unsightly and permanent spot. Lubricating oil is expensive and good practice does not tolerate its waste. Used oil, after being



THE GRAND DUKE FRIEDRICH OF AUSTRIA TAKES PART IN THE TRIALS OF A DAIMLER HEAVY VEHICLE BY THE AUSTRIAN MILITARY AUTHORITIES.

[Allgemeine Automobil Zeitung.

cold or leaves it standing long in the winter, it is necessary to open the cups widely to secure any oil at all, with the result that everything becomes flooded after the mechanism becomes warmed up. The necessity of constantly tinkering with a multiplicity of oil cups, to regulate or demonstrate their feed, and then putting one's hands through a course of treatment with waste and a little petrol from the carburettor, has set many a spectator's mind against the motor-car. In some cases three or four separate cups of not too liberal size have to be filled before each run, and turned on and off every time the machine is stopped or started. These cups are too often located in ingeniously inaccessible places.

A forced feed lubricator consists simply of an oil pump mechanism, operated by a very slow motion derived from some moving part of the engine, drawing oil from a single large reservoir and forcing it through adjustable feeds to all parts of the mechanism requiring lubrication. By the use of such a lubricator the following advantages may be attained: A pre-determined volume of oil is positively pumped to each desired point, irrespective

filtered, is about as good as ever, and it is not visionary to hope that machines may soon be constructed with crank case overflow and bearings, piped to a common spent oil reservoir, from which the lubricant may be drawn occasionally and emptied into the oil filter in the *garage*, from which it may be again obtained in a clean condition.

OSMONT is leaving his old love—the De Dion motor-tricycle—in favour of the Darracq light car, which he will drive during the 1903 racing season.

ONLY one electric car participated in the run to Oxford, viz., the new Victoria of the Electromobile Company, Limited. Owing to the expense of charging at Reading and the courtesy of the Edmundson's Corporation men at High Wycombe, the direct route to Oxford was followed. Although the roads were very heavy the car proved itself quite equal to the ascent of Dashwood Hill.

THE SCOTTISH AUTOMOBILE CLUB.

THE members of the Western Section of the Scottish Automobile Club held their commemoration run to Luss, on the shores of Loch Lomond, on Saturday last. The meet was the concluding one of the season, and, notwithstanding the unpropitious weather, a record turnout of members and cars was achieved. The run to Luss is one of the finest in Scotland, the motorist being brought to the brink of the majestic scenery of Loch Lomond in little over an hour's run from Glasgow, the distance being 27½ miles. The morning opened beautiful and clear, a blue sky and a soft wind being more suggestive of an early day in June than the time of drear November. Everything favoured a large turnout, and if the estimate of a century was not fulfilled, the splendid muster of fifty-seven cars falls to be chronicled—a record gathering for Scotland.

Unfortunately, as the cars were assembling beneath the shadow of the Municipal Buildings, in Glasgow, the weather showed signs of breaking down. It was rather disappointing that just as everybody had primed themselves with the prospect of a day brimful of pleasure, the clouds should gather and



MR. JOHN ADAM, CHAIRMAN OF THE WESTERN SECTION OF THE SCOTTISH AUTOMOBILE CLUB, ON HIS "ALBION" CAR.

the rain come down. However, they made the best of it. The cars had all gathered at one o'clock, and the large assemblage naturally attracted a great crowd of the general public. The arrangements provided that cars should proceed in file through the leading streets *en route* to the Great Western Road. The president led the procession and no passing was permitted until the municipal boundary, when routes were optional. Mr. Adam gave the signal at one p.m. and the cars moved off, rain, as mentioned above, just beginning to fall.

Once outside of Glasgow the route lay by Yoker and Dalmuir. Here the river Clyde was struck and the party ran along its banks until after leaving Bowling. Through Alexandria way was made to Bullock and down a steep gradient and on to the shores of lovely Loch Lomond. Luss itself lies some seven miles up the Loch, and through the majestic scenery the motorists had a glorious run. The roads here were not quite so heavy as in the country near Glasgow, and a good speed was obtained.

The company all reached Luss safely a little after three, and on the invitation of Mr. William H. Kingsbury partook of tea

in the Colquhoun Arms Hotel, over one hundred and fifty members and friends enjoying the hospitality. At an interval Mr. John Adam, the president of the Western Section, after referring to the unavoidable absence of the president of the Scottish Automobile Club, Lord Kingsburgh, said it was pleasing to note the enthusiasm with which automobilism was being taken up in the West of Scotland. Their run that day was a record one, fifty-seven cars taking part as against twenty-three last year. He echoed the words of Lord Kingsburgh, "Go as fast as you can when there is no policeman about, but be cautious."

Mr. Smith, the honorary secretary, read a telegram from the parent Automobile Club, despatched from Reading, as follows:—"The members of the Automobile Club send hearty greetings to colleagues in Western Section of the Scottish Automobile Club. Journey here in pouring rain, but bright sunshine now."

Mr. Smith despatched to the London Club the following reply:—"One hundred and fifty members and friends of the Western Section of the Scottish Automobile Club at anniversary run, and now assembled on fifty-seven cars at Luss, on the banks of Loch Lomond, send greetings."

The light being very bad and the weather so threatening, the return journey was entered upon with as little delay as possible, and Glasgow in many cases was reached about six o'clock, no mishaps being chronicled.

The following cars were present:—

	h.p.	Car.
Mr. John Adam (President)	8	Albion.
Mr. Alexander	10	Arrol-Johnson.
Mr. Angus (Ochiltree)	12	Arrol-Johnson.
Mr. J. F. Bradford	—	Motor-Cycle.
Mr. N. P. Brown	—	Albion.
Mr. George Coats (Glen-Tana)	12	Arrol-Johnson.
Mr. Arch. Coats (Battleby)	12	Arrol-Johnson.
Mr. Walter Creber	—	Albion.
Mr. J. W. W. Drysdale	—	Albion.
Mr. P. Drummond	—	Tricycle.
Mr. A. J. Dixon	7½	Wolseley.
Mr. C. M. Farrow	—	Clement-Panhard.
Mr. J. J. Forgie	5	Wolseley.
Mr. Walter Graham	8	Albion.
Mr. Alex. Govan	—	Argyll.
Mr. G. Guest	—	Darracq.
Mr. Mather Gemmell	—	Clement.
Mr. W. Holms-Kerr	6	Daimler.
Mr. Laurence Harrison	—	R. and P. Progress.
Mr. Geo. Johnston	—	Johnston-Arrol.
Mr. David Johnston	8	Albion.
Mr. J. A. Johnston	12	Stirling.
Mr. L. Knoblauch (Leith)	12	Arrol-Johnson.
Mr. Wm. H. Kingsbury and Mr. R. J. Smith	12	Panhard.
Mr. Hugh Kennedy	9	Progress.
Mr. L. R. Lamont	—	Albion.
Mr. John Millar (Paisley)	10	Arrol-Johnson.
Mr. Miller (Renfrew)	10	Arrol-Johnson.
Mr. Menzies	12	Arrol-Johnson.
Mr. Murray (Galashiels)	12	Arrol-Johnson.
Mr. W. McLean	—	Clement.
Mr. John McLean	—	De Dion.
Mr. Napier (Denny)	12	Arrol-Johnson.
Mr. Henry Napier	4½	De Dion.
Mr. George Owen	9	Progress.
Mr. H. Prosser	7½	Wolseley.
Mr. H. Prosser	8	Clement.
Mr. Andrew Pearson	—	Stirling.
Mr. John A. Peacock	—	Peugeot.
Mr. Thomas Potter	—	Albion.
Mr. A. G. Rennie	—	Clement.
Mr. H. Reid	6	Gardner-Serpollet.
Mr. J. M. Ross	—	Albion.
Mr. A. T. Reid	—	Locomobile.
Mr. Thomas Symington	12	Arrol-Johnson.
Mr. W. B. Sayers (Milngavie)	10	Arrol-Johnson.
Mr. John Shaughnessy	—	De-Dion.
Mr. A. W. Steven	—	Argyll.
Mr. A. Sharp	—	Panhard.
Mr. L. C. Seligmann	7½	Wolseley.
Mr. E. J. Thomson	—	Stirling.
Mr. J. Watt-Torrance	—	Albion.
Mr. W. A. Verel	—	Albion.
Mr. R. A. Whytland, junr.	—	Arrol-Johnson.
Mr. Wm. Weir	10	Wolseley.
Mr. T. Nilson	12	Arrol-Johnson.

MOTOR-CYCLING NEWS.

A GOOD show of motor-cycles of all types was made in the anniversary run to Oxford. Amongst the bicycles were several Excelsiors, Ormondes, F.N., Rex, Mitchell, Phoenix, Singer, Westfield, and Morris. Amongst tricycles there were a Dennis, a Singer tandem tricycle, several De Dions, a Rochet, a Phoenix Trimco with Van Hooydonk at the helm, a De Dion quod, two Century tandems, a couple of tandem motor-bicycles, and a Minerva motor-bicycle and trailer. Amongst the early arrivals at Reading were the



MR. A. C. WRIGHT ON HIS ORMONDE, READY FOR THE RUN TO OXFORD.

Singer tandem tricycle, driven by Mr. E. B. Palmer; the "Oxford," Mr. Adams's Ormonde; the "Tempter," Mr. Martin's Excelsior; the "Spy" Mr. D'Esterre's Ormonde; the "Anglo-Saxon" Mr. Barnes's Mitchell, and others. So far as we can learn the machines all got through to Oxford safely, although Mr. Adams had a nasty side-slip on entering the University city. We were, in the hurry and scurry at the *garages* in Oxford, unable to get a full list of the motor-cycle arrivals, but up to 6 p.m. on Saturday evening the following had arrived:—Mr. D'Esterre (Ormonde), Mr. A. C. Wright (Ormonde), Mr. H. Martin (Excelsior), Mr. G. A. Barnes (Mitchell), Mr. E. B. Palmer (Singer tandem tricycle), Mr. E. R. Lowe (Excelsior), Mr. J. Adams (Ormonde), Mr. J. Van Hooydonk (Phoenix), and Mr. W. R. Morris (Morris). As we go to press we learn that all the three Ormondes went through successfully, making non-stop runs, which speaks well for the consistent behaviour of these machines.

THE Clyde motor-bicycle for 1903 will, we understand, have 2½ h.p. engines as standard. The Clyde Cycle and Motor-Car Company, Limited, of Leicester, will, however, supply a 2-h.p. motor if required. The 2½ h.p. machine will have a mechanically-operated inlet valve and new pattern carburettor. The release valve will be through a hole in the crank shaft, and any oil which may escape will be conducted into the operating gear connected with the magneto.

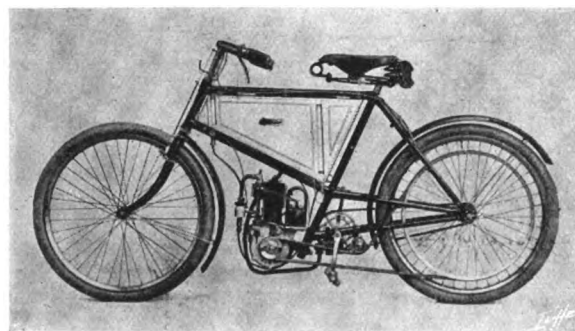
THE Liverpool Motor-Cycle Club held another successful run last Sunday. In spite of the inclement weather there was a good attendance, and at 10.30 a start was made from Liverpool landing

stage. After an enjoyable ride of fifteen miles Hindeston was reached. Several of the members continued the ride to Chester, but the majority turned back to Liverpool, which was reached at 1.30 p.m., after an enjoyable ride. The Sunday runs have proved so successful that it has been decided to continue them during the whole winter. Next Sunday's run is to Ormskirk.

THE formation of a motor-cycling club is under consideration at Bristol, a preliminary meeting having just been held.

THE members of the Motor-Cycling Club will hold a run to Stevenage on Sunday next, meeting at the Marble Arch, W., at 10.30 a.m.

ONE of the latest additions to the large number of machines competing for the public favour is the "Davison," of which an illustration is given herewith. One point which the designer and maker—Mr. A. C. Davison, of Camden Road, N.—considers of great utility is the glass gauge fitted to the petrol and oil tanks. These are let into the side of the tank so as to be secure from injury, and the difficulty of making a reliable joint is got over in a very simple manner. A new glass can be fitted in a minute or two, in case of breakage, and to make doubly sure a screw-down valve is provided, so that, should the glass be deliberately broken or the rider staying anywhere for the night, the petrol can be shut off completely from the gauge, the tank then becoming an ordinary one. The tank is graduated in miles by the side of the glass, so that a glance is sufficient to show the distance the remaining petrol will allow of covering. The oil-tank has a similar graduated gauge, and is fitted, in addition, with a glass sight feed-lubricator, regulated by a valve so that the supply to the engine is positive. The tank itself is not attached to the frame by clips and screws, but it slides into the space in the front frame, and is wedged forward by one screw. The position allows of an ample supply of petrol being carried, the standard tank, which is only 2½ inches wide, containing sufficient for 150 miles. The frame is of special design, the back part being especially trussed to take the engine pull, while the front part, being raised, allows the engine to be easily accessible or removed bodily. A Simms engine of 2-b.h.p., with magneto ignition, is fitted. The drive is by a Lincona belt, which passes round a jockey pulley mounted on a screwed stem, so that it can be raised or lowered by the fingers in the event of it being desired to wheel or pedal the bicycle. This pulley also causes the belt



to embrace more than half the circumference of the engine-pulley, which the designer claims allows one-third to one-half more power to be transmitted with any given tension than if the belt went direct to the larger pulley. The exhaust valve-lifter is connected by a Bowden wire to the left twisting handle, and the timing gear of the sparking to the right twisting handle, so that absolute control of the machine is obtained without removing the hands from the bar. A spray type of carburettor is employed to furnish the mixture. The weight of the machine complete with 2 in. motor tyres, two brakes, and tool bag is 101 lb.

THE COULTHARD 4-TON STEAM WAGON.

THE subject of the accompanying illustration is a steam vehicle, lately constructed by Messrs. T. Coulthard and Co., Limited, Preston, for Messrs. Wm. Whiteley, Limited, of Westbourne Grove, W. The vehicle is capable of carrying a load of four tons, and under favourable conditions an additional two tons, if need be, on a trailer, and has been designed to come within the tare-weight limit imposed by the Locomotives on Highways Act. The leading dimensions are:—Length over all, 17 feet 6 inches, width over all 6 feet 6 inches, height over chimney 8 feet 6 inches, platform 11 feet by 6 feet, fuel bunker capacity 4 cwts., sufficient for 35 miles, and water tank capacity 15 to 18 miles, according to the nature of the roads and grades. Two speeds are provided, three and seven miles per hour. The limit of grade which the makers guarantee the vehicle to ascend with four tons is ten per cent. The handles for steering, reversing, changing

the fire. The ashpan is also divided and hinged, a movement of a handle releasing the ashpan, and a further movement dropping the fire bars. The smoke box is of a conical shape acting as a receptacle for fuel. By lifting a lid on top of the central feeding tube the fuel drops in automatically, hence stoking is very simple. The fuel receptacle at the top of the boiler can be filled from the bunkers when stopping. Water is fed to the engine by a specially-designed pump directly connected with the engine, in which the ram is not exposed to dirt or grit. An independent steam pump is fitted as an emergency feed.

The engine is of the compound type, fitted with reversing gear, and capable of developing 20-h.p. The casing is oil tight, and extended to carry a simple two speed driving and compensating gear, all running in oil. The engine shaft carries two steel pinions sliding upon a square which can be made to engage with gear wheels carried on a sleeve, being an extension of the casing of the compensating gear carrying the two bevel pinions. Thus, both speeds drive through the compensating gear as if the gear wheels were directly on the crown thereof, and an inter-



THE 4 TON COULTHARD STEAM-WAGON.

speeds, also main steam valve and water feed regulator, are all within easy reach of the driver. The chassis of the vehicle is a rectangular frame of channel steel, strongly braced, carrying the whole of the machinery. Distortion of the frame (owing to the variations of the road and uneven roads) to injuriously affect the engine and gearing is guarded against by a special system of spherical bearings and flexible joints. By this elastic suspension it is claimed to be possible for the frame-work to be badly buckled without in any way affecting the working parts.

The boiler is of an improved vertical fire-tube type, centrally fed from the top, owing to which construction the makers have dispensed with the ordinary fire door, thereby obtaining a perfectly equal distribution of metal in the shell, and an equally perfect expansion and contraction, with the minimum of risks of leaky tubes. The fire bars are divided and hung on their diameters upon trunnions. They can be swung down to clean or discharge

mediate second motion shaft is obviated. The transmission-drive to the road wheels is by means of Renold chains. The wheels are of the gun-carriage pattern, the width of the tyres being 6 inches and 4 inches. The drive is taken direct to the wheel felloes by a triangular attachment thereto. Double-acting brakes are fitted, capable of holding the vehicle on any reasonable gradient, in either direction.

A PROPOSAL to organise a competition of motor-car silencers during the course of next year is under the consideration of the French Automobile Club.

MOTORISTS touring in Ireland will be glad to learn that the Great Southern and Western Railway Company's hotels at Kenmare, Parknasilla, Waterford, and Caragh are all keeping a stock of petroleum spirit.

CONTINENTAL NOTES.

By "AUTOMAN."

THE official track for the achievement of mile and kilometre records, which is situated at Dourdan, near the Paris-Bordeaux road, has received a very fitting baptism by the renowned Henri Fournier, who succeeded last week, in spite of the bad state of the roads, in lowering both the mile and the kilometre records. The machine on which these results were accomplished was a 80-h.p. Mors of the Paris-Vienna pattern. The time for the mile was 47 2-5 secs., and for the kilometre 29 1-5 secs. In saying that the records were broken, I do not forget Mr. Jarrott's performance at Welbeck, but as the course there is slightly downhill and that at Dourdan almost dead level, the two results cannot be fairly compared. I hear that Jarrott contemplates an early record run on the Dourdan course.

TALKING about records for short distances brings me to touch again on the controversial question of the best methods for timekeeping. After what occurred at Deauville confidence in timekeeping by hand has received a rude shock, but there is another reason why timekeeping by chronometers should be, and indeed must be, relegated to the past, as far as short distances are concerned. The reasons I am about to give are drawn from an interview with M. Hospitalier.

M. HOSPITALIER makes the statement in the *Velo* that under the best conditions, and with the best chronometer to be procured, it is possible to make an unavoidable error of four-fifths of a second in the difference of the times of two competing motor-cars racing for the kilometre record. This, at a speed of seventy-five miles an hour, would mean that although the chronometer would register the same speed for both cars, one of them might have been going at a rate capable of carrying it nearly twenty-five yards further in the same time.

FROM some calculations I have been making, I think that M. Hospitalier's principle is right, but his figures are wrong, the possible error in the difference of the times of two cars being two-fifths of a second instead of four-fifths.

THE explanation of this important possible error is as follows :—The chronometer has necessarily a wheel divided into fifths, which moves the second hand a fifth of a second at a time. But this toothed wheel may be just entering a new fifth, or just leaving one, as the case may be. Suppose, for the sake of example, that two cars, A and B, are being timed over a kilometre. When car A starts, suppose that the timekeeper's watch is just an infinitesimal fraction *over* halfway between 2.15 o'clock and 2.15 1-5 o'clock—say, for the sake of argument, that the actual time was 2.15 501-5000, and supposing that the timekeeper's watch at the further end of the kilometre was just an infinitesimal fraction *under* halfway between 2.15.28 3-5 and 2.15.28 4-5—say 2.15.28 3499-5000, the actual time taken by car A would be 28 2,998-5000 secs., or practically 28 3-5 secs., whereas the time records by the timekeepers would be: started at 2.15 1-5, arrived at 2.15 28 3-5; result, 28 2-5. The same calculation with car B, but with the car starting at 2.15 499-5000. and arriving at 2.15. 28 3501-5000, would give practically the same results in actual time passed, but in the timekeeper's records would give: started 2.15, arrived 2.15.28 4-5, result 28 4-5 secs, making a difference of practically two-fifths of a second between the real and the recorded result.

THE only way to get over this difficulty is by using a recording instrument such as that of M. Hospitalier, in which there is a tape unwound by clockwork at a fixed speed. The tape may be divided into any fraction of a second, and two electro-magnets may serve to mark the tape with ink when the car starts and when

it finishes the kilometre, and in such a manner not only will the exact time be recorded, but the record can be kept as proof. If a long, continuous tape be employed the records of a whole meeting might be kept on an unbroken tape and would, together with the list of the running order of the cars, constitute absolute proof of the results. Of course, an automatic means of working the electro-magnets at the start and finish would have to be provided, but this constitutes no difficulty, and can be easily performed.

AMONGST the many air-ships which are in course of construction, perhaps the most interesting, and the one with the greatest chances of success, is "Le Jaune," which is being prepared at the expense of the Brothers Lebaudy, the great French sugar refiners, by M. Surcouf, a distinguished aeronaut, from the plans of M. Julliot.

THE air-ship is of the Santos-Dumont style, and has a cigar-shaped balloon 68 yards long by 11 yards, and covered with a yellow substance called "balloneine," from the colour of which it has been nicknamed "Le Jaune." It cubes 2,284 metres. Suspended underneath the balloon is a large platform of steel tubing, on which is placed a motor of 40 h.p., working two side fans three metres diameter at a speed of 1,000 revolutions per minute.

THE air-ship made its maiden trip last week near Mantes, and achieved results which command the earnest attention of all those interested in aeronautics. To begin with, it had a complete crew of four, including Messrs. Surcouf and Julliot and two mecaniciens. The greatest prudence was exercised, and the first evolution made by the ship was at a height of only twenty yards above the ground, everything going well. The ship made evolutions successively at eighty yards and 100 yards above the ground, and circled round a large curve five times without the slightest hitch.

THE delivery wagon competition organised by the A.C.F. takes place on Thursday next, the 20th inst. It is not exciting very much attention in the French automobile world. There are only twenty-one entries, out of which fourteen are cars for town service, and only seven vehicles for use in the suburbs.

AFTER a lengthy discussion at the meeting of the racing committee of the A.C.F., the question of how the Paris-Madrid race should be run was put to the vote on Monday last, and it was decided by five to four that the race should be run entirely *par equipes*. The word *equipe* in the sense in which it is used in this case has no complete and appropriate equivalent in English. It is perhaps in this case best translated by the word "series." The exact meaning is that the winner of the race will be the firm which, when the aggregate times of all the cars it has entered in any one class are added together, shall have completed the race in the best total time.

THE cars will therefore be judged by "series" and be raced in "series," so that regularity of running as well as speed will be a factor in the result, and a factor just as important as speed. The object, of course, is to promote the manufacture of cars which are not only fast but also robust, and not liable to break down or get out of order. The new plan will also have a tendency to make drivers more careful on the roads, for should they have an accident they will not only lose the race for themselves individually, but will almost certainly prevent the maker whose car they are driving from winning.

MESSRS. A. P. WILLS AND COMPANY, 3, New Bedford Road, Luton, inform us that, being independent of the railway company for their supply, they can furnish petrol as usual.

HERE AND THERE.

WE hear that there is another proposal on foot for supplying the Metropolis with a public service of motor-cabs.

THE City Garage, Limited, of Queen Street, E.C., has now arranged to undertake the storage of motor-cycles. They also have special facilities for quickly recharging ignition batteries.

THE Prince of Wales and the Kaiser had a morning's duck shooting on Monday, going to and from the scene of operations in King Edward's motor-car.

MR. C. WALKER, the proprietor of the Pembroke Street Garage, Cambridge, writes that, notwithstanding the action of the railway companies, he is able to supply petrol promptly. His sale is never less than forty gallons per week, while last week it reached 104 gallons.

THE BRITISH GERMAIN MOTOR-CAR COMPANY, LIMITED, has been registered with a capital of £21,000, to import, export, manufacture, and deal in oil, gas, and electrical motors, machines, and engines. The registered office is at Hanover Court, Hanover Street, W.

MESSRS. THRUPP AND MABERLEY, the well-known carriage-builders of 425, Oxford Street, W., have established a charging station for electrical vehicles, where they can recharge three cars simultaneously. The firm are prepared to store, maintain, and insure electric carriages of any make at an all-round charge.

MESSRS. MARSHALL AND COMPANY, of Manchester, are at present building a motor-caravan for a gentleman who delights in spending his time in roaming round the byways and unfrequented parts of the country. The vehicle will be fitted with a four-cylinder motor capable of developing 30-h.p. Provision of bunks for five sleepers is to be made within the van, and a tent is also to be carried for sleeping in the open. The total weight, unloaded, is to be two tons, and the transmission mechanism is to be geared to a normal top speed of ten miles per hour.

WE learn that Messrs. Phillips Ormonde and Co., of Melbourne, recently approached the Australian Federal Customs authorities with the view of obtaining a list of all the motor-vehicles imported into the Colonies. Until this was done no special entries were made in any of the capitals of Australasia of motor-vehicles, they being entered up under the heading of "carriages." In the future, however, they are to be entered separately, so that records will soon be available of the automobiles imported into the Commonwealth of the southern seas.

THE foundation stone of the works connected with the new transporter bridge over the Usk, at Newport (Mon.) in order to provide means of connecting the eastern and western banks without interfering with the river traffic, was laid on Saturday last. At the point where the bridge is to be erected the Usk is 750 ft. wide, and from open lattice-work steel towers a girder suspended by steel cables will cross the river at a height of 177 ft. Upon this bridge, with girders for rails, will run a travelling frame, from which, by wire ropes, a car will be suspended at the ground level. This car is capable of carrying 66 tons, including vehicles and a large number of passengers. It will cross the river in one minute by means of electric motors.

At the opening of the proceedings, on Tuesday, at Ipswich, in connection with the Suffolk murder, Judge and Jury expressed a wish to see certain letters written by the prisoner since his incarceration. In order to obtain these it was necessary to send to Peasenhall—a distance of twenty-seven miles. Counsel for the defence promptly requisitioned a motor-car from Mr. A. F. Garnham, of St. Margarets, Ipswich, who, at a moment's notice, started with the messenger at 11.30 a.m., on his Clement car. The journey to Peasenhall (via Yoxford) and back to Ipswich was made under three hours, the return being accomplished in just over the hour. This speed was made possible by a special permit for urgency, and a tacit understanding that no penalties should attach to violation of the law as to the speed of motor-cars. The car arrived at Ipswich on its return just after the luncheon interval.

THE Cumberland County Council has adopted a resolution "in favour of more stringent regulations dealing with motor-cars."

THE municipal authorities of Bombay are considering the question of adopting a motor dust wagon.

MR. U. D. PALMER, Lynn Road, Wisbech, is keeping a stock of petrol, grease, &c., for motor-cars. He has also a well-equipped repair shop and an inspection pit.

A MEETING of the Scottish Automobile Club, Western Section, will be held on Monday evening next, when there will be a discussion on "Motor Troubles," the subject being introduced by Mr. H. Napier.

MESSRS. J. PORTER AND CO. have recently opened a motor-repair shop and garage at Crescent Lane, Clapham Common, S.W. A stock of petrol is kept on hand, while all classes of repairs can be dealt with.

MESSRS. CURRIE AND SANDERS have commenced business at 6, St. Luke's Yard, Bravington Road, Harrow Road, W., as motor-car repairers. They have also storage accommodation, and keep a stock of petrol and motor-car accessories.

THE Somerset Poor Law Association has been discussing the question of motor-cars and has adopted a resolution:—"That motor-carriages (including motor-cycles) should be obliged to carry a conspicuous number, and should pay an excise tax; and that no person should be permitted to drive them without a licence, such licence to be liable to suspension or forfeiture if the holder is convicted of furious driving."

At the last meeting of the Executive Committee of the United States National Association of Automobile Manufacturers a proposition to co-operate with the Automobile Club of America and the Automobile Club of Chicago in holding a run from New York to Chicago resulted in the adoption of a resolution directing the secretary to inquire into the feasibility of such a run being conducted.

OWING to the difficulty of getting prompt railway communication between the Cardiff stores and those of Newport and Barry, the Cardiff Pure Ice and Cold Storage Company, Limited, has lately purchased a steam motor-van. The saving in time to Newport (twelve miles) and to Barry (eight miles) effected by the van is of the greatest importance, while all expenses of transhipment are saved. In addition to this the vehicle has proved particularly useful in providing speedy delivery of considerable quantities of ice to the shops of various customers.

MESSRS. RICHARD LORD AND CO., of Blackburn, have sent us a small sample of the rubber amalgam they have recently introduced for filling up cuts in the outer covers of pneumatic tyres. The amalgam is a plastic rubber, vulcanising with exposure to the atmosphere. After cleaning the cut and injecting a small quantity of rubber solution, sufficient amalgam is inserted to fill the cut, vulcanisation taking place in about five hours. We have not yet tried the amalgam ourselves, but we understand that it has met with considerable success in the North.

THE Corporation of Eastbourne are inviting offers for the supply of motor-omnibuses to accommodate not less than sixteen passengers. Those tendering should state (1) the size of the omnibus which they are prepared to supply; (2) the number of passengers which it will carry; (3) the motive power; (4) the estimated working expenses (including repairs) at per car-mile; (5) the price of each omnibus and alternative prices for six or twelve omnibuses; and (6) the period (if any) for which they are prepared to guarantee the omnibus subject to ordinary wear and tear. The routes along which the Corporation has power to run motor-omnibuses cover a length of 8½ miles. Seven miles of this route are practically level, a short length of 190 yards has a gradient of 1 in 16, and for the remainder the gradients do not exceed 1 in 35. The offer should be accompanied by a complete specification, and also the time within which, say, six omnibuses can be supplied. Offers should be sent to the Town Clerk by Saturday, the 29th inst.

OIL MOTOR-CARS OF 1902.*

BY CAPTAIN C. C. LONGRIDGE.

(Continued from page 705.)

AN additional advantage is that the crosshead is kept constantly pressed against one guide, if the shaft is half stroke away from the axis of the cylinders, consequently there is no knock from bar to bar on turning centre. All that is needed to accomplish this is to set the crank-shaft in advance of the axis of the cylinder.

(b) *Fly-Wheel*.—There is little to be said on this detail. The inertia of the fly-wheel is one of the chief causes of vibration, the explosion energy imparted to the wheel reacting on the frame. A very radical elimination of this objectionable feature is the provision of two fly-wheels revolving in opposite directions. This method has been successfully worked out in the Lanchester car, and also in the French Crozet (Tourand) motor. A large, more especially large rimmed, and, therefore, preferably a built-up fly-wheel is by no means to be despised, since it conduces to steady running; facilitates easy change from low to high gear; helps starting on hills and heavy ground; extends the speed range, enabling the motor to run slower without pulling up; reduces fluctuations of rotative speed, and thus the stresses on all driven parts, gear, chains, and tyres. Naturally multiple-cylinder or high-speed, or low-compression motors, require less fly-wheel than single-cylinder, slow-running or high-compression engines.

(c) *Clutch*.—The function of the friction clutch is to transmit motion from the fly-wheel to the gear. A good deal of trouble used to be experienced with clutches getting out of alignment, slipping, acting too fiercely, etc. Nowadays these difficulties have mostly disappeared. One of the best methods of ensuring accurate alignment is to mount the internal part of the clutch on the engine-shaft, prolonged through the fly-wheel. In other cases provision against defective alignment is made by setting springs under the friction strip (leather, copper, etc.) with which the clutch is faced. In most cars the application of the foot-brake withdraws the clutch; and, in the Mercedes of the Canstatt Daimler Company, the withdrawal of the clutch automatically reduces the speed of the motor—a very neat arrangement. The latest form of clutch is that employed on the 40-h.p. Mercedes Simplex German Daimler car. Here the ordinary clutch is replaced by a spiral spring fastened at one end to the fly-wheel, which in this case serves as a fan. When in action the spring is caused to coil tightly round a small drum on the driving axle. The idea is in many respects excellent.

Transmission from Clutch to Gear.—The main point noticed is the increased use of universal joints at both ends of the transmission shaft, so as to prevent deflection strains reaching the gear. There is an indication, however, that these universal joints will be dispensed with, and greater rigidity obtained by tying all parts to a single frame. There is no objection to a single frame properly tied, but flexibility of drive, the author thinks, should be fully maintained, if not increased. To this end he suggests the trial of flexible transmission shafts, constructed on methods illustrated by the coiled spring, the bundle of steel rods, etc. Such shafts provide not only for want of alignment, but also, by reason of their initial twisting, absorb the heavy jars and strains when the clutch is too fierce or too suddenly applied. The same method of construction might perhaps be applied to the countershaft between the differential and the sprocket pinions.

Change-Speed Gear.—The various systems in use do not present much novelty. Four methods predominate: toothed wheels which are slid in and out of gear, the Panhard type, very generally used; gear-wheels always in mesh, but fixed, when required to drive, by interior expanding clutches, less common, but likely to become a great deal more so; belt-gear, as in the Benz cars, fast disappearing; epicyclic gear, running solid for the high speed, found chiefly in light cars; lastly a link motion, by which varying throw is imparted to rods which drive the differential, on the rear axle, through reciprocating clutches. Only one instance of the use of this method is known to the author, viz., in the 2½-ton lorries built by R. Hagen, of Cologne. With gears the general tendency is a direct drive for the highest speed; that is, without the use of intermediate pinions between the motor and the differential. The latest Mors car may serve as illustration of the method, Fig. 9. At the end of both primary and secondary shafts there are bevel pinions gearing into and driving the differential; the secondary shaft is in use for the first three speeds. The fourth speed is transmitted direct from the primary or driving shaft (that next to the motor) to the differential through a clutch connected with a spur wheel, out of gear for the first three speeds. Actuation is by a lever that, forcing back the driving shaft, leaves the intermediate shaft out of gear and engages the loose bevel wheel with the differential.

An ingenious idea has been realised by Mr. L. Megy, of Paris. Dispensing with the hand change-speed lever, he causes the speed to automatically vary according to the resistance to be overcome. The gear-wheels are always in mesh, and on each of the loose wheels is a large collar or drum, inside of which is a leather disc. These discs are operated by a rod inside the shaft and are displaced by the resistance met with by the car. Thus, when the car begins to slow down on one gear the rod moves forward and presses the leather disc on a lower speed wheel, and *vice versa*. Any one speed, however, can be fixed by a hand lever. The car thus regulates its speed to the road or can be regulated when required. It is quite possible that change-speed gears may be soon driven out of the market either by motors of sufficient flexibility or by some electric transmission of power from the motor to the driving-wheels, or, though far less likely, by hydraulic gear.

* Abstract of Paper read before the Institution of Mechanical Engineers

The Differential Gear.—In a few cases the differential has been replaced by other arrangements. Messrs. Brouhot et Cie., of France, are said to employ ratchet clutches inside the hubs of the driving wheels. In taking corners, the outside wheel runs free, and on dropping down again to the same speed as the inside wheel, the ratchet pawl falls into the teeth for forward driving. In the Swift voiturette also the road wheels are fitted with free-wheel clutches of the ratchet type, such, only on a larger scale, as are in use on bicycles. Neither arrangement would appear suitable for reversing. In designing a differential, the pins should be of the strongest material and ample proportions, and every precaution should be taken to keep the gear free from any defect in the countershaft alignment. Universal joints in the latter can be used, and the flexible shaft, as suggested, might be tried.

The weakness of the divided shaft is remedied in "the liner tube countershaft," or may be got over by placing the differential on the road wheel axle.

The defects of bevel differential gear are:—Natural tendency of bevel gear to force itself apart, end thrust of pinions against the collars, excessive wear and tear, cross strain on the bearings, loss of power by conversion at right angles. The same compensation is obtained by spur differential without the thrust and wear.

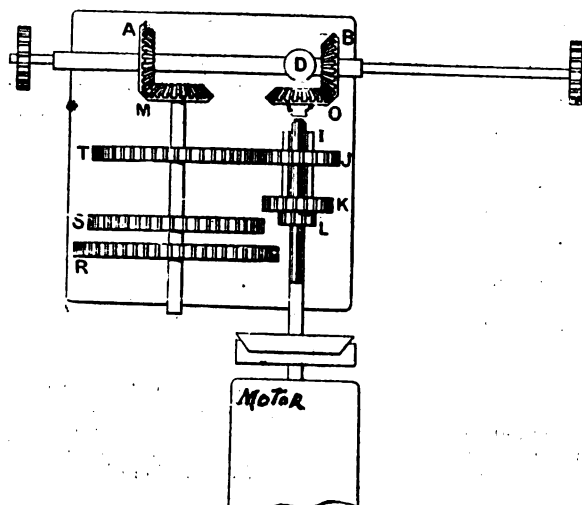


FIG. 9.—MORS CHANGE SPEED GEAR.

Systems of Driving.—The two systems of driving are the live axle and the double sprocket chain. The former seems the better mechanical job, but so far it is chiefly confined to light cars. No development of the central chain drive has taken place.

(To be continued.)

THE Bavarian Automobile Club proposes to organise an endurance tour of Germany for next year.

MR. FRANK BUTLER made a balloon ascent from the Crystal Palace on Wednesday last week, landing safely in the evening at Corby, in Lincolnshire, 115 miles away.

THE Cornwall County Council has adopted a resolution "to endeavour to secure, in the interest and for the protection of the public, that a registered number should be so affixed on the back of every motor-car as to ensure its identification."

ONE of the 1903 pattern 8-h.p. De Dion cars, with the new form of gear giving three speeds, has been in England about a month, and was promptly taken out for trial and testing by Mr. J. W. Stocks. In sixteen days he drove the car about 1,500 miles, including two non-stop runs of 185 miles each, the vehicle running consistently and sweetly throughout.

MRS. CLAUDE WATNEY, who has disposed of her 24-h.p. Panhard, "Frou-Frou," through the London Motor Garage Company, Limited, has bought from the same company a 60-h.p. Mercedes Simplex, for delivery in February next. This car will therefore be the first of the Cannstatt Daimler Company's 60-h.p. cars to be delivered to a private buyer; in fact, it will be the fourth car of that make and power to leave the works. The price paid was, we understand, a "tall" one, although it will probably turn out to be a good investment if the Mercedes Simplex of 1903 accomplishes all that the makers are sanguine of its doing in the races next season.

ANNUAL DINNER OF THE AUTOMOBILE CLUB.

CLOSE upon 250 gentlemen sat down to dinner at the 'Trocadero' Restaurant, London, W., on Friday evening of last week. It was the occasion of the annual dinner of the A.C.G.B.I., to celebrate the completion of the sixth year since the inauguration of the Locomotives on Highways Act of 1896; and under the chairmanship of Mr. Roger Wallace, K.C., a very pleasant evening was spent.

The toasts of the King, the Queen, the Prince and Princess of Wales and other Members of the Royal Family—having been drunk with enthusiasm—for the chairman reminded those present of the Royal interest in automobilism.

Mr. Gibson Bowles, M.P., proposed the toast of "The Imperial Forces." In the course of his speech he said that he conceived that the idea of speed, of going fast, of doing things rapidly, was a purely modern notion. All the old notions were contrary to that; the old mottoes were *festina lente*, slow and sure, *chi va piano va sano, chi va sano va lontano*. In that Club they believed in speed; many of them had an over-belief in speed, many went not more than eighty miles an hour; there were others whom no rate could hold. Had it ever occurred to them that the suggestion of speed had never yet been so much as conceived by the War Office? He thought they might learn a lesson in progression from the Automobile Club. Had our soldiers, he continued, amid much laughter, instead of marching up the hill against the Boers at two miles per hour, dashed up on motor vehicles at eighty miles an hour, the Boers would not have waited. The Navy had conceived the notion of speed, it had adopted it, and it had produced the destroyer.

Sir Howard Vincent, M.P., responded to the toast, and stated that the War Office had decided to purchase twenty-five cars for the use of generals. That, he suggested, rendered an alteration of the law more necessary than ever, so that the police might be able to identify a general when he went by at a speed in excess of the legal limit.

To Mr. T. P. O'Connor, M.P., fell the duty of proposing "The Success of the Automobile Movement of the Club and its affiliated Clubs," and this task he performed with dexterity and wit. He saw the fitness of choosing him, as being probably the only man in the room who did not own half a dozen cars. There were, he noticed, some manufacturers present, and by way of a gentle hint he might suggest that books were not the only things he was prepared to review. In 1830 there was already the beginning of automobilism in this country, there were already the germs of a great steam road traffic, but Parliament was extremely anxious to superintend, in the most grandmotherly fashion, the improvement of road traffic. That was the period, he believed, when a man with a red flag was compelled to go in front of the vehicle, and the result of that action of Parliament was that the industry was destroyed, that progress was brought to an end, that more than half a century was allowed to pass before automobilism was able to make any show in this country, and that, in the meantime, not only many precious years had been lost, but the honour of being the pioneer of the motor industry had passed to other countries. The opposition to automobilism was not yet at an end. A great deal of it was due to a certain type of automobilist. He thought that when people drove their automobiles without regard to the life and comfort of the humble pedestrian they were enemies of automobiles and were pests that no decent club ought to allow to remain on the roll of their membership. Automobilism had come to stay, and he believed it would bring about many useful changes in this country. It would assist in solving the great agricultural problem by bringing town and country nearer together. The means of carriage for commercial purposes by motor-car was the problem of the future, and he protested against any attempt on the part of rival interests to attempt to stifle automobilism, because it might affect other means of locomotion.

Mr. Roger Wallace, who responded to the toast, remarked that as this country had won the Gordon-Bennett Cup, the next race ought to be held on this side of the Channel. If that expectation was realised, he hoped the contest would be run in Ireland. They could only do this, however, through the influence of the Irish members, who must combine to pass a short Act allowing the race to be run. He was sure that if the contest took place in Ireland, the Cup would never go out of the country, because our cars were the stronger. With regard to the speed limit question, Mr. Long, the President of the Local Government Board, had declined to adopt the suggestion that the motor problem might be solved by the issue of certificates to drivers on the ground that it would be too great a business to undertake. He suggested that as the French Government had authorised the Automobile Club to examine English drivers and certify their fitness to drive in France, Mr. Long also might hand over the work to the Automobile Club. Certificates would have to deal not only with the skillfulness of drivers, but their consideration for the public, and they recognised that harm was done to the cause of automobilism by drivers who did not consider the convenience of other users of the roads. But now that Cabinet Ministers and Lords Justices regularly broke the law on motor-cars, some amendment was necessary. There could be no respect for a law which was broken by the highest people in the land, and the logical course was to put an end to that state of things.

Mr. G. H. Cox, J.P., also responded, and referred to the question of the tare limit for heavy motor-vehicles. At present a limit of three tons tare is fixed, but he was in hopes of an early alteration.

The Hon. J. Scott-Montagu, M.P., submitting the toast of "The Visitors," said that when he addressed the Club last year he had never been

caught by the police, but in that respect he had now lost his virginity. The circumstance had converted him to the conviction that some alteration must be made in the legislation of the country, and he believed that a distinct majority of the House of Commons was in favour of that view. Before he came to that dinner he met Mr. A. J. Balfour in the lobby of the House of Commons, and asked him if he had any message to send to the Club. Mr. Balfour desired him to say that he wished the Club all success, and that he hoped it would go on and prosper, and that now he was a member he should take great interest in its proceedings. The fact that they had the Prime Minister on their side was one they might well be proud of, and was one that would have its influence on future legislation.

Lord Farrer replied to the toast, and stated that, although he was a Surrey magistrate, the views recently expressed at Kingston did not represent those of the general public in that county. A special set was undoubtedly being made against motorists, but as twelve miles an hour was the law every effort must be made to get it modified.

"The Health of the Chairman" was proposed by Sir Lewis M'iver, M.P. He was greatly interested in the question of locomotion and traction in great cities, and believed the motor-car would have an important effect in this direction. He referred, however, to the question of excessive speed, and considered a reckless motorist worse than a Surrey magistrate.

The toast list at an end the party broke up, some to continue "petrol" talk, and others to hurry home in preparation of the annual run on the morrow.

CORRESPONDENCE.

FURRED BOILERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to the letter from Mr. Frank Thatcher on the above subject in your issue of the 25th ultimo, will that gentleman kindly inform me if he uses a special blow-off cock for cleansing his boiler? I have to blow my boiler off from a cock at the bottom of the water column; this makes a bad matter worse, and chokes the column up. The pipes of my water gauge lead from this column, so when the pipe is blocked between boiler and column, the water gauge fails to work, and the only way I can get scale out is to disconnect the pipes and clean them out. I should think most Locomobiles are fitted with a blow-off cock, for I have seldom heard of others in trouble this way. Mr. Thatcher mentions Vulite. I have been told that any fluid used for removing scale is injurious to the boiler tubes.—Yours truly,

STEAMER.

A MYSTERIOUS ACCIDENT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Reading an account of the fatal accident at Handcross in *The Motor-Car Journal*, in which the engineer was killed, I was struck by the similarity between this and a motor accident which happened to myself and a friend while driving a Benz some months ago. We were about to descend a hill, and were going about fifteen miles an hour, my



friend having charge of the helm at the time, when, without the slightest warning, the car shot off the road and turned completely over in the hedge, as the accompanying photograph will show. Luckily, we were both thrown clear of the car, and escaped with a few scratches, the result of coming in contact with the hedge. I was able to take the snapshot immediately after the occurrence, as fortunately I had my Kodak with me. But how or what caused the car to do as it did remains a mystery; perhaps it was through a swerve of the steering handle, as was the cause of the Handcross disaster, but my friend, who, as I before said, was at the helm, is an experienced driver, and he positively denies any knowledge of moving the handle, and we are still at a

loss to account for so sudden a movement. I may add we found one of the driving chains off when we pulled the car over. The vehicle was so badly damaged as to necessitate the use of a horse and trolley to convey it home.—Yours truly,

GEO. J. COOK.

MECHANICALLY-OPERATED INLET VALVES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As the question of mechanically-operated induction valves has been raised, we should like to give you the results of our experiments with such valves. We may say that from actual experience we thoroughly endorsed Captain C. C. Longridge's report as to their necessity and utility. The repairing of motors, cars, and cycles has been an extensive part of our work during the last three years. After thoroughly considering the matter we found that two-thirds of the troubles could be traced to the erratic working of the suction-operated induction valves; this led us to experiment with small motors having the inlet and exhaust both operated mechanically. The results have been a complete success. We are about to introduce a chain-driven motor-cycle, fitted with our mechanically-operated inlet valves. We have been putting one of these machines through some very severe tests; the one we have now on the road experimenting with has completed a mileage of just over 3,000, over some of the most hilly roads in Yorkshire, Derbyshire, and the Lake District, and has never given the slightest trouble in any way. We have, up to the present, not experienced any of the back blowing through carburettor, which M. H. J. Wimshurst so strongly complained of in his letter; in fact, one cannot understand how this occurred if the valves were properly fitted. We contend that the mechanically-operated inlet valve is an absolute necessity, and it is imperative that it should be used in all motors which have two or more cylinders. If Mr. Wimshurst had seen some of the motors we have had through our hands, and seen the havoc caused in the two or more cylinder engines through the sticking of inlet valves and suction working of same, he would not speak quite so favourably of the suction induction valve. In conclusion, we, in actual experience, have found the induction valve operated mechanically to give the following advantages:—Great increase in power, power kept more constant, steady running, freedom from vibration, and great increase in general efficiency.—Yours truly,

THE ENDURANCE MOTOR AND CYCLE COMPANY.

Scarborough.

WATER CIRCULATION TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to your correspondent, "Puzzled," re water circulation, my experience may be of use to him. I have just had a similar trouble, and had an expert for three days, who left, declaring he could not solve the difficulty, but that all pipes were perfectly free. Notwithstanding this, he could not make the vehicle go more than four miles before the motor would overheat. On examining it again myself, I found the rubber hose connecting the pipes together at fault; they had swollen inwardly, allowing a small quantity of water through, until the water in the jacket developed steam. The swelling in the rubber hose then expanded, and allowed no water to pass. The steam, however, would work its way back into the tank, and make the water appear as if it were boiling.

I might mention that my motor was of 7-h.p., and only carried 2½ gallons of water. Since putting on new rubber piping I have run the car over sixty miles with the loss of only half a gallon of water.—Yours truly,

"NIL DESPERANDUM."

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Thirsk	Mrs. Basil Hoare, Morpeth	20 m. p. h.	£2.
Manchester...	J. Prestwich, Oldham	18 m. p. h.	£2, etc.
Chester-le-Street	C. Gaulaur	31 m. p. h.	£1, etc.
London	R. Browne, South Kensington	—	£2.
"	A. Fletcher, Windsor	—	£5.
Horsham	C. F. Hill, Haywards Heath	—	£2, etc.
"	A. Ellis, London	—	"
"	E. W. Makowski, Redhill	—	"
"	J. Goodie, Sydenham	—	"
"	W. Batt, Oxford	—	"
"	G. Baker, Horsley	—	"
"	S. Waller, Crawley	—	"
"	Miss B. Church, Horley	—	£4, etc.
"	D. Emile, Maidenhead	—	£4, etc.
Carlisle	F. Lipop, Wiseton	—	£10, etc.
Stirling	W. Graham, Greenock	20 m. p. h.	£2, etc.
"	W. Drysdale, Glasgow	20 m. p. h.	"

Where no alleged speed is given it is understood to be above the legal limit.

WHEN charged at Marlborough Street Police Court with driving a motor-car at Piccadilly Circus to the common danger, Mr. Roland Browne said that an omnibus wrongly pulled out and damaged his car to the extent of £40 or £50. The magistrate imposed a fine of £2.

CHARLES GAULAU, a motor-car driver, was charged at Chester-le-Street, last week, with driving a motor-car at a furious pace at Birtley, on October 3rd. P.C. Martin said that he saw the motor-car driven by the defendant travel a distance of 1,400 yards in a little over 3 minutes, a rate equalling about 31 miles an hour. He held up his hand, and defendant stopped. The Chairman said they would take into consideration the fact that the defendant stopped when called upon and gave his address, and as it was the first case they had had in Durham, they would only inflict a penalty of £1 and costs.

AT Carlisle, on Saturday, Frank Lipop, of Wiseton, Notts, was fined the full penalty for furious driving and for not sounding a bell or other instrument when overtaking a grocer's van. Superintendent Graham stated that the defendant covered three-quarters of a mile in two minutes. When stopped by the police he gave a false name and address.

A BIG batch of motorists were hauled up at Horsham Police Court on Saturday last for driving at excessive speed. Miss Bertha Church, of Horley, who did not appear and had sent no letter, was fined £4. Dunjil Emile, Maidenhead, who failed to stop when called on to do so, and who did not put in an appearance, was mulcted in a like amount. Those who responded to the summons had to pay £2 and costs.

THERE was a strange conflict of evidence at the Marlborough Street Police Court on Saturday in a case in which Mr. Andrew Fletcher, of the 2nd Life Guards, stationed at Windsor, was charged with driving a motor-car to the common danger in Piccadilly Circus. Constable Whittington deposed that about 5 p.m. on October 31st Mr. Fletcher drove across Piccadilly Circus at a very fast rate while the traffic was "held up." The constable said he put up his hand, but the defendant took no notice. He had to jump out of the way, and he had a narrow "squeak" of being crushed between the car and a van. He therefore caught hold of the car and asked Mr. Fletcher to stop, but he laughed and put on a speed of about 20 to 25 miles an hour. Several constables gave corroborative evidence, most of them putting the speed at 20, and one at 19 miles an hour. Mr. Fletcher denied the constable's story on oath. He said that when approaching the spot he was "cutting the engine out," and going only about two miles an hour. Mr. Kennedy said the defendant had been guilty of wanton driving and must pay a fine of £5. Mr. Newton, who appeared for Mr. Fletcher, protested strongly at the action of the police, who marched the defendant through the streets like a common felon to the police station, where he was searched, instead of issuing a summons against him.

DAMAGES AGAINST A MOTORIST.

AT the Penrith County Court, last week, his Honour Judge Steavenson heard a case in which Robert Holliday, veterinary surgeon, Kirkoswald, sued William Marsten, manufacturer, Honley, Huddersfield, for £45 6s., damages arising out of a collision between defendant's motor-car and plaintiff's horse and trap. The evidence of the plaintiff and a number of other witnesses was to the effect that on the afternoon of August 15th he was driving on the Carlisle Road, when he saw defendant's motor-car coming towards him, 220 yards away. He lifted his hand for the driver to stop, as he had a nervous mare, but no notice was taken of it, and the car ran into the conveyance, throwing both trap and horse. The vehicle was badly damaged, and plaintiff was much injured.

Defendant said he was only travelling at six miles an hour, and plaintiff made no signal to stop. When he got nearly opposite to the trap the horse became so restive that a collision was inevitable. He pulled on to the grass at the roadside, and when the horse backed he put both foot and hand brakes on. When the accident happened plaintiff said, "You are the chaps we were waiting for to make a case of."

In giving his decision, the Judge said the witnesses for the defence had contradicted one another on most material points, so that he could not rely on their evidence. He gave judgment for £45, but he could not allow costs on the higher scale.

REPAIRING A MOTOR-CAR.

IN the Lord Mayor's Court last week the Streatham Motor-Car Company sued Mr. B. M. Kilby, stockbroker, for the cost of repairing a motor-car. Mr. Lionel Bennett, who carries on business in partnership with Mr. Arthur Bennett as the Streatham Motor-Car Company, said the defendant was his cousin, and owned a motor-car. He wished it to be done up for the purpose of being disposed of. The car was taken to their place and examined, and the defendant was informed that the repairs necessary would cost £50. They were instructed to do the work. It was afterwards discovered that other parts required repairing. Being enclosed, they were not visible upon a casual inspection. They informed the defendant that the work, if done, would have to be charged as an extra. The extra work was not done. The work they had agreed to do was completed, and the car was taken on a trial run in the neighbourhood. Upon the defendant's man calling for the car, it broke down through the differential gear going wrong. This had not been included in their work. They had received £25 on account, and now sued for the balance. The defendant now sought to deduct from the balance due the expense he had been put to in repairing

the gear. The price charged for the work done was reasonable. The defendant said the arrangement made with the plaintiffs was that the car was to be overhauled for the purpose of putting it into thorough working order. The plaintiffs were to charge the sum of £50. The work had not been thoroughly carried out by the plaintiffs, and as a result the car broke down. The jury found for the plaintiffs on the claim, and judgment was entered accordingly for the sum of £26 6s.

MEASURED DISTANCES.

In the case at Thirsk against Mrs. Basil Hoare, it transpired that the police have a measured quarter-mile on the road between South Otterington and Newby Wiske.

FOR some time past there have been complaints from residents in West Stirlingshire about the furious driving of motor-cars. The long brae between Aucheneck House, Drymen, and Finnoch Glen is a favourite spot for motorists to put on a high speed, and here the police have measured a half-mile, and stationed constables at each end of it with watches to take the time occupied by the cars to cover the distance. As a result two motorists were trapped and fined a few days ago.

A MEASURED furlong at Southwick, near Brighton, is being actively made use of by the police.

SEQUELS TO MOTOR-CAR ACCIDENTS.

In the Perth Sheriff Court last week a case was called at the instance of Alexander Stewart, farmer, Chamber Bain, Pitlochry, against Jay Shaffer Phipps, Beaufort Castle, Beaulieu, for £12, in respect of loss and damage sustained by pursuer in consequence of defender having refused to stop his motor-car when called upon to do so, whereby pursuer's horse took fright and bolted, and was injured, and his cart smashed. Proof was fixed for the 7th inst., but the pursuer's agent stated that the defender's agent had expected to have paid the sum before now, but as they had not done so, he moved for decree, with £1 13s. 9d. of expenses. This Sheriff Sym granted.

At Yarmouth County Court last week, W. Weavers, milkman, sued Mr. Briggs, Yarmouth, to recover £11 for damages sustained by reason of defendant negligently and unskillfully driving a motor-car. Plaintiff said that on Wednesday, October 1st, he was delivering milk at Gorleston. His cart was standing quite in the gutter, so that the trams could pass. His lad was getting off the cart with the milk when a motor-car came into them behind. Defendant said he was following plaintiff's cart. Plaintiff pulled up suddenly, but gave no sign by holding up his whip or his hand. Had he done so there would have been no collision. The wing of the motor-car caught the back of the cart.

"BUYING" A MOTOR-CAR.

At Bow Street last week, before Mr. Fenwick, Nicholas J. Wood was summoned for obtaining a motor-car, value £1,600, by false pretences, from D. M. Weigel, manager of the British Automobile and Commercial Syndicate. Mr. A. Osborn appeared in support of the summons; Mr. Charles Mathews and Sir George Lewis defended. Mr. Osborn said that on October 4th the defendant, accompanied by Sir Robert Peel, went to the complainant's premises in Long Acre and asked to be shown some motor-cars. He selected a Panhard, value £1,600, and it was arranged that he should pay £1,200 down, and the balance by two acceptances at one and two months after date. At a subsequent interview he drew out a cheque for £1,200, and the complainant, having learnt that the defendant was a minor, asked him if there was sufficient money at his bank to meet it. He replied in the affirmative. The complainant allowed them to take the car away, but when, on the following Monday, he presented the cheque at the bank it was returned. On the Tuesday the defendant came to have some petrol put in the car, and Mr. Weigel then told him that his cheque had not been paid. He replied that that would be all right, and promised to bring the cash next day. He did call on the Wednesday, but it was for more oil, and he did not bring the money with him. On Thursday he again called for some petrol, and the complainant directed one of his men to remove part of the machinery so that the car could not be taken away. After some discussion the defendant promised to bring the money on the following day. He called on the Friday, and told the complainant that he had not got the money; that he was an infant, and that he could do anything he liked with him. Mr. Weigel afterwards learnt that the defendant was in receipt of an allowance of £62 10s. a quarter, and that he had never had £1,200 at his bank. Further inquiries also elicited that since April of this year eleven other cheques of the defendant's had been dishonoured. Mr. Osborn added that the car had been badly damaged by the defendant, and it had been depreciated in value to the extent of £300 or £400. The complainant then went into the witness-box, and had not concluded his evidence when the summons was adjourned.

THE LONDON MOTOR GARAGE COMPANY, LIMITED, have secured space at the Paris Automobile Exhibition in December, at which they will be showing the "Pipe" and the new "Magnet" cars.

A BALLOON chase is to be held to-day (Saturday), under the auspices of the Aero Club. A start will be made from the Crystal Palace at 12 o'clock.

It has been decided to hold the annual banquet of the Automobile Club of America at the Waldorf-Astoria, New York, on January 24th.

THE COLONIAL MOTOR COMPANY, LIMITED, has been registered with a capital of £2,000 to carry on the business of transport and traction agents, tourist agents, carriers, manufacturers of and owners of appliances for and means of transport, etc.

ACTING upon complaints that have been made regarding the excessive driving of motor-cars, the police authorities at Utica, N.Y., have announced that they will in future arrest any violators of the State law.

THE Worcester Chamber of Commerce has adopted a resolution in favour of reducing the speed of motor-cars from twelve to ten miles an hour, and six miles an hour round dangerous corners. General Davies characterised the proposition as absurd. It was not, he argued, in the least necessary. Anyone who had travelled on motor-cars knew that it was perfectly safe to travel at a speed of twenty-five miles an hour.

THE old District Council offices in Victoria Road, Kingston, have been taken over by Mr. G. W. Rice, who has transferred his business there from Brighton Road. The Surbiton Cycle and Motor Company, under which style the business will in future be known, undertakes the storage, repair, cleaning, etc., of motor-cars and cycles. Accommodation is afforded on the premises for fifty motor-cars and 100 cycles.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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COMMENTS.



THE first of a series of meetings and discussions under the auspices of the Western section of the Scottish Automobile Club took place in Glasgow on Monday last, when Mr. H. M. Napier read a paper on "Motor Troubles and how to get over them." He began with the trouble of selecting a car. When so many manufacturers and agents were advertising in the most glowing terms, only experience taught one that the cheapest in first cost might not be the best bargain. The advantages and disadvantages of steam, petrol, and electric cars were dealt with, more particularly petrol cars. Much trouble arose from adjusting screws of brakes, grease cups, clearing taps, and generally the working parts that wanted adjustment were, in the lecturer's opinion, inaccessible or too small. Chain and gear driven cars were also dealt with. Pressure in the petrol tank and also circulating pumps were condemned, as with a proper arrangement of tanks and pipes gravity would do everything necessary, and it was well known that the motor would run better if the water was kept fairly hot. The necessity of having all spare gear tried in place beforehand was pointed out, and a list of suitable tools and spare parts put forward. The tyre question, he thought, was far from settled, and he proposed a thick semi-solid outer cover with small inner tube just sufficient to make the rim grip the cover. The large pneumatic tyre was responsible for much side-slipping and throwing up of dust. To sum up, every motorist was bound to meet troubles, but the time lost through these could be greatly minimised by knowing the car, and being able at once to put the finger on the defective spot. An interesting discussion followed the reading of the paper.

Proper Police Work.

MANY of the chief constables are acting wisely with regard to motorists. The chief of the police in Huntingdonshire has declared that twenty miles an hour is a comfortable speed at which to travel, and now Colonel Daniel, who is at the head of the police force in Hertfordshire, has placed constables at various dangerous corners of the highway to take action against motorists who take no heed of the public safety. This is far better than the policy adopted elsewhere of entrapping those who drive rapidly on straight and level roads. Sensible and reasonable motorists would welcome prosecutions against the foolish people who, by disregarding the ordinary courtesy of the road, have been responsible for much of the prejudice with which those who own motor-cars have been assailed of late.

The Sheffield and District Automobile Club.

TO-DAY (Saturday) the members of this newly-formed club will hold an inaugural run to Worksop. The cars and cycles will line up the Surrey Street and Norfolk Street sides of the Town Hall, with Mr. B. H. Foster, the President, as marshal, in his Wolseley car. The start will take place at 2.30 p.m., the cars running in procession as far as Tinsley, after which point the members will "go as they please" to Worksop. The President will entertain the party to dinner at the Red Lion Hotel, Worksop. Mr. Foster has also offered two challenge cups for a hill-climbing competition—one cup for cars and another for

cycles—to be held twice a year; any member winning three consecutive times will become the owner of the cup.

Motor-Cars at Delhi.

WE regret to learn from the "Times of India" that a notification has been received in Bombay stating that motor-cars are, after all, not to be permitted at the Delhi Durbar. An excellent opportunity to popularise the motor-car in India has thus been spoilt. It may be hoped that even now the authorities will be induced to reconsider their decision, and to permit motor-cars to be sent to Delhi. A restricted use of them will be better than their complete banishment. The motor-car ought to solve the problem of rapid locomotion in those districts of India where railways are not likely to pay. Railways are costly, but the outlay necessary upon a road over which motor-cars can run is comparatively small. The Durbar promises to afford a chance of impressing all the most prominent men in India with the possibilities of automobiles.

Dangerous Roads.

AUTOMOBILISTS are beginning to help themselves so far as the roads of the country are concerned, and through the agency of the A.C.G.B.I. are now advising each other as to dangerous stretches of highway, etc. The Executive Committee have agreed that roads made of such material as is likely to render travelling on them, on pneumatic tyres, dangerous shall be marked on a large map displayed in the club-room for the benefit of motorists. The idea is a good one, and is, moreover, capable of localisation by the various provincial clubs. Thus the headquarters of the Liverpool Self-Propelled Traffic Association might contain a similar map showing dangerous stretches in that locality, and at Reading, Leeds, Nottingham, and elsewhere local automobilists might be able to find equally good advice at their local centres.

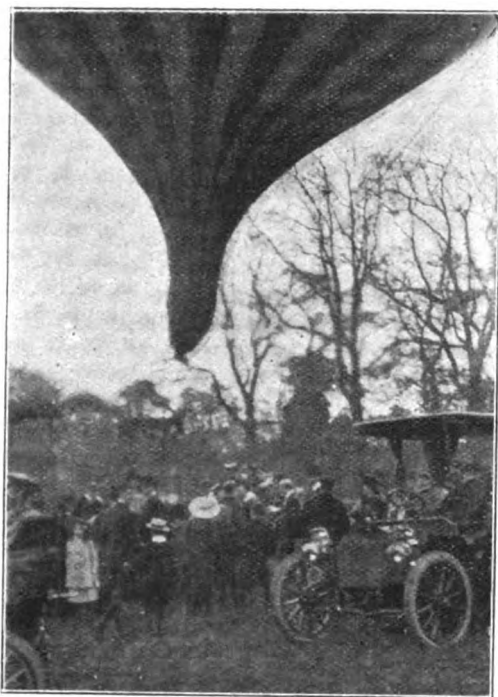
Air Ship Disasters.

At the last monthly meeting of the Aeronautical Institute and Club, a paper was read by Mr. C. C. Field, entitled "Airship Disasters and the Factor of Safety." Mr. Field pointed out that very few, perhaps only 2 per cent., of inventors paid any attention to providing their apparatus with means of breaking the fall consequent upon any accident which might overtake them. He called attention to the fact that parachute surfaces could be automatically brought into position as a direct result of a fall at great speed, and that cushioning should be provided to break the shock upon contact with the ground, mentioning the jumping-sheet in use by the Fire Brigade as an instance of what could be done in this respect, and as an example which would indicate the amount of compression or "take up" necessary in the springs or pneumatic cylinders which may be provided. The lecturer inquired as to how many of the airships now building included in their design means of detaching the car in case of emergency. This could doubtless be arranged by some modification of the lever. In the course of his paper Mr. Field suggested that the Institute should organise a series of parachute contests at the Exhibition which the Aeronautical Institute and Club propose holding in 1903, the slowest in descent to be declared

the winner. He remarked that a great deal of useful information would thus be obtained. Mr. E. C. Dwyer afterwards read a paper entitled "The Inventor and the Flying Machine," in which he called attention to the great amount of money wasted in patenting useless inventions. This was a matter very much to be deplored, as specially in view of the amount of valuable data which might have been obtained had this money been spent in perfecting useful experiments. He then detailed some very useful experiments which might be made with a view of designing a machine on the lines of bird flight.

Balloon v. Motor-Cars.

THE second of the series of competitions between a balloon and a number of motor-cars took place on Saturday at the Crystal Palace; the automobile which succeeded in keeping the balloon in sight and arriving at the point of its descent within half an hour of its return to earth being regarded as having captured the balloon and its despatches. The balloon was a new one—the "Graphic"—owned by Messrs. Spencer Brothers, this



being its maiden trip. Its capacity is 45,000 cubic feet. Mr. Frank Butler, who was in charge of the balloon, was accompanied by Miss Vera Butler, Mr. C. F. Pollock, and the Hon. C. S. Rolls. The balloon envelope is of white oiled silk, designed to make it as nearly as possible invisible against the sky. There were nine competing cars, including Mr. Mark Mayhew on his new 24-h.p. Pascal car. A start was made at one o'clock, the balloon at once rising to an altitude of 400 ft., where a breeze was found which took it in a south-westerly direction. The cars started simultaneously, and following the course of the balloon as it drifted over Lower Sydenham, Mr. Warren Smith, on his Argyll, early took a foremost place in the pursuit. In the neighbourhood of Epsom the balloon took a south-western course, and the pursuit lay by the road to Oxshott. The conditions were now beginning to favour the aeronauts. A thick mist was forming about 300 feet above the earth, and through this the balloon could only be seen dimly, when fairly close at hand. Near Oxshott a stag, hunted by the Surrey staghounds, suddenly crossed the road with the field in full cry. Mr. Warren Smith would not cross the scent, but waited for the hounds and horsemen, and the balloon was out of sight before the field had passed. At Leatherhead the balloon was reported to have sailed towards Bookham, and at Bookham it was alleged to have travelled towards Guildford, for which town the motorists made. About nine o'clock on Saturday night Mr. Butler

telegraphed:—"Descent 4.50 near Basingstoke. Car kept with us till Guildford." The balloon on this occasion, favoured by the mist, thus succeeded in eluding its pursuers.

Motor-Cars in South Africa.

IN previous issues we have referred at some length to the increasing use to which motor-cars are being put in South Africa, their efficiency as aids to business now being generally recognised by merchants. In addition to the several public services which have already been established at Cape Town, Johannesburg, Pretoria, and other centres in South Africa, a company has lately been formed at Bloemfontein under the style or title of the Orange River Colony Motor Bus Co., Ltd. Mr. E. Hoehne, the manager, informs us that he has already imported the first three cars, each of 6, 8, and 12-h.p. respectively, thus enabling the town service to be started early this month. Other services to outlying districts are to be established from time to time as occasion requires. Messrs. Winch and Co., another Bloemfontein firm, have, according to the "South African Export Gazette," lately imported two cars of 6 and 12-h.p. respectively, and a further two, each of 20-h.p., are now on the water.

Numbering.

A THOUGHTFUL contribution lately made to the discussion now progressing with regard to the proposed legislation concerning motor cars comes from Mr. J. S. V. Bickford, of Camborne. He says:—"The proposed alteration has been suggested by users of high-powered, fast cars, and if they want the twelve-mile limit abolished at the cost of carrying a number, I would suggest that they arrange the alteration so as not to include small, light-powered cars. All car owners would like to see the ordinary furious driving clause substituted for the twelve mile limit, but certainly not at the cost of a number. I have heard it stated that the motor man objects to the number because he wants to drive fast. This is untrue. Were I the user of a 40-h.p. Panhard and desirous of travelling at fifty miles per hour, I should not care in the least for a number. All I should have to do would be to clean it with a little oil before starting out, and in five minutes it would be as easy to read the name of a street in a London fog as to read the car number through the layer of dust. It is not the users of high-speed cars that this alteration is going to affect, but the users of small cars for business purposes. A man who drives at very high speeds as a general rule does not care much for appearances, and in consequence I do not suppose that numbering would prejudice the sale of such cars at all, but I am really afraid that it will be a very serious matter for cars like the light Benz, the Locomobile, etc., which are used by professional men in business, etc.; and it is for these cars that the Legislature should cater most carefully, because in a few years' time, in the nature of things, there will be fifty such cars to one really fast car."

Automobiles for Electrical Engineers' Use.

ONE of our electrical contemporaries considers a motor-vehicle will be in the near future a necessary part of the equipment of every up-to-date central electric lighting station. The uses to which a car could be put are so numerous—to say nothing of the saving of time effected by its employment—that the engineer would wonder how he previously could have got along without one, or with only a bicycle. Where an electric supply area is scattered over a large district, journeys of inspection take up a considerable portion of valuable time, and as the station man is invariably wanted in a hurry, some mechanical means of transport would not only save time and fatigue, but would enable a closer watch to be kept upon works being carried out in outlying portions of the district, and permit calls to be made with greater frequency and promptitude. Here and there the advantage of the motor-vehicle is being grasped by electrical engineers. Mr. Edmund Hill, general manager of the South Wales Electrical Power Distribution Company, is using a steam car,

and finds it of great service in making calls in the electric supply area, comprising 1,034 square miles, under his control. In America the Hartford Electric Light Company, of Hartford, has had an electrical runabout in use for over two years. It was found that the vehicle greatly increased the scope of personal inspection of the company's work going on in different parts of the town. More recently the company has purchased an additional runabout for the use of the foreman of line construction, an electric delivery wagon, and a large electric emergency wagon for general utility and "trouble business."

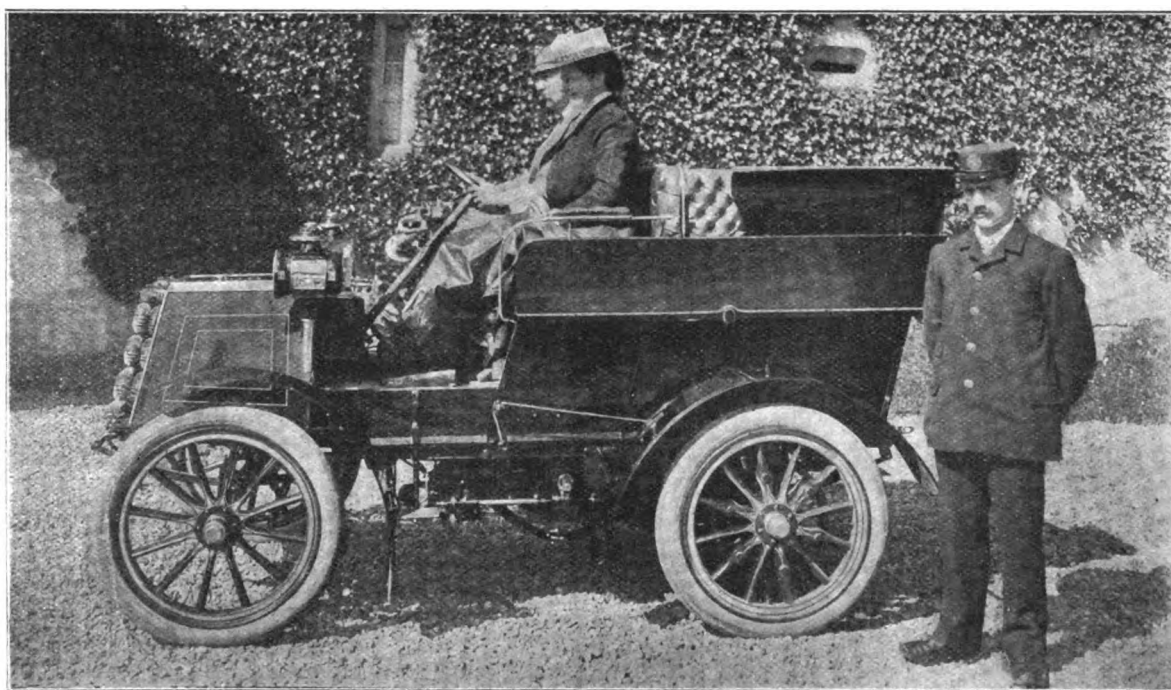
A New Suggestion.

ORIGINAL, and yet supported by pointed arguments, is the theory of Dr. Lee H. Smith, the retiring president of the Buffalo Automobile Club. He considers that it is the slow speed at which horse-drawn vehicles are permitted to go that makes the streets of a city dangerous. He believes that the law and the coachman should, in a way, be whipped up. A bicycle or motor-vehicle that has to tarry because of an obstructing cab

built by him at that time for experimental purposes, and which is still doing regular work. In this motor the clearance space was cut down very considerably below that calculated for sea level conditions, with a marked increase of power. The same gentleman also raises an interesting question with regard to electric ignition. Since the spark ignites the mass of mixture immediately surrounding it first, and the resultant flame must be propagated throughout the entire mass before complete ignition takes place, he considers that several sparks occurring simultaneously at different points in the explosion chamber would be more effective than anything yet devised, especially in high speed motors. This idea occurred to him over a year ago, and is the foundation of some experiments at present being carried out.

The Starley Memorial.

THE negotiations which the J. K. Starley Memorial Fund Committee have had under their consideration for some time back have now taken a definite shape, and the form of the memorial has been settled. Firstly, a small bust of J. K. Starley will be erected in a Coventry institution. Secondly,



SIR JOHN THURSBY, BART., THE PRESIDENT OF THE BURNLEY AND DISTRICT AUTOMOBILE CLUB, ON HIS 7-H.P. TURRELL VIBRATIONLESS CAR.

or brougham becomes a danger not because bicycles and motor-cars go fast, but because the other vehicles move so slowly that there is congestion of traffic when the faster ones catch up. Dr. Smith's theory is that the regulations should not only fix a speed that is compulsory with regard to limit, but also a minimum speed that must be maintained, due regard being had, of course, to street crossings.

Effect of Altitude on Petrol Motors.

AN American motorist, whose scene of operations is several thousand feet above sea level, furnishes some interesting particulars with regard to the effect of altitude on the power of petrol motors. In the first place he points out that a motor which shows a certain compression at sea level will not, if carried to a higher altitude, show so high a compression, and the loss will increase with the height above sea level to which it is carried. The cause of this is obvious. Since the piston displacement is constant, a full charge of rarefied air, when compressed, will not register as high a gauge pressure as would air of greater density. The remedy for this loss of power was provided by the motorist in question nearly five years ago in a motor

a technical scholarship for "Road Locomotion" at Birmingham University will be founded. About £1,600 is required, and already the Committee have about half that amount. The scholarship will cover all the University fees, and the University authorities guarantee that while the study of matters pertaining to cycles will have a most prominent place in the Road Locomotion course, the studies will be so arranged that the scholar will receive a thorough training in mechanical engineering.

Ten Miles an Hour!

THE proposals of the Yeovil Rural Council are still engaging attention up and down the country. St. Asaph Rural District Council have discussed the proposal, and have decided to support it, notwithstanding that one member drew attention to the fact that the imposition of unreasonable regulations would have a tendency to drive the motor-car industry out of the country. The Gainsboro' Rural Council have also decided to support Yeovil, but not without some discussion. One member, Mr. Bradshaw, who is also a motorist, considered the motion ridiculous, and remarked that when George Stevenson invented

locomotives to go twenty-five miles an hour people thought the same about them as was thought about motor-cars to-day. Whatever the Council did, it would, in his opinion, be useless, for the time was coming when the speed limit would be done away with altogether. To this Mr. Wells, an anti-motorist member, is reported to have retorted, "If they come round here I'll do what I can to see that the surveyor gives them a bit of road here and there that will stop their flying." We would suggest that Mr. Bradshaw takes Mr. Wells a trip on his car ere carrying his terrible threat into execution. It only needs a brief demonstration to prove to him that motor-cars and motorists are not the terrible beings that he imagines.

Bells Again.

THE Dover Rural District Council is another body which is following the Yeovil example, but only by the casting vote of the Chairman. The Council also decided to support the advocacy of the enforcement of a clause for compelling the sounding of a bell by light locomotives when within one hundred yards of a person on the highway, and also rendering it necessary to carry a distinguishing mark. The voting on the subject was close, the opposition wisely urging the authority not to assist in nipping in the bud an important industry. The Chairman's vote, however, closed a heated debate with the passing of the resolution.

An Absurd Proposal.

AT a meeting of the Settle Rural District Council last week, the circular from the Yeovil Rural District Council suggesting a reduction of speed limit of motor-cars from twelve to ten miles an hour was discussed. Mr. H. M. White said he was surprised that a District Council in the twentieth century should draw up such a circular. Compared with many other countries, England was twenty or thirty years behind in the matter of legislation relating to traffic. The idea of decreasing the speed was absurd. He supported the idea of numbering the cars, however. It was ultimately decided to support the numbering of cars only, and not a diminution of speed.

Parcels Delivery.

THE Manchester Tramways Committee is about to consider the adoption of a system of interchangeable parcels traffic, in connection with their trams. At present a similar system of parcel carrying is in operation in North Staffordshire. This was started about nine months ago, two hundred parcels being the weekly freight for the first month. Now five thousand parcels are carried every week, and the business is developing at a very rapid rate. It has occurred to us that this system of parcels carrying by trams might be more usefully extended where automobiles have been utilised by the tramway companies as feeders, not only for parcels, but also for passengers. In London, for instance, there are many important streets, leading on to the main thoroughfares where are the great tramway lines, from which passengers could be drawn away by a rapid service of motor-cars run in connection with the trams. In fact, the idea has no limitations when once it is considered, and we look forward to the day when the motor-car and the tramcar will often run in conjunction.

"No Prejudice."

IN the King's Bench Division, Mr. L. Reed has applied, on behalf of Mr. George Wilder, for a rule calling on Lieutenant - Colonel Wisden, chairman of the Worthing Petty Sessional Bench, to show cause why a writ of "certiorari" should not be issued to bring up a conviction by that Bench under the Light Locomotives Act, 1896, in order that it might be quashed. The matter arose out of a recent prosecution for alleged furious driving, and counsel alleged that

Lieutenant - Colonel Wisden had, in similar cases which had been brought before him, exhibited bias and prejudice against motor-cars and motor car drivers. In support of that view he read affidavits by Mr. Staplee Firth and Mr. E. M. Iliffe. After hearing counsel, Mr. Justice Wills said he did not think there was any ground for a rule. The chairman might entertain strong views, but there was nothing disclosed in the affidavits which indicated that he violated his judicial oath and decided contrary to the evidence, or which established that kind of prejudice which would interfere with a man administering justice. Mr. Justice Channell concurred, and the rule was refused.

New Political Questions.

A CORRESPONDENCE between the Secretary of the Automobile Club and Mr. E. Beckett Faber, M.P., enlivened the proceedings at a political meeting at Andover a few evenings ago; and it was evident, from the reception it met, that when ordinary controversies fail to entertain, the introduction of the motor-car to the political platform will prove a boon to the jaded legislator. Mr. Faber advocates that motorists should be licensed and their cars numbered. After three convictions offenders against the law should be imprisoned. The questions addressed to Mr. Faber received very explicit answers, and may serve as a guide to automobile hecklers in the constituencies. They were as follows:—(1) Whether you are correctly reported? (2) What foundation you have for the statement that a motor, if properly driven, is a dangerous machine? (3) How far you have been driven on a motor? To the second question the M.P. pointed out that motor-cars often negotiate sharp corners at high speed, and the third query brought a counter question, "Is it material how far I have been driven on a motor?"

ON Monday last, Augieres, on a 70-h.p. Mors car, succeeded in making a new kilometre record, doing that distance in 29 sec. dead.

IN our last issue the old address of the A.C.G.B.I. was inadvertently mentioned. The present club-house is of course at 119, Piccadilly, W.

BARON DE FOREST has become a member of the German Automobile Club, a step which is reported to be preliminary to his driving a Mercedes car in next year's Gordon Bennett Cup race.

WE regret to learn that Sir Francis Jeune, President of the Probate, Divorce, and Admiralty Court, and an enthusiastic motorist, has, in consequence of ill-health, been ordered to take a rest from his judicial duties. He is not expected to sit in court again until January.

MOTORISTS will be interested to learn that H.R.H. the Prince of Wales has now become an automobilist like his Royal father, having acquired an electric four-seated phaeton, which he has been using daily at Sandringham to attend the shoots. The carriage will travel ninety miles on one charge, and has a top speed of twenty-five miles per hour.

THE Imperial Tyre and Rubber Company, Limited, of Brooke Street, Holborn, E.C., who make a speciality of the repair of motor tyres, have just issued a price list for vulcanising new treads on worn tyres, etc. From the list we note that they return all tyres sent to them for repair that in their opinion do not justify, by reason of their condition, any further expenditure.

IN addition to the list given in our last issue, non-stop certificates are to be granted, if no protests are received, to the following cars which took part in the anniversary run to Oxford:—Mr. W. Acton's Renault, "Acme"; Mr. S. F. Edge's 16-h.p. Napier, "Australia," and Gladiator, "Viking"; Mr. A. Burgess's 12-h.p. M.M.C., "British"; Mr. C. Cross's 8-h.p. Humber, "Magician"; Mr. W. Maplebeck's Renault, "Mercote"; Mr. Instone's Daimler, "Petit Bleu"; Mr. Schwind's Daimler, "Redivivus"; and Mr. T. Gillett's Serpollet, "York."

BRITISH AND FOREIGN CARS IN THE RELIABILITY TRIALS.

THE mass of data included in the report of the recent Reliability Trials, gathered together at an expenditure of time and money only realised by those who took part therein, has now been for some weeks in the hands of those interested in automobilism, and will doubtless be used as a work of reference for some time (at least as time is counted in automobile progress) with regard to cars in which they are, prospectively or not, interested. Before, however, it becomes too ancient history, it may be worth while to extract a few general conclusions from the figures available, which, boiled down in this way, will appeal more to the casual reader than will the more undigested list of individual performances.

It is, of course, open to question how far the system of marking adopted adequately expresses the relative merits of the various cars, though there is substantial agreement among unbiassed critics as to the order of merit being fairly represented thereby, the inevitable element of chance being recognised. Experience, no doubt, will admit of this ideal being more nearly approached in future. Without, however, demanding this perfection in the data, some useful, if only approximately correct, deductions may be made from the figures given, and without making invidious comparisons between competing cars, the general averages of performance shown by home and foreign productions will be of interest, the more so as the differences, though slight, are to some extent in favour of English cars; while a summary of the time lost from different causes goes far to show the reliability of the modern motor. The only factors used for Table I. are the marks lost on the six running days; while for Table II. the h.p. as shown by performance on the hills, together with nominal h.p. and price, are employed. The steam car and the bicycle performances, we may add, are not considered in this article, in which petrol vehicles alone are compared, the forty-nine cars which completed, or nearly completed, the trials, and the thirty-five of which the hill-climbing data are complete, being used for the two tables. And here a word as to the rather unfortunate total of eleven breakdowns—eighteen per cent. of the petrol cars running. Of these the causes of three were not particularised, while four were due to broken gears or differentials, and two, if not three, to undetected flaws in important parts; three, also, were in new and not yet widely popular cars. The failure of gears—which are often made too light—and of differentials, which in addition are sometimes defectively provided for in the matter of lubrication, are the only points on which stress is necessary.

TABLE I.

Marks lost for	English Cars.	Foreign Cars.	Total.	Per Cent. of total cost by English Cars.
Ignition	328	283	611	54%
Hills	147	75	222	66%
Brakes	282	—	282	100%
Valves	10	22	32	31%
Clutch	49	75	124	39%
Pump	39	31	70	56%
Other Causes	381	260	641	58%
Tyres	60	30	90	66%

Referring to Table I. it will be seen that the causes of stops on the road other than those for filling up, lubricating, etc., have been divided into various heads, and the delays due to them tabulated under their causes. The cars available for this tabulation included twenty-four of British and eighteen of foreign (or chiefly foreign) make, fifty-seven per cent. being thus of home manufacture; nevertheless, in only three heads have they more than their share of misfortune, namely in stoppages on hills, brake trouble on the road (the brake tests are not here considered),

and tyre troubles. They are freer than the foreigners from ignition troubles, and very much above their rivals in the matter of valves and clutches.

The average cost of the cars respectively per h.p., both nominal and as calculated from the hill-climb, is shown in Table II., and though the formula for the latter is probably not very near the actual h.p. at the road wheels, it will serve for purposes of comparison, any error affecting all the figures alike. It must be remembered, however, that a heavy car is thereby credited with pulling up its own weight, and—in default of racing—it is somewhat desirable that the rules of road competitions should in some way or other put a sufficient premium on lightness; if the other conditions are sufficiently severe, durability will take care of itself.

TABLE II.
COMPARISON OF NOMINAL HORSE-POWER; AND ACTUAL HORSE-POWER AT ROAD WHEELS AS SHOWN BY PERFORMANCE AND COST.

From the performance of nineteen English and sixteen foreign cars.

ENGLISH CARS.			
Total value of English cars	£10,115	Ditto up to £500 value, 11 cars	£4,025
Total nominal h.p. ..	234	Ditto. nom. h.p.	108
Total actual h.p. as shown	101.5	Ditto actual h.p.	46.1
Efficiency	43%	Ditto efficiency	42.7
Average cost per nom. h.p.	£43.2	Cost per nom. h.p.	£37.1
Cost per actual h.p. at road wheels	£99.6		
FOREIGN CARS.			
Total value of foreign cars	£8,268	Ditto up to £500 value, 10 cars	£3,398
Total nominal h.p. ..	181	Ditto nom. h.p.	81
Total actual h.p. as shown	87.1	Ditto actual h.p.	34.81
Efficiency	48%	Ditto efficiency	43%
Average cost per nom. h.p.	£45.6	Cost per nom. h.p.	£41.9
Average cost per actual h.p.	£94.9		

From this table it appears that the foreign cars show forty-eight per cent. efficiency to the British forty-three (note that here no correction for number of cars engaged is necessary), while they cost £45.6 per h.p. as against £43.2; though when the actual h.p.'s are considered, the foreign vehicle costs but £94.9 to the British £99.6.

As a set-off to this, however, when the cars costing £500 or less are alone taken into consideration, the efficiencies of the rival products are nearly equal, 42.7 and 43 per cent., and the cost of the British car is only £37.1 against £41.9 per nominal h.p. It is true that if "cost of production" could have been substituted for selling prices, the figures would be less acceptable to the British maker; but, on the other hand, a much larger proportion of the English cars were comparatively new and untried productions, and the results are, on the whole, a credit to the strides which the industry has made at home, but which it must continue, and accelerate, if it hopes to improve, or at least maintain, its position. It is worth noting, as a proof of the reliability of the modern car, that the average of delays from the causes tabulated above, stops for filling and oiling excluded, amounts to less than forty-one minutes per car for the week, or less than seven minutes per day's run, and a stop for tyre troubles every other week.

MOTORISTS passing through Basingstoke will be able to obtain petrol from Mr. W. W. Webber, cycle and motor agent, he having arranged for a supply to be delivered by road.

DURING a debate on the Yeovil proposals at the last meeting of the Stansted Rural District Council Mr. Fane stated that he thought the suggested proposition was so reactionary that there was no chance of its being passed. As an owner of horses he did not like motor cars, but they must remember the great industry that they were opening up. He could not agree to reduce the limit to ten miles an hour.

MOTOR-CYCLING NEWS.

THE run on Sunday next of the Motor Cycling Club will be to Goring, meeting at the Marble Arch at 10.30 a.m.

HEREWITH is illustrated a new motor-bicycle stand, which is being put on the market by Messrs. Lake and Elliott, of Braintree, and which has been specially designed for testing and repairing. Motor-bicycles provided with two steps are held in the forks of the stand, while the hooks enable any motor-bicycle or bicycle, without a gear-case, to be firmly supported by the chain stays. The width is easily adjusted, and when folded up the stand occupies but little space. It is made of malleable iron and steel, and finished in aluminium bronze.

STARTING at ten o'clock on Tuesday morning, in bitterly cold weather, at the Crystal Palace track, F. W. Chase essayed the task of beating the world's record for six hours (212 miles 586 yards). Chase was successful in his attempt, and steering his Bat 2½-h.p. motor-bicycle splendidly from the outset, commenced establishing new records at 44 miles. From this point to the finish he continued to beat previous records, and at the completion of the six hours had ridden 228 miles 250 yards, with only having once left the track for about ten minutes. Continuing, he finished up his ride at 233 miles in 6hr. 7min. 31 1-5sec., to secure a hundred miles record. In this he was again successful, beating the previous best "century" by 7min. 14 35sec.

MR. A. LAVELLY, of Smethwick, Birmingham, sends us particulars of an ingenious driving arrangement he has devised for motor-bicycle propulsion. Instead of driving on to a light metal pulley attached to one of the road wheels, he drives directly on to the tyre of one of the wheels from the pulley of the motor by means of an endless band or chain which runs in a groove in the tyre. He has adapted his system to both front and rear driven machines. In the case of front wheel drivers he makes the front or steering wheel considerably smaller than usual, and lengthens the front forks to suit. The motor and driving gear are carried by the front fork immediately above the steering wheel. He prefers to drive directly on to the pneumatic tyre, and to enable him to do this and at the same time to keep the motor central with the front fork, the driving pulley on the crank shaft of the motor is arranged at the centre of the motor, the crank disc being a little at one side, with the connecting rod cranked to suit. The patent covers a number of variations of the idea. Mr. Lavelly is anxious to arrange with some firm to take up his new system.

A NEW motor-cycle belt has just been put upon the market by Messrs. E. and J. Richardson, of Newcastle-on-Tyne. The new belt is V-shaped, and not only are the tiers of chrome leather cemented firmly together, but an extra security is obtained by means of copper rivets.

It will be remembered that the allotment of the prizes in connection with the 5-miles motor handicap at Canning Town, on the 23rd August last, was withheld, pending the consideration of the claims of the various competitors by the Automobile Club. The delay in assigning the prizes in question had reference to Mr. Wright's disqualification as the winner, by reason of the erroneous description of the machine ridden by him. Mr. Wright's disqualification has been confirmed by that

body, and consequently the prize falls to Mr. W. Parry, who rode a 2½-h.p. Minerva. The minute also contains the following observation:—"The Committee were of opinion that competitors should understand from this example that the greatest accuracy must be observed in stating on the entry forms the measurements of their entries, and that no excuse for misstatements could be considered."

THE Ormonde Motor Company inform us that the 1903 "Kelecom" motors comprise an engine for single bicycles of 2½-h.p. with a bore of 70 mm. and a stroke of 75 mm.; one for tandems of 2½-h.p., having a bore of 77 mm. and a stroke of 80 mm., and a special light engine for use upon racing machines. The old form of exhaust lifter has been replaced by an improved system of lifting exhaust valve, at the same time automatically breaking the electric circuit. The valves are much larger, proportionately, than hitherto, and the exhaust port is also greatly increased in size to ensure a perfectly free passage for inert gases. Among the new fittings of the "Ormonde" motor-bicycle are a new design of tank, having a dial indicating the exact quantity of petrol contained in the reservoir, and longer levers for the control of the machine.

THE meet of the Liverpool Motor Cycle Club on Sunday last was at Walton Church. The day was fine but cold, so cold that one machine fitted with a surface carburettor caught a chill, and refused to go after a mile or so, until given a reviver in the shape of a bucket of hot water, externally applied. The roads past Aintree were very muddy, so it was decided to make for Formby, instead of Ormskirk, the run home being made without incident.

THE Princes Autocar Company, of Northampton, inform us that for the coming season the power of both their single and double-cylinder motor-bicycles has been increased. Their smallest motor is a single cylinder of 2½-h.p., made in two types, one with flywheels contained in the crank chamber, and the other with an outside fly-wheel. To secure smooth running and manageability they prefer two cylinders for motors over 2½-h.p., and for next year are introducing a 4-h.p. double-cylinder engine. The inlet valve, as well as the exhaust valve, is mechanically operated. Power is thereby increased and kept constant, as the volume of the carburetted gas taken in is always



THE PRINCES DOUBLE-CYLINDER MOTOR-BICYCLE.

in proportion to the desired speed of the engine. The carburettor, made almost entirely of aluminium and fitted with a throttle-valve for varying the supply to the engine, is of a new design. Its efficiency is proved by the fact that one carburettor will supply the two-cylinder engine equally well as the single cylinder. A neat exhaust-valve lifter, controlled from the handle-bar, is provided, and a double-chamber silencer effectually minimises the noise of the exhaust. Either belt or chain drive is provided as desired. The exhaust-valve lifter, current breaker, free engine clutch, and front and back rim brakes are operated from the handle-bar, all top-tube levers and rods or wires outside the tank having been dispensed with.

THE OLDSMOBILE CAR.

WE have already published a brief description of the car which has recently been introduced into this country by the Oldsmobile Company of Great Britain. As the vehicle comprises a number of novel features, a more detailed account of some of the latter will, no doubt, be of interest. The 4-h.p. engine is of the single-cylinder horizontal type, as indicated

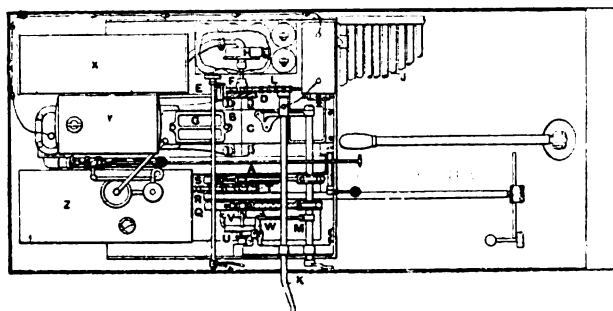


FIG. 1.—PLAN OF THE OLDSMOBILE.

A, flywheel.	G, inspection lid.	M, brake and clutch pedal
C, crank chamber.	H, rotary pump.	shaft.
D, two to one gear wheel.	J, radiators.	S, epicyclic gear.
E, controller shaft.	K, starting handle shaft.	R, hand brake.
F, crankshaft.		Y, Motor.

in the general plan (Fig. 1). The whole of the engine and transmission gear is secured to a rectangular channel steel frame, which is carried on the two longitudinal leaf springs which form the side members of the frame. The usual high-tension electric ignition provides the firing spark. In Fig. 2 is shown a section of the carburettor employed on the car. The air enters the chamber through the pipe on the right and passes straight through it and out of the opening on the left. The petrol arrives by a small tube connecting on top of the device, and is fed into a conical tube of fine-mesh wire gauze. The flow of petrol can be regulated by means of a needle valve N. The air in passing around the gauze tube becomes saturated with petrol vapour and is then caused to flow through a throttle valve V operated by means of a foot lever through the intermediary of the bell crank B. The main petrol supply tank is fixed at a lower level than the carburettor, and any surplus petrol from the carburettor returns to the tank by gravity, as may be seen from Fig. 3, which illustrates the method of feeding the petrol.

Referring to Fig. 3, A is a diaphragm pump, one compartment of the diaphragm chamber of which is in communication

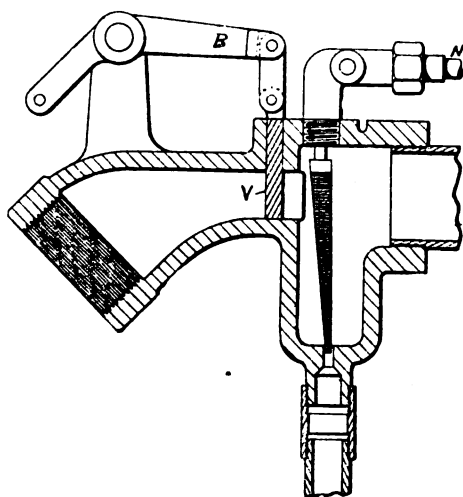


FIG. 2.—SECTION OF CARBURETTOR.

with the closed crank case of the motor. The other compartment communicates with a fitting in the petrol tank containing two ball valves. When the motor is in operation the diaphragm is vibrated in unison with the strokes of the piston by the suction in the crank chamber, and petrol is thereby pumped from the

main tank into an auxiliary tank B located higher than the carburettor. From this tank the petrol flows to the carburettor by gravity. The auxiliary tank B forms the upper part of a vertical cylinder extending down into the main petrol tank. A piston provided with a stem and handle is arranged in this cylinder, and the object of this arrangement is to allow the operator to pump petrol into the auxiliary tank by hand when starting.

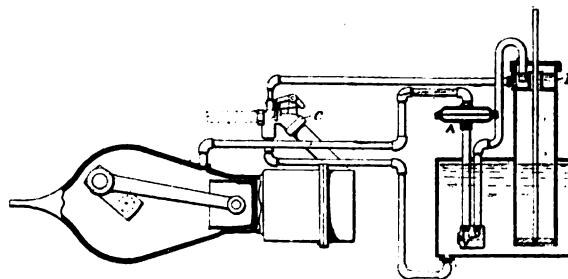


FIG. 3.—PETROL FEEDING DEVICE.

From Fig. 4 it will be seen that both the inlet and exhaust valves of the Oldsmobile motor are mechanically operated. The cam shaft, which is operated by means of spiral gear-wheels, runs longitudinally with the engine on the exhaust valve side. Both valves are located in the head of the motor. The exhaust valve is operated by means of a single-armed lever, which is forked to

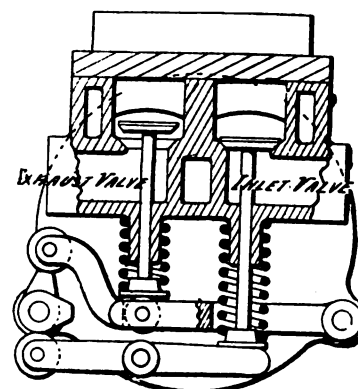


FIG. 4.—SECTION THROUGH VALVE CHAMBERS.

pass the admission valve. The latter is operated by means of a double-armed lever pivoted below the exhaust-valve.

The exhaust box (Fig. 5) is of special construction and singularly effective in eliminating the noise of the exhaust. The latter is delivered into the free space of the exhaust box, which is of ample dimensions, and it percolates gradually and slowly to

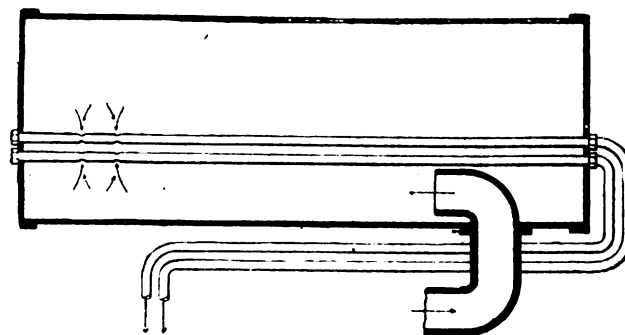


FIG. 5.—SECTION OF SILENCER.

the outside air through the two bent pipes which are perforated towards their ends on the left. The exhaust as delivered from the engine has adequate space to expand, and its passage to the atmosphere is slow and continuous. The cylinder of the engine is water-cooled and the water is pumped through a plain tube

radiator arranged in front of the car. The tubing of the radiator is arranged in two layers, and the connections to it are made by flexible piping, the water being pumped back from the rear end of the upper layer to the water tank. Two speeds forward and

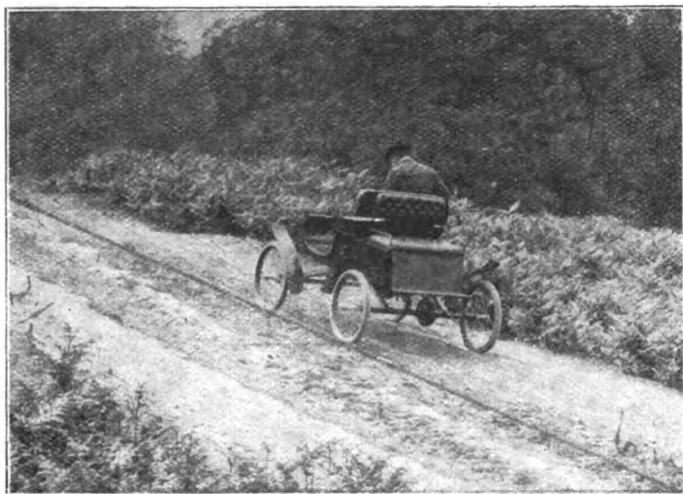


FIG. 6.—AN OLDSMOBILE CLIMBING THE TEST HILL IN RICHMOND PARK.

reverse motion are fitted, working through epicyclic gears, the latter being brought into action by tightening band-brakes surrounding them.

THE annual dinner of the Aero Club of the United Kingdom will take place at the Carlton Hotel, London, on the 25th inst., at 7.30 p.m.

MESSRS. C. H. HAGUE AND COMPANY, of Ashton-under-Lyne, inform us that they are supplying Pratt's motor spirit in sealed cases, carriage paid, per rail, at their own risk.

A MOST enjoyable smoking concert was held by the Nottingham and District Automobile Club on Friday last week, when upwards of fifty members and friends were present. During the evening it was decided to make weekly club runs to Newark on each Saturday during the winter, the headquarters there being at the Ram Hotel.

THE Silent Motor-Car Syndicate, Limited, has been registered with a capital of £3,000 to adopt an agreement with Gearings, Limited, F. W. Dunlap, M. Crawford, and H. Brooks, and to carry on the business of engineers, motor, mechanically-propelled vehicle and engine builders, etc. The registered office is at 5, Warwick Court, Holborn, W.C.

THE Peerless Manufacturing Company, of Cleveland, Ohio, whose cars are being introduced into this country by the Petrol Motor Power Company, showed for the first time last week to the members of the Cleveland Automobile Club the 40-h.p. racing car of the type they propose entering for the Gordon Bennett Cup race next year. In design and construction the car is said to be very similar to the Mercedes.

IN connection with the torchlight procession at Birmingham, on Monday last, organised in honour of the Right Hon. J. Chamberlain, on the occasion of his departure for South Africa, the Wolseley Tool and Motor Car Company supplied one of their 7½-h.p. cars for the use of Mr. Jenkins, the chief marshal of the procession, to enable him to visit the various points along the route. The car started work at 5 p.m., and went on till 12.30 a.m. the following morning without the slightest trouble; in fact, the motor was kept running throughout the whole of this time. In addition to aiding the chief marshal in his task, the car also proved its usefulness for ambulance work. During the crush at Cannon Hill Park, a woman was badly trampled on; the car was promptly requisitioned, and conveyed the injured woman to the hospital.

KNOWLEDGE IS POWER.

ONE of the most disagreeable features of a motor trip through a new country away from any large town or city is a breakdown where there is no one in the neighbourhood who seems to understand the first principles about mechanics. The amount of dense ignorance shown even by some workmen in country repair shops is appalling. A trifling accident to an automobile may often be repaired by a skilful workman within half an hour, while a bungling mechanic will work hours at the job and do no good. The driver of a horse-drawn conveyance has any number of repair shops and horse-shoeing establishments scattered all along his route where he can apply for assistance if anything happens to either horse or equipage; but the automobilist is much like the mariner who starts out on an ocean voyage. He must depend upon himself for all repairs, and if he cannot do this he may be stranded at any moment without hope of immediate help. Until adequate repair shops are scattered over the country, it should be the purpose of every owner of an automobile to thoroughly familiarize himself with every part of the mechanism of his vehicle, so that he can make ordinary repairs on the road himself. It is for this purpose that a kit of tools should always be carried with the vehicle, and if one understands how to use them he will be as independent as the aforesaid mariner on the high seas.

The average bicycle rider who makes a long tour through the country carries with him a full knowledge of the construction of his machine, and with the few simple tools in his bag he can make almost all ordinary repairs to the machine or tyres. There is no good reason why a motorist should not be equally well equipped with a knowledge of the working mechanism of his conveyance. A few instructions from an intelligent motor mechanic, considers the "Automobile Magazine," will enable an ordinary man to do his own repairing in an emergency. There would be fewer accidents and breakdowns on the road, and far less troublesome experiences in isolated regions, if every owner learned the lessons of handling his vehicle thoroughly. More than this, a mechanical knowledge of the driving and operating part of a car would prove a distinct advantage to any owner who wished to get the best out of his purchase with the least possible amount of wear and tear. There is such an important relationship existing between the life of an automobile and its daily handling that the question should be considered by every owner of a motor-car. If one trusts the driving of his car entirely to a servant it should be ascertained beyond doubt that the man is thoroughly competent not only to drive the vehicle skilfully, but to take it apart and put it together again.

There are only a few levers and wheels to manipulate in driving an automobile, and one can in a short time easily become quite expert in handling these. The vehicle can be made to go slow or fast, and to turn sharp corners with comparative ease. One may even become expert in dodging vehicles and pedestrians while proceeding at a fair speed. But such efficiency should not constitute the full lessons of the motorist who intends to drive the car himself. There should be a comprehensive understanding of the nature of the whole mechanism.

MESSRS. F. BERNARD AND COMPANY, of Paris, have just published a bulky treatise on electricity from the pen of M. C. Sarazin. It is the second edition of this gentleman's "Cours d'Electricite, Theorie et Pratique," and deals with the subject in a most exhaustive manner.

M. ARCHDEACON, a well-known French motorist, has raised in a Paris court the question whether identification by number, taken while a car was in rapid motion, according to the accusation, was sufficient proof to justify a conviction. What is more, he has won his case, as the judge held that there was too great a chance of error. This admission will support the views of those who object to the numbering of motor-cars.

FROM NORTH TO SOUTH.

B EING a medical man, and concluding, after much deliberation and calculation, that a motor-car would answer my purpose much better than two horses and carriages, I determined to set about getting one. I need not say that I was quite ignorant on the subject. First I consulted my friends who motored as to the best kind of car to get, and found myself let in for long lectures on the merits and demerits of petrol, steam, electricity, belts, chains, gear, one cylinder, several cylinders, and hundreds of other things, including flying machines. I was lectured on the enormity of motorists and inundated with papers containing accounts of serious motor accidents—that they were all relating to the same accident mattered not—marked in thick red ink.

My hair grew white and I was told I wore a worried expression, so I gave up my friends and in a weak moment bought a book of horrors—I will mention no name—but the diseases of motor-cars are tabulated. Alas! I had indeed wandered from purgatory to Hades. I could not sleep and I was rapidly getting bald—I shunned society because I felt sure my expression was becoming idiotic. I went to the Show at the Agricultural Hall, and felt that an asylum was the only fit place for me. But relief came at last, for I found the *Motor-Car Journal* and read the advertisements, sat down, and wrote for particulars of all the British-made cars. It was the postman now who wore an overworked look. I was improving.

I waded steadily through the mass of literature that poured into the letter-box, and finally decided to get a gear-driven machine, and as funds were somewhat limited, a one-cylinder engine. Living, as I do, in a very hilly place, it was necessary to get a good and fast hill-climber. In the end I decided to purchase an Argyll 8-h.p. one-cylinder car, and gave the order. Owing to the courtesy of the manager of the Bexhill Motor Company, I was able to get four lessons in driving, and to study the anatomy and physiology of the machine. In a very short time I considered I knew something about it.

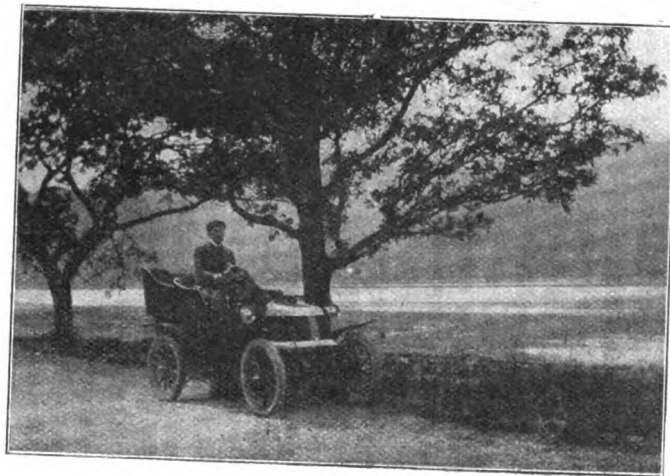
The Argyll cars being made in Glasgow, I imagined I could arrange for a nice holiday in Scotland by going to fetch the car and driving home to Hastings. I wrote to a friend asking him to accompany me and fixed it all up in no time. Unfortunately my friend knew less about motors than I; he had never driven one, and had only once set foot in a car. We reached Glasgow, went to the works and arranged with Mr. Govan, the manager, for one of his men to drive us to Helensburgh the next day. At Helensburgh we arrived all right, although it makes my hair stand up now when I think of the way we pushed and wriggled through the thick of the Glasgow traffic at its most busy time.

The man returned by the next train and we felt very much alone in the world. The next morning two tired, weary men, with a haunted look on their faces, might have been seen cautiously steering a motor-car along the main street of Helensburgh. Had they been questioned they would have said they hoped to go to Arrochar along the side of Loch Lomond and back by Gareloch Head. Unfortunately we missed the turn, and found ourselves confronted by the well-known Whistlefield Hill. We stopped "just to ponder and think," and having smoked our pipes, decided to go on; the car was quite of the same mind but refused to go up the hill on its third speed; it just jerked the lever out of the driver's hand, stopped and commenced to run back. A speedy application of the brake stopped its downward and backward career.

Again we pondered and thought, this time with the boards out of the bottom of the car; we soon found that the clutch, driven out by the pedal, had stuck. Once more what we are pleased to call our brains began to work to find out the cause, the effect we kenn'd right well. Oil—did someone say oil?—good idea, let's try; we filled the oil cup. The day seemed to have suddenly become very sultry. We started the engine with the lever in the "off" notch and watched; slowly the clutch returned, we put down the pedal, and, joy, the thing worked perfectly.

Having once more reduced the car to a proper frame of mind we went for the hill and got up gaily, down the other side, and along by Loch Long—an "awesome and fearful" road for a beginner—a narrow road like a twisted switchback, cliffs on one side and a drop into the lake on the other; to the driver there seemed to be at most six inches on either side. However, we reached Arrochar all right, and came back by Loch Lomond, and mighty proud we were of ourselves! I took the opportunity of giving my friend a lesson in driving. The next day we did another successful little run round the south of Loch Lomond and decided to start for home on the morrow. In the morning we started with the intention of keeping on the west side of Loch Lomond, and hoped to reach Callander. At Crianlarich Hotel we stopped for tea, and the rain began gently at first; but ere long it just rained and rained, so we went to a place with an appropriate name—to wit, Killin—and stayed the night there to dry.

Next day we went to Callander and the Trossachs, intending to get round to Aberfoyle, but the Duke of Montrose intervened. After twelve miles of the worst possible road and the worst possible rain we found his Grace would not allow motor-cars through, because a horse of his had once been frightened by one, so we sadly retraced our wheel marks and put up for the night at Callander. In the morning we started, still rather moist, passing through Stirling, reached Lanark, where we decided to



MR. H. G. L. ALLFORD ON HIS ARGYLL.

stop to dry ourselves, we having driven all day through a deluge. I have never seen the like out of the tropics. Waterfalls down one's back are pleasant for a short time, but five or six hours is too much. The next day we reached Penrith, having spent a few hours in Carlisle.

From Penrith we journeyed by Ullswater along another twisted switchback to Patterdale, and on over the Kirkstone Pass, up a hill about four or five miles long having an average gradient of one in eight, and down another about six miles long, to Windermere, thence through Kendal to Settle, where we put up for the night. From Settle we went to York, York to Grantham, and Grantham through Deeping and Peterborough to London, making that day's run about 120 miles. In London my friend left me, and I went to Oxford on the following day, alone, climbing Dashwood Hill on the way. At Oxford my wife joined me and we went on to Shipton-on-Stour, and stayed with friends at a pretty little village called Honnington. The following day four of us drove in the car to Warwick and back by Stratford. The day after we started for home through Oxford, reaching Hastings on the third day, having stayed at Wallingford and Reigate. The machine had done about 900 miles, and, excepting the clutch trouble, we had no breakdown of any sort, not even a puncture. I cleaned the valves when I reached home and the car has gone perfectly ever since. I use dry cells for the electric ignition.

H. GEORGE L. ALLFORD.

THE BAKER ELECTRICAL CAR.

THE accompanying illustration shows the little electrical runabout, the latest production of the Baker Motor Vehicle Company, which is being introduced into this country by Mr. Samson Parsons, of Darlington. The vehicle is not intended for touring purposes, but for making social or business calls, and general runabout purposes, instead of using horses, in large towns. The battery consists of twelve cells of 2 volts each, which are charged to 2·65, giving a total, roundly, of 32 volts and 100 ampère hours, which is stated to be sufficient to run a distance of forty miles on good level roads. The motor is of the modern multi-polar type with special windings adapted to the Baker exclusive system of control, which will, it is claimed, stand any load the battery will furnish without burning out. It is ball bearing throughout, as is also the countershaft by which the power is transmitted. The controller is situated at the operator's right hand, and gives three speeds of 6, 11, and 14 miles per hour, both forward and backward. It also acts as a brake, and has a push button in the end of the grip for ringing the bell. The frame is of tubular construction, the motor being supported



THE BAKER ELECTRICAL CAR.

at about the centre and driving directly a countershaft connected with the rear axle by a centrally-located chain. In addition to the hand brake which is used in ordinary traffic, there is a foot-brake which is claimed to be powerful enough to lock the car on any gradient; both brakes are effective both forward and backward. The wheels are of the cycle type, shod with Palmer single-tube tyres. Mr. Parsons has had one of the Baker vehicles in use for some time in Darlington, where, by reason of its quiet and easy running, it has attracted considerable attention.

MESSRS. ROOTS AND VENABLES have concluded arrangements with Messrs. Sir W. G. Armstrong, Whitworth and Company, Limited, Newcastle-on-Tyne, whereby the latter will in future build the Roots heavy oil cars.

At the last meeting of the Executive Committee of the A.C.G.B.I., it was agreed that the association of the names of official timekeepers of the Automobile Club with events which are not approved by the Club is very undesirable, and that the official timekeepers should be informed that their appointment can only hold good in the event of their agreeing not to act in connection with automobile events which are not held under the auspices of the Automobile Club or of affiliated clubs.

CONTINENTAL NOTES.

BY AUTOMAN.

THE "ballon Jaune," or in other words the flying machine, of the Brothers Lebaudy, cut its moorings and started its first free manoeuvres at Moissons, on the banks of the Seine, last week. Altogether four ascents were made, and in each one there was a crew of three aboard. The success was even greater than that of the week before, when it manoeuvred with the guide ropes held continuously from the ground. The most notable feature of the flight of this new "steerable balloon" is the fact of the total absence of rolling or pitching. It is said that a speed of twenty-five miles per hour was attained with only one of the fans working, that is to say with half the power of the motor. During the last flight the steering gear gave way through too sharp a curve being taken, but notwithstanding this slight accident the air-ship was able to come back to the Aerodrome and land without any difficulty.

THE Lebaudys have placed at the disposition of the engineers in charge of the construction of the machine such ample means that no experiment is neglected and no effort spared to advance the science of aeronautics, and it may be easily foreseen that most interesting developments will be the result of this venture. It is intended to make a trip from Moissons to Mantes, and then the balloon will be housed for the winter. In the spring time the Parisians may expect to see it appearing over their heads, and it will no doubt be entered for the Santos Dumont prize, which still remains unchallenged.

THE rain of records still continues on the Dourdan track, and in almost every official category there is a new record holder. In the voiturette class under 400 kilos. (7 cwt. 3 qrs. 14 lbs.) Thellier on a four-cylinder Passy-Thellier last week covered the kilometre in 36 1·5 seconds, and the mile in 58 seconds. Deryn on a four-cylinder Clement motor-bicycle did the kilometre in 33 1·5 seconds, and the mile in 1 minute 52·5 seconds. In the heavy car class Fournier's mile record did not last a week, for Augieres on a 70-h.p. Mors car did the mile in 46 seconds, attaining a speed of 125 kilometres 874 metres per hour, the highest rate attained (a little over 78 miles per hour). Strange to say, however, in attacking the kilometre record, the best Augieres could do was 29 2·5 seconds, or 1·5 of a second longer than Fournier. In the light car class, Thery on a Decauville did the kilometre in 30 seconds, and the mile in 48 2·5 seconds, establishing two new records.

In the issue of the *Journal* of November 1st, I quoted from the *Chronique de Bruxelles* a circular letter said to have been sent by the A.C.G.B.I. to all the Continental clubs except the A.C.F., proposing a united action to revise the international racing rules by the introduction of six alterations. I am informed that this proposition was brought directly before the notice of the Committee of the A.C.F. in a letter from the A.C.G.B.I. at its last meeting, and that the A.C.F. have decided not to introduce the proposed alterations.

THE author of the new proposition with regard to the Paris-Madrid race is the Marquis de Dion, who in bringing it forward proposed the following rules:—(1) For the Paris-Madrid race there shall be established a commercial classification, the basis of which shall be no longer the speed of any individual car. (2) In order to obtain a commercial classification of types of vehicles entered the results shall be judged by the behaviour of all the cars of one type entered. (3) That five cars shall constitute a series. (4) That the speed of the series over the whole distance shall alone count in the final result. (5) That the commercial classi-

fication shall, therefore, be established as follows:—(a) For cars covering the whole distance the total time shall be calculated as herebefore. (b) That for cars which break down their time shall be taken from the last control passed before they break down, and that after that they shall be penalised by a time representing 10 or 6 kilometres per hour to the end of the race.

THE following is the translation of an advertisement which appeared on the fourth page of the *Temps* (the largest Paris daily) on November 14th last:—

“IMPORTANT NOTICE.

“Doctors, stockbrokers, people in a hurry, don't buy automobiles whose pace is limited to twelve kilometres an hour by municipal bye-laws. Buy good horses that can trot the kilometre in two minutes. The speed of animal traction is not limited. A big arrival of trotters will be announced shortly.”

BEFORE the Federal Chamber of Switzerland there is at present a project of a rather drastic measure to be taken against offending *chauffeurs* guilty of furious driving. The idea is to treat them in the same manner as assassins or robbers, and lock them up “on sight” pending an examination and trial. Needless to say the Automobile Club of Switzerland is taking steps to oppose this insane proposition.

THE Paris Automobile Exhibition in the Grand Palais opens on Wednesday, December 10th, and lasts until Christmas Day. There has been such a big demand for space this year that all the stands have had to be cut down in size. The principal spaces have been balloted for and arranged, and the minor spaces are now being divided. There will be many novel attractions provided to interest visitors, and conferences and lectures will be delivered on automobile topics.

RYDE MOTORS, LIMITED, has been registered with a capital of £6,000, to adopt two agreements with F. W. E. Ryde and an agreement with R. W. Vining, and to carry on the business of engineers, etc.

MOTORISTS should note that they are not welcomed at hunting meets—at least not unless they leave their cars at home. Such an intimation is now given on the fixture cards of the Essex Hounds.

THE Executive Committee of the A.C.G.B.I. have decided that in the new motor storage of the Club in Down Street, W., there shall be erected a weighbridge, on which motor-vehicles may be weighed.

THE Albion Motor-Car Company, Limited, are erecting large new works at Scotstoun, near Glasgow. The ground is three acres in extent, and the buildings are being erected on the one-storey principle. The new works are expected to be ready for occupation in April next.

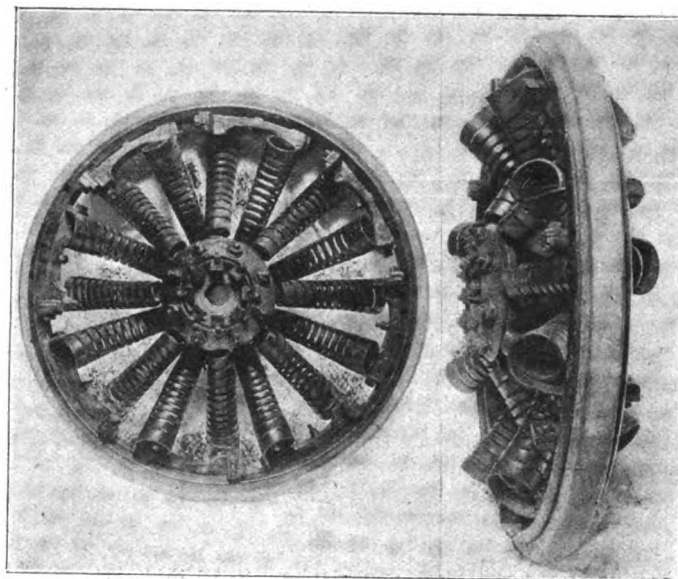
A SUGGESTION from the Yeovil Rural District Council that the speed of motor-cars should be limited to 10 miles an hour was received with laughter at the meeting of the Rural District Council at Lincoln. The chairman remarked he understood one Council had gone further than Yeovil and recommended (perhaps ironically) that each motor-car should be preceded by a steam roller and the steam roller by a man carrying a flag. The letter from Yeovil was allowed to lie on the table.

ON Friday last week, the Great Central Garage, Limited, submitted one of their 9½-h.p. double-cylinder “Earl” cars, recently illustrated in these columns, to the 100-mile non-stop trial on the Oxford road of the A.C.G.B.I. Notwithstanding the bad condition of the roads, the 100 miles was made without a stop. We are informed that the speed up Dashwood Hill was at the rate of twelve miles an hour, and up Aston Hill, on the return journey, eleven miles. The consumption of petrol for the whole run was 4 gallons 1 pint, and of water only 1½ pint. Having in view the fact of the conditions under which the test was made, the performance is undoubtedly a noteworthy one.

THE BROWN ELASTIC WHEEL.

THE illustrations show two views of a new elastic wheel invented by Mr. J. Brown, F.R.S., of Belfast, and described by him at the recent meeting of the British Association in that city. Mr. Brown pointed out that in most forms of elastic wheels previously suggested the connections of the spring spokes to the hub and rim were made by some jointed arrangement expensive to make and maintain, and with the fatal drawback of entailing much friction on these joints every time the wheel revolved. As much as ¼-h.p. per wheel was found to be absorbed by this friction, in one case, at quite a moderate speed. If, to avoid all this, the ends of the spring spokes were rigidly attached to hub and rim, in the hope that their elasticity would answer the purpose of joints, it was found that, in the displacement of the hub relatively to the rim at every revolution, the bending stress was chiefly concentrated at the points of attachment and very soon caused fracture at those points.

In the new wheel, while the spring spokes are bolted rigidly to the hub and rim, thus avoiding joints, fracture at the points



of attachment is also avoided by a gradual widening towards the ends of the steel strip from which the spring is made. In this way the stress is spread over a foot or more of the steel. The outer ends of the springs are bolted to castings fixed on the steel rim (one of the Buffer tyre rims is used). Their inner ends are passed between a dished ring and the hub. In case there be any slight difference in the strengths of the springs the small split wedges in the slots in their inner ends are used to true up the wheel on an axle. After trueing up, these inner ends are clamped under the dished ring. Sideway stability of the wheel is obtained by the alternate diagonal placing of the springs. A load of 11 cwt. depresses the centre about 1½ in., and under this load it has been tested at speeds up to about twenty miles per hour without any sign of giving way.

The advantages of the wheel are cheapness of construction, no loss of power from friction, as in the ordinary leaf springs or in jointed spring wheels, with strength and durability.

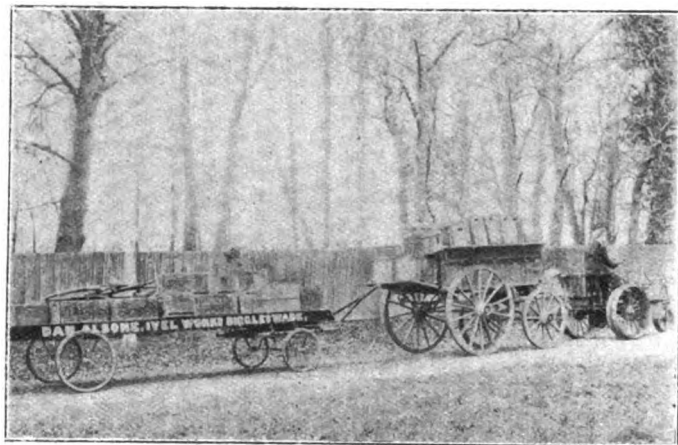
AMONGST the latest purchasers of the 20-h.p. Georges Richard light cars are Count Zborowski and Mr. William Younger, M.P. Mr. Younger's car is of the Lonsdale type, to seat four. It is fitted with a four-cylinder engine with a special throttle for each cylinder, making the car very silent for its power. Magneto ignition only is fitted, following the latest practice.

HERE AND THERE.

MR. C. F. ENNIS has started business on his own account at 47, Chancery Lane, W.C., as a registered patent agent.

THE Automobile Club has decided to erect danger boards at Wansford, on the main North Road between Oundle and Peterborough, and at each side of Brixworth Corner, Northamptonshire.

THOSE motorists using the Great North Road will find a plentiful supply of petroleum spirit at the Ivel Works, Biggleswade, Mr. Dan Albone having arranged to convey spirit down by



road until the difficulty with the railway companies is settled. The accompanying illustration shows the Ivel agricultural motor with van and lorry attached, loaded with cases of motor spirit.

THE Belsize cars of Messrs. Marshall and Company can be seen and tried in London by arrangement with Messrs. Rawlings Brothers, Limited, 165, Sloane Street, S.W.

THE Executive Committee of the A.C.G.B.I. has decided that no motor vehicle records shall be taken by the official timekeepers appointed by the A.C.G.B.I., unless notice be given at least ten days previous to the date, and giving the place and time at which the run is to be made.

ON Sunday last the new 10-h.p. Sandringham car with solid rubber tyres, built by Mr. Frank Morris, of King's Lynn, successfully mounted the famous Gass House Hill, near Norwich, from a standing start. The hill in question is well known in the Eastern Counties for its steepness, and so far as we remember has only hitherto been scaled by the 70-h.p. Napier and a Locomobile.

To overcome the difficulties experienced with the condensation type of lubricator as applied to steam carriages, Weston Motors, Limited, are introducing a new type of positive feed lubricator, which is claimed to ensure absolute lubrication to the cylinders at all times, and under all circumstances. The lubricator, which is now being fitted to all Weston steam cars, consists of an oil reservoir directly connected to a small feed pump, the flow of which can be graduated to a nicety; this small pump works directly off the engine. The advantages of this system will be apparent, for, when the engine is at rest, the lubricator does not work, and the faster the engine runs, the more oil is fed to the cylinders. Apart from the increased smoothness and running efficiency of the engine, Messrs. Weston claim to obtain a saving of 50 per cent. in lubricating oil, owing to the entire elimination of waste. The lubricator holds sufficient oil for a run of more than fifty miles, and an advantage which will be appreciated by drivers is the fact that it has a 3-inch opening for filling, and that not being under pressure it is perfectly cold. It may be mentioned that the new lubricator can be fitted to existing Weston cars without trouble, and at a very small cost.

AN automobile club has just been formed at Wurzburg, Germany.

THE Mors Company has already entered four cars for the Nice week.

THE members of the Yorkshire Automobile Club will hold a run to Harrogate to-day (Saturday).

THE Works Committee of the Hull Corporation are discussing the question of adopting an electric motor fire engine.

AT the Newbury County Police Court, Thomas Homyer was fined £1 for driving a motor-car without exhibiting a red light in the rear.

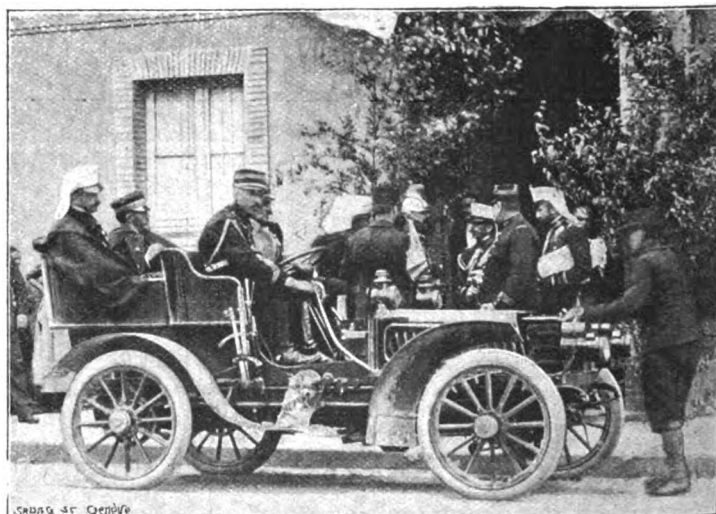
To enable the police to check the speed of motor-cars the East Sussex County Council has decided to purchase, at a cost of £14, a battery and other telephone appliances.

MR. W. WORBY BEAUMONT is to give a series of four lectures on Mechanical Road Carriages to the Society of Arts, in April and May next.

THE Gainsborough and Hoole Rural District Councils have decided to support the Yeovil Council's proposals to reduce the speed limit of motor-cars from twelve to ten miles per hour. On the other hand, the Pershore and Grantham Rural District Councils have decided to let the communication lie on the table.

THE Irish Motor Company, Limited, has been registered with a capital of £2,000, for the purpose of establishing, acquiring, and carrying on in the United Kingdom the business of manufacturers and dealers in all sorts of cycles and motors, and to acquire by purchase the business of John R. Evans, 12, South Avenue Street, Dublin, and the goodwill thereof.

THE great increase in the number of automobiles in New York has brought about a condition of affairs which has an interesting and important bearing on the industry. Automobile storage stations, as a rule, have all the vehicles they can care for, and still the number of cars increases rapidly every day. To meet this demand a number of new garages are about to be opened. It is difficult, however, to find properties that answer all the requirements for a successful garage.



A 20-H.P. DECAUVILLE AT THE RECENT FRENCH MANŒUVRES.
(Le Chauffeur.)

AUTOMOBILE COMPONENTS, LIMITED, have sent us a copy of the new catalogue they have just issued, in which considerable space is devoted to the set of components of which they are making a speciality, and which enables small motor-car makers to turn out a little two-seated vehicle at the low price of 105 guineas. The engine is of 3½-h.p., and alternative designs of motor at the front or rear are supplied. The list gives illustrations and particulars of the various parts which form the set, as also details of a 6 to 9-h.p. set, change-speed gears, bodies, motor-bicycles, launch motors, carburetors, etc.

MESSRS. W. E. CLARK AND COMPANY ask us to mention that they can supply petrol to tourists at the usual price at their North Road and Station Road Depots, Doncaster.

AMONGST the most recent applications to the Turkish Government is one by the Ottoman Vice-Consul at Genoa, who proposes establishing a service of motor-omnibuses at Mitylene.

MESSRS. SALSURY AND SON, LIMITED, have just issued a very complete retail catalogue, in which particulars and illustrations are given of the many forms of motor lamps, horns, and other accessories they manufacture.

MESSRS. RICHARD LORD AND COMPANY, of Sudell Works, Blackburn, who appear to be laying themselves out to cater for the wants of motorists in their district, have just issued a very handy little list of motor-car accessories.

MESSRS. SCAIFE AND PEARSON inform us that they are making arrangements to shortly open a motor garage and repairing depot in York, under the title of the York City and County Garage and Motor Agency. The premises will be situated near the market place in the centre of the city.

FOR the 1903 season the Speedwell Motor and Engineering Company, Limited, are introducing the new 9-h.p. car shown in the accompanying illustration. The vehicle is being manufactured to their order in France, and is fitted with a 9-h.p. De Dion engine located under a bonnet in the front of the car. It is provided with water circulation by syphon, radiators round the bonnet, De Dion carburettor, and electric ignition. The power from the engine is conveyed through a cone clutch to a speed-change gear of the Panhard type, except that the top speed drives direct. This gear gives three speeds forward and one reverse, operated by a single lever. From the gear box the power is conveyed to bevel pinions situated on the back axle, by means of a universally-jointed shaft. The car has artillery wheels of equal size, shod with Clipper-Michelin heavy 750 by 85 tyres. Two foot pedals, controlling clutch, and brake and clutch respectively, are fitted within convenient reach of the driver; the foot brake operates upon a drum fixed outside the case of the bevel gear on the longitudinal shaft. The usual hand brake is also provided, and acts upon drums attached to the artillery wheels. Fitted to the dash-board is a three-way lubricator, by means of which oil can be forced either to the engine, speed-change gear, or the bevel gear, as desired. To the inclined steering pillar is fitted the usual De Dion exhaust throttle. The car is to be put on the market at a popular price, which will include a complete outfit of tools, a pair of brass Ducellier lamps, and a few spare parts.

THE Kitto Automobile Company, Limited, has been registered with a capital of £6,000, to acquire from W. H. Kitto the business of a motor-car and cycle builder, repairer, agent and dealer, etc., and to adopt an agreement with W. H. Kitto, S. B. Saunders, and G. S. Hunter. The registered office is at Bush Lane House, Cannon Street, E.C.

THE newly-formed British Germain Motor-Car Company inform us that they have been appointed sole agents for Great Britain and the Colonies for the Germain car. Large showrooms in Hanover Court, Hanover Square, W., have been taken, and the alteration of the premises will be completed within a fortnight or so. In addition to the present types of Germain, they also intend to introduce a 7-h.p. voiturette, to sell at a popular price,

A LANCHESTER car built to the order of Lord Milner was despatched to South Africa last week.

THE Ware Rural District Council (Herts) has decided to have nothing to do with the Yeovil suggestion that the maximum speed should be reduced from 12 miles an hour to 10 miles.

THE Elswick Motor and Accessories, Limited, has been registered with a capital of £500, to carry on the business of manufacturers of cycles, motors, carriages, and accessories, etc.

THE Dechamps Car entered by the Graphic Motor and Engineering Company, Limited, for the run to Oxford, did a good day's work on the 8th inst., as it was driven back to London without a stop the same evening, reaching home about 11 p.m.

WE learn that Mr. Eric Stuart Bruce, M.A., Oxon., Fellow of the Royal Meteorological Society, honorary secretary of the Aeronautical Society of Great Britain, and member d'honneur of the Paris Aero Club, has also accepted the secretaryship of the Aero Club of the United Kingdom.

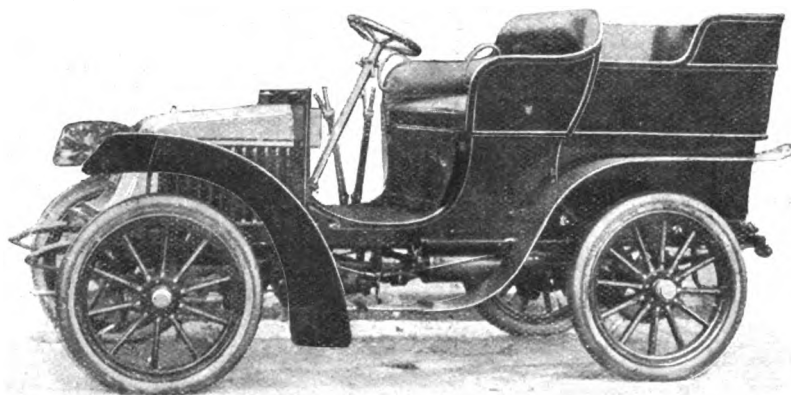
LORD PIRBRIGHT'S 12-h.p. Dennis car was among those which earned a non-stop certificate in the run to Oxford. The car has a special double tonneau body seating six persons. It will form one of Messrs. Dennis' standard patterns for 1903, and will be known as the "Pirbright."

A WELL-ATTENDED meeting of the general committee of the Automobile Mutual Protection Association was held on the 7th inst. Mr. J. J. Mann, A.M.I.C.E., was in the chair. The secretary (Mr. George R. Helmore) reported the steps he had taken on ascertaining the restrictions placed by the railway companies upon the carriage of petrol, and read the correspondence he had had with the various companies on the subject. Sir Edgar C. Boehm, Bart., F.R.G.S., and Mr. J. Ernest Hutton, J.P., were elected members of the Association. A large amount of general business was transacted and

an expert's opinion as to the validity of certain patents considered.

THE petrol and electrical motor-cars built by Messrs. Stoeber Brothers, at Stettin, which have already earned a reputation in North Germany, are about to be introduced into England, Messrs. Salmon and Sons, the well-known carriage and motor body builders, having acquired the sole agency for Great Britain. Large showrooms have been opened at 27 and 29, Laystall Street, Rosebery Avenue, E.C., for the sale of the new cars. We may add that Messrs. Stoeber are at present building a special petrol car for the Sultan of Morocco.

THE new features in the 1903 Werner motorcycles comprise an improved form of float-feed spray carburettor and throttle device combined, and a new design of self-adjusting contact breaker, in which there are no platinum points, trembler, or screw. The contact is visible without removing any covering or fitting. The tank contains lubricating oil and pump, accumulator and petrol reservoir. The accumulator case is between petrol and oil reservoirs, so that in the event of an accident causing one or other of the reservoirs to leak it can be easily repaired, and there is no possible danger of the oil leaking into the petrol or vice versa. A new silencer with double chamber; non-slipping belt pulley for flat belt; extra wide belt, but without increasing width of tread for pedalling; and a new compression release are other new points. Two models will be made next season: the "Tourist," with 2-h.p. engine (66 by 72 mm.), and the "Paris-Vienna" machine with 2½-h.p. motor (76 by 76 mm.).



THE "SPEEDWELL" 9-H.P. PETROL CAR.

GERMAN AUTOMOBILE CLUB BADGES.

OIL MOTOR-CARS OF 1902.*

By CAPTAIN C. C. LONGRIDGE.

(Continued from page 727.)



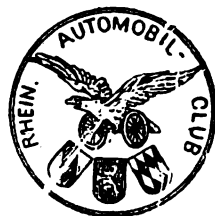
The German Automobile Club.



The Mid-European Motor-Car Union (Berlin).



The Wurttemberg Automobile Club.



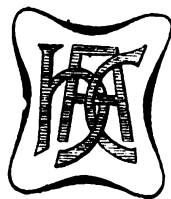
The Rhenish Automobile Club (Mannheim).



The Frankischer Automobil-Club, Nuremberg.



The Silesian Automobile Club, Breslau.



The Hanover Automobile Club.



The Berlin Automobile Union.



The Halle Automobile Club.



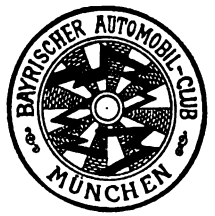
The Frankfurt Automobile Club.



The Cologne Automobile Club.



The Dresden Automobile Club.



Bavarian Automobile Club, Munich.



The Rhenish-Westphalian Automobile Club, Düsseldorf.



The North-German Automobile Club, Hamburg.



The Leipzig Automobile Club.



The Alsace-Lorraine Automobile Club.



The Mid-German Automobile Club, Eisenach.

At Filey last week, Norman Shubotham, a motor-car driver, of Cricklewood, London, pleaded guilty to having obtained food and lodgings by false pretences at the Crescent Hotel, Filey, on September 15th. The chairman said prisoner could not be allowed to go about the country cheating people, and he must go to prison for three weeks, with hard labour.

Steering.—All first-class cars are fitted with irreversible steering gear, mostly of the worm and worm-wheel section, or preferably the square thread shank and sleeve or nut on account of the reduced wear, which in the former arrangement may soon produce backlash. Fig. 10. In the future, efforts should be made to embody resilient or absorbent members in the locked or irreversible controls, which at present transmit in their full force all shocks and blows from the front wheels.

Brakes.—Invention is still busy with this important detail of car construction, and there is yet room for an improved brake, perhaps hydraulic, pneumatic, or magnetic. Several makers are abandoning hand brakes on the driving wheels; and, in the author's opinion, the step is a wise one. The substitute mostly takes the form of an inside expanding brake acting on the inside of a special sprocket ring. Messrs. Charron, Girardot et Voigt have introduced an expanding collar inside a drum on the wheel. The Canstatt Daimler Co. use a powerfully-built, expandable ring clutch, acting within an annular flange, secured to the road wheel, as part of the sprocket. Messrs. James and Browne employ a double-acting brake, having two cast-iron slippers acting on the inside faces of the sprockets. Another form of brake is the French Rassiner, which substitutes the grip of rollers (rolling friction) for blocks (sliding friction) on an annular ring affixed to the rear wheels. It is said to be impossible to fire the brake or affect its grip by grease. The water-cooled hand-brake on the differential, and occasionally on the countershaft as well, shows no alteration. Neither of these positions are commendable.

Axles.—It is a strange thing that no English firm appears capable of turning out motor-car axles of quality and accuracy equal to the production of French and Belgian firms. An enquiry to one of our large forging firms for an explanation of this fact elicited the reply that there appeared to be nothing in the material itself to differentiate it from the steel of this country, and that if any superiority existed it must be due to a method of hammering which was more or less a lost art in England. The author, after visiting the French factory and seeing their methods of manufacture, advised a firm of English manufacturers to import a few leading hands and start home manufacture; but the advice was not followed, and so far the trade is allowed to remain in the hands of the foreigner. The employment of weldless steel-tube or hollow-bored axles, which is the latest development, ought to suit British makers, and if this type of axle proves successful British-made axles ought to be found on every car.

Springs.—The same remark as to the superiority of the foreign made article applies to motor-car springs. The firm of Lemoine et Cie. have a special reputation for such goods. For the purpose of more closely studying their process, the author visited their works, as also the Paris establishment of Messrs. Rothschild. Although naturally reticent, Messrs. Lemoine stated that the spring steel they used was a special brand made exclusively for their use by Messrs. Holtzer, of Unieux, Dept. Loire, the metal containing manganese and a certain percentage of silica. Every spring was tested before delivery, and the tests witnessed by the author showed excellency both as to quality and make. By far the majority of the springs used by French makers are of the Grasshopper type, fairly broad, flat, and long. The choice of spring dimensions naturally depends on several factors:—The horse-power of the car, the weight of the car, the length of the car, the speed of the car, and the elasticity desired.

Generally speaking, springs should not be less than one metre in length, preferably more. For light cars they should show when loaded a deflection of 15 to 30 mm. for every 100 kilos of dead weight. In heavy cars the deflection may be as low as 12 to 13 mm. per 100 kilos of dead load.

The customary method of application is to support the frame on springs. In a few cars a cross spring is added to the side springs, and this no doubt tends to break the periodicity or rhythm, which, occurring in any one system of springs, may accumulate to a disagreeable swaying. Though not in use, numerous patents describe spiral springs for automobiles, and there seems no particular reason why they should not be employed, especially for heavy drays, etc. With the object of saving the springs and preventing the wheels from jumping from the road at high speeds, pneumatic buffers form a new feature in the 80 h.p. Mors racer. A pneumatic cylinder is fixed to the frame, above each front spring, while the piston rod is attached to the axle. Fig. 11. Above each rear spring two pneumatic cylinders or dash-pots are similarly fixed. Endeavours have been made to save the motor also from jar by rubber suspension buffers, as illustrated in Fig. 12. With a flexible drive and flexible pipe connections, the plan might be serviceable.

Frames.—Most makers are now using a longer wheel base and a broader frame, giving greater space for large roomy bodies. Whereas until very recently the engine and mechanism were usually carried on an under frame, and deflection provided for by universal joints on the shafts, etc., the most recent practice, illustrated in the 40-h.p. Mercedes Simplex car, dispenses with the underframe and universal joints, and carries engine, bearings, gear, etc., on the main frame, which is braced and stiffened for the purpose. Fig. 13.

As regards material, car frames are mostly of armoured wood, then stiffened or backed by girder-shaped steel plates. For the recent Paris-Vienna race, Messrs. Charron, Girardot et Voigt forced the square section

* Abstract of Paper read before the Institution of Mechanical Engineers.

wood into thin weldless steel tubing, which takes the same shape, and, fitting tightly to the wood, is stated to give, as it is likely to do, greater rigidity than the other method. In a few cases a tubular frame is used.

Lubrication.—In this respect there is nothing very new or noteworthy. The innumerable toy grease-cups that used to adorn the mechanism of cars have been replaced mostly by sight drop-feed oil lubrication. In a few cases the preferable forced or circulating pump lubrication is employed. In the Wilson and Pilcher car this excellent system is used throughout.

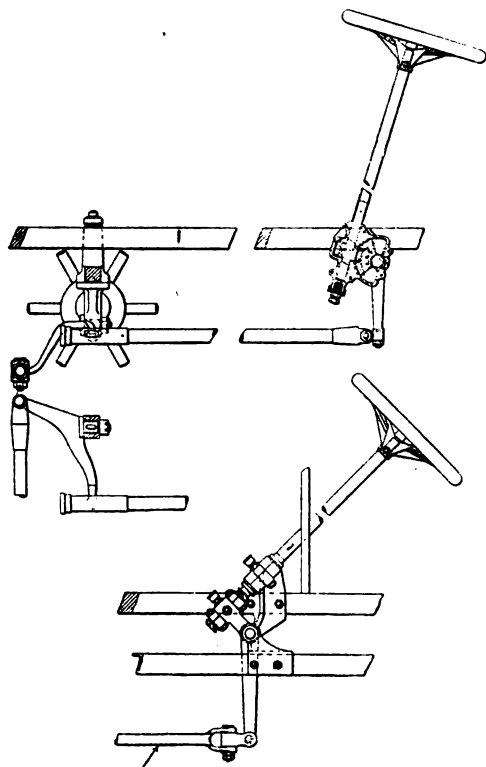


FIG. 10.—Steering Gears (Daimler). Worm and wheel sections.
Screw and nut steering gears.

the oil being drained back, filtered and re-used. In the 35-h.p. Mercedes car, lubrication of the engine, engine bearings, and change-speed gear is provided by an oil pump, chain driven off the half-time shaft. In the 20-h.p. Maudslay car the engine shaft is extended forward, and, by means of worm gear, drives two barrel pumps fixed on the frame. In both cases the oil returns to a reservoir and is filtered for re-use. All pumps, whether for

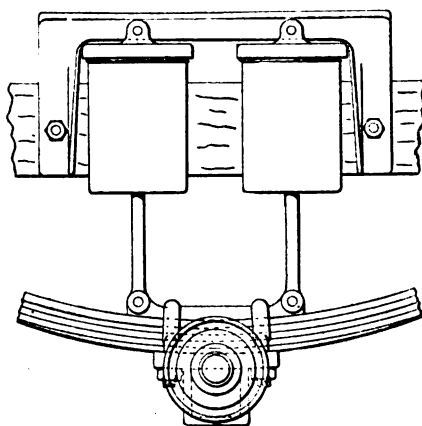


FIG. 11.—Pneumatic Buffer (Mors).

oil or water circulation, should be gear driven. Change-speed gears are generally run in oil, and crank-shaft lubrication is of the splash, collecting cup or ring type.

A very usual method of crank lubrication in modern high-speed steam engines is to fill the crank chamber with water to a depth covering half the crank-pin on the down stroke, floating oil on the top. This plan has two advantages. The churned oil and water furnish better and more ample lubrication than oil alone, while the gradual evaporation of the water prevents the temperature rising over 212 deg. Fahr. It would be worth

trying the same plan for motor cranks. Provided, which with the piston fit and temperature does not seem likely, that water did not find its way into the combustion chamber, and that evaporation was not too rapid, the addition of water would not only improve lubrication, but very considerably cool the piston and cylinder walls, whilst at the same time providing a volume of lubricant enabling the engine to run safely should the oil-supply temporarily fail. It is unnecessary to add that the crank chamber must communicate with the atmosphere by pipe or otherwise.

There is another interesting point that so far appears to have escaped the attention of the chemist and the engineer—the effect of lubrication on charge-firing. At certain temperatures and pressures trouble is experienced by premature so-called automatic firing of the petrol mixture. It has been stated, and by authorities of standing, that petrol charges cannot be compressed to much over five atmospheres without risk of premature firing. What this represents in temperature is difficult to say with accuracy, since one factor—the working temperature of the cylinder wall—has not

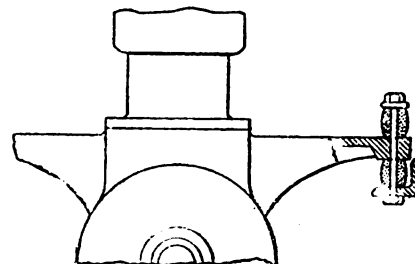


FIG. 12 —Method of attaching Motor to an Angle Frame by Rubber Buffers.

been determined. Owing, however, to the thinness of the metal and the steepness of the heat gradient, it is probable that no great difference exists between the mean temperature of the inner and the outer skin, and that the mean temperature of the whole consequently is not greatly in excess of that of the jacket water. Although no temperature measurements seem to have been taken, certain considerations would appear to fix this temperature at from 200 deg. to 250 deg. Fahr. Assuming, therefore, the incoming charge to attain this temperature, and then by further compression to 75 lbs. to receive an additional rise of 374 deg. Fahr., its final temperature will be from 574 deg. to 624 deg. Fahr., which would stand as the critical point of automatic ignition. The principle and fact of ignition by compression is so well established in the minds of engineers that, for example, Messrs. De Dion and Bouton have patented a self-igniter, consisting of a small cylinder in communication with the main cylinder. The point raised by the author is this : Is the automatic ignition of a petrol mixture possible under any temperature attainable in a water-cooled motor ? He doubts the possibility. With a view to testing it, he recently took a $3\frac{1}{2}$ in. by $4\frac{1}{2}$ in. tin case, with tightly fitting cover, and successively introduced two, four, and six drops of petrol, then placing the case over a Bunsen burner. At each attempt the heat was increased until the solder melted. In no case did ignition take place. He then took a jointless stamped tin case, $3\frac{1}{2}$ in.

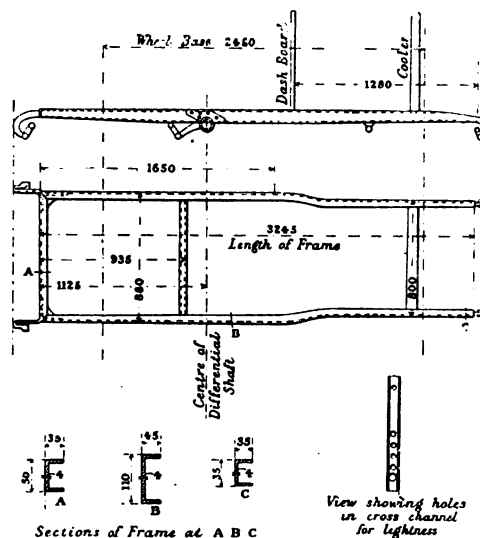


FIG. 13.—The new 40-h.p. Mercedes Simplex Frame.

by 1 in., and tried unsuccessfully with four and six drops of petrol to obtain explosion at partial red heat. Repeating the tests, using instead of petrol a cylinder lubricating oil of 410 deg.-430 deg. Fahr. flash point, 440 deg.-460 deg. Fahr. fire test, 910-915 density, ignition was readily obtained.
(To be continued.)

CORRESPONDENCE.

MOTOR-VEHICLES FOR CORPORATION WORK.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Alderman Larard, Chairman of the Hull Tramways Committee, is reported to have said at Hull that he hoped motors would soon be used to take firemen to the scene of conflagration, that another improvement to be expected was the use of motor traction for scavenging, and that where the horse had been supplanted by the motor the change had been entirely acceptable to all. May I venture to add, on behalf of the Church Society for the Promotion of Kindness to Animals, that the substitution in certain cases of motor traction for horse traction would be a means of eliminating the strain, suffering, and weariness which are at present the daily lot of so many horses.—Yours truly,

F. LAWRENCE.
Hon. Secretary.

A GRUMBLE RE MOTOR REPAIRERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Cannot something be done to prevent owners of motor-cars, when requiring repairs away from home, falling into the hands of bunglers? One often sees "Cycle and Motor Works," "Cycle and Motor Engineer," etc.; after inquiries, you are told, probably by some friend of the "motor engineer," that "you will be all right there." Oh, yes, he is a very clever fellow, etc. In you go, and, after enjoying your lunch, find the man has either broken something or made your engine worse than before. I have been in this fix twice to-day at two different towns, and at last had to send to London for a man. A friend of mine last week had his 20-h.p. car completely ruined by one of these "motor engineers." In this town within the last three months two cycle firms have done the same thing, and I have reason to be sorry that my car ever went into their yard. One spoiled a splendid De Dion tricycle, and the other kept my car six weeks, messed it about, and then I had to take it elsewhere, and the firm put it right in an hour. Could not a list of reliable motor experts be compiled? I am sure it would sell.—Yours truly,

J. DARLINGTON.

THE ANNUAL ANNIVERSARY RUN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Is it not a great pity that on the occasion of an annual automobile run the same town is not fixed upon for the different automobile clubs to drive to? I feel certain that a pleasant result would be obtained by the A.C.G.B.I. meeting with the Scottish, Liverpool, Yorkshire, and other automobile clubs. The place of meeting would have to be farther north than it is at present, so as to diminish the difference in the respective distances. Knowing well the widespread popularity of the *Journal*, I thought it best to put the suggestion in your hands.—Yours truly,

S. McKENNA.

A MYSTERIOUS ACCIDENT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—A friend nearly had an accident similar to that described by Mr. G. J. Cook—viz., a sudden swerve without apparent cause and nearly running into a wall. On investigation a stone was found under driving chain on back wheel, evidently thrown up by front wheel. A remedy appears to be to have the front splashers very low.—Yours truly,

T. CROSSINGHAM.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having read the letter of your correspondent, Mr. Geo. J. Cook, and also having read the account of the fatal accident at Handcross in the *Motor-Car Journal*, perhaps I may be able to explain what was undoubtedly the cause of the accident in each case, and the same theory will apply to other accidents of a similar nature.

It has been suggested that the steering is at fault. This is true to a certain extent, but to my mind the steering is upset by the differential gear seizing or locking on one half; this in many instances would throw one chain off and the drive would be taken on the opposite wheel, causing the car to career in a circle, if nothing was in the way; if otherwise, the result would be obvious.

At high speeds a tyre suddenly bursting on the rear wheel will cause the steering to be upset. If the differential gear works too tight it will not respond quickly. It would be wise for all owners of cars to occasionally take their chains off and turn one sprocket by hand; if the centre gear pinion is held slightly, the opposite sprocket should rotate freely in the opposite direction; where the differential is on the back axle the car should be jacked up, and by turning one road wheel the same test will apply; should all not be right, it should be seen to by a competent man. Many types of gears are so constructed that it is possible for them to be put together in such a manner as to give trouble and sometimes cause disaster.—Yours truly,

DAVID DOYLE.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Steypning	W. Brewer	19 m. p. h.	£5, etc.
"	S. A. Bailey	20 m. p. h.	£5, etc.
Greenwich	A. Gill, Blackheath	30 m. p. h.	£2.
Hawarden	F. B. Summers, Mold	30 m. p. h.	£5.
Tewkesbury	A. C. Glantworth, Bredon's Norton	—	£1, etc.
Woolwich	R. Cain, Pimlico	24 m. p. h.	£5, etc.
"	J. Dottridge, Bickley	24 m. p. h.	Dismissed.
"	G. Stevenson, Bromley	20½ m. p. h.	£2, etc.
Horsham	H. V. Long, London	—	"
"	A. E. Oram, Brixton	—	"
"	A. T. Mitchell, London	—	"
"	P. Eich, East Dulwich	—	"
"	G. Burton, London	—	"
"	C. Homewood, Balcombe	—	Dismissed.
Hatfield	P. Deneler, London	—	Warrant issued.
Guildford	H. F. Hood	20 m. p. h.	£3.
"	P. Louis	—	Adjourned.
"	A. Comerford	—	£2, etc.
"	H. Taylor	—	"
"	S. J. Watson, London	—	"
Shoreham	H. Waguelin, London	—	£10, etc.
"	G. Shenley	—	"
"	W. Randall, Hove	—	£3, etc.
"	F. Parker	—	£5, etc.

Where no alleged speed is given it is understood to be above the legal limit.
* Motor-cycle cases.

AT the Hatfield petty sessions, Paul Deneler did not appear in answer to summons for driving a motor-car furiously at North Mimms on November 1st. A Frenchman who was with him at the time appeared and said defendant was now in Paris. The Bench decided to issue a warrant for the defendant's arrest.

BEFORE the county magistrates, at Tewkesbury, last week, A. C. Glantworth was summoned for furiously driving a motor-car. The evidence of the police and their witnesses was that defendant drove a car belonging to his employer, Mrs. Martin, of Bredon's Norton, at the rate of twelve miles an hour through the village of Kemerton. Mrs. Martin expressed her regret at the occurrence, and offered to place the motor-car and driver at the service of the Bench if they cared to have a ride. The Chairman remarked that he hoped the driver would go at a more moderate pace if he took him. A fine of £1 and 14s. 8d. costs was inflicted.

AT the Woolwich Police Court, last week, J. Dottridge, of Bickley, was summoned, before Mr. d'Eyncourt, for driving a motor-car at a speed exceeding 12 miles an hour. The constable said he saw the defendant driving his car along the Eltham Road at a speed of 24 miles an hour. The defendant said his machine was geared up to 12 miles an hour, and it was quite impossible to get 24 miles out of it. The summons was dismissed.

BEFORE a King's Bench Divisional Court, composed of Justices Wills and Channell, on Friday last week, Mr. Lincoln Reed applied for a rule nisi for a writ of certiorari to bring up a conviction at Worthing on October 15th, when it appeared that Mr. George Wilder, of Emsworth, Hants, was fined for driving a motor-car at more than 12 miles an hour. The applicant alleged that the chairman showed that he was a prejudiced person, and should not have sat on the Bench. Mr. Justice Wills said there was nothing to indicate that the chairman of the Bench would violate his judicial oath and decide contrary to the evidence. The application was therefore refused.

AT Horsham, Charles Homewood, of Balcombe, who was summoned for exceeding the legal limit at Ifield, on November 2nd, pleaded not guilty, and was defended. Police-constable A. H. Farrow timed defendant close to the Sun Inn, and said he covered the measured quarter of a mile in 42 secs., or at the rate of 21 miles an hour. Defendant said he was 62, and had had the motor-car six months. The clock was striking ten as he left Balcombe, and a dog accompanied him. The police stopped him at five minutes to eleven—it was barely eight miles covered in 55 minutes. He pulled up at once when the policeman signalled. His dog, a little Scotch terrier (shown to the magistrates), kept up with him all the way. After a consultation, the Bench thought there was a possibility of a doubt, and dismissed the case. In regard to this case, Mr. Homewood writes:—"The action of the police was most unjust; evidently speed has nothing to do with it, they are stopping us all, and it does not matter at what rate we travel, I am quite convinced by my own case that it is not safe to go on the roads, and it is high time that there was something done to protect those who do not even travel the limit. This kind of thing is doing a great injury, and while it lasts I personally know many will not buy cars, who, like myself, would not wish to be constantly hauled up to a police-court."

SERGEANT JARRETT is still on the war-path, having secured another batch of motorists by means of his measured 176 yards at Ripley. The Guildford magistrates imposed a fine of £3 in each case.

TRADE DEVELOPMENTS IN LONDON.

We are this week able to give an illustration of the new premises which Messrs. Friswell, Ltd., have acquired, reference to which was made in a recent issue. They are situated in Albany Street, N.W., within a stone's throw of Portland Road Station, and have hitherto been known as the Albany Repository. On Monday last we had an opportunity of going over the whole premises from basement to roof, and were simply astonished at their extent. Including the basement, there are no less than five floors, on each of which motor-cars may be stored. There is a lift in the centre of the building, on to which cars can be driven from the road and conveyed to any part of the building. Some idea of the size of the lift may be gathered from the fact that at the time of our visit it contained a big pantehnicon, which was being loaded with furniture, on the top floor. The premises are undoubtedly well-adapted as a motor garage, for not only are they fire proof—each floor being made of solid concrete and the ceiling and girders covered in asbestos—but they are heated by hot water, and lighted throughout by electricity. Altogether the building is capable of holding no less than 700 cars. As mentioned in our issue of the 1st inst., it is intended to arrange the premises in three different sections. Block A will be used entirely for offices and show-rooms for Peugeot and other cars. In Block B large repairing shops, carriage building and painting departments will be established and the auctioneering business carried on. The most novel departure in connection with the new premises is the decision to set apart a large portion, to be known as Block C, as a garage for the use of clients absolutely free of charge. The idea of a free

carrying a lighted lamp through a yard, the vapour given off by the petroleum spirit became ignited, and if the efforts which were made to extinguish the fire had not been successful the result would have been disastrous. The magistrates commented upon the serious nature of the offence, but as the defendant pleaded ignorance of the regulations, only a small fine of 20s. and costs was inflicted.

WHEN DOES COMMISSION BECOME PAYABLE?

THE case of *Schultess Young v. The Speedwell Motor and Engineering Manufacturing Company*—a report relating to which appeared in these columns a week or two ago—came again before Judge Stonor last week at the Brompton County Court.

The plaintiff, it may be recollected, had formerly been in partnership with a Mr. Sadgrove, trading as the Pall Mall Motor and Cycle Company, Ebury Street, S.W., and claimed commission from the defendants in respect of alleged introduction of business. Plaintiff's case, briefly, was to the effect that a Dr. Fenton, for whom he and his partner had sold a motor-car, agreed that any other car which he might purchase should be bought through them. The doctor subsequently agreed to buy a car from the defendant company, and was said to have explained at the time that he was purchasing through the Pall Mall Company. The car appeared not to have been delivered to time specified, and was not painted the colour stipulated, and the doctor cancelled the order. At the last hearing the Judge pointed out



FRISWELL'S NEW "PORTLAND ROAD MOTOR STATION."

garage is a radical departure, and its result will be watched with interest. This decision has not been arrived at by Messrs. Friswell without full consideration, as it is estimated that they will receive compensation for the accommodation they are able to offer by supplying oil, petrol, and grease to their clients, and also by carrying out any necessary repairs on the spot. Some little time will elapse before the whole of the building will be available, a large amount of furniture having to be cleared out and alterations made to suit the new business, but the free garage portion is already in operation, having been opened on Friday last week. The situation is a good one, as, while close to Regent's Park, where intending purchasers of cars may be given a trial run, the premises are within a three-minutes' run of Regent Street, W. We have not space to refer to all the many schemes Mr. Friswell has in hand in connection with his "Portland Road Station," but those who wish to take advantage of the free garage would do well to make early application.

RAILWAY COMPANIES AND PETROLEUM SPIRIT.

A CASE was heard before the Oxford magistrates last week, in which the chemist of the Christ Church laboratory was charged with having handed to the Great Western Railway Company for conveyance a consignment falsely declared as ordinary petroleum, but which really consisted of petroleum spirit; also with not having observed the Government regulations in regard to packing liquids of such a dangerous character. It appears that during transit, when a member of the company's staff was

that there was some difficulty in regard to the plaintiff proceeding without his former partner, who is said to have disappeared. Mr. Schultess Young, senior counsel appearing for the plaintiff, now produced a large number of documents to show that Sadgrove was a consenting party to the action; and other papers to show that on May 17th last the partnership between plaintiff and Sadgrove was dissolved. Mr. St. Gerrans, counsel for the defendant, argued that the commission was not due until the purchase was completed, and that, as Dr. Fenton did not really purchase the car, no commission was payable by the defendants. The agreement to pay commission, however, was still in force with regard to any car which Dr. Fenton might purchase from the defendant company in the future. The point was argued at great length, but his Honour ultimately non-suited the plaintiff on the ground that the only person who could sue for the commission was Dr. Fenton, and that he was only entitled to recover commission in the event of his completing a purchase through the defendant company. His Honour allowed the defendant's costs.

A CASE OF MISTAKEN IDENTITY.

THE Monmouthshire police have made a singular mistake in reference to a summons which they caused to be issued against Mr. George H. Lanchester, of Birmingham, who had been proceeded against for driving a motor-car along the Usk Road at improper speed. At the previous court, held at Caerleon, Mr. Lanchester's brother stated that defendant was not

within miles of the distance at the time. Acting-Sergeant Smith alleged that the car passed him. At Caerleon Petty Sessions, on Thursday last week, Superintendent James stated that since the adjournment a month ago he had discovered that some mistake had been made in regard to the identity of the defendant, to whom he had written stating that it was his intention to apply for the withdrawal of the summons. The Bench, without any remark, consented to this course.

MOTOR AND VAN IN COLLISION.

At the Brompton County Court (London), last week, before Judge Stonor and a jury, Mr. Francis L. Merritt, motor-car builder, Loftus Road, Shepherd's Bush, W., brought an action against Messrs. Coomber Brothers, furniture removers, Notting Hill, W., claiming £23 12s. in respect of damage to a motor-car, alleged to have been caused through negligence on the part of one of the defendant's drivers. The plaintiff stated that on July 12th last he and his two sons were driving a motor-car in Devonshire Street, Hammersmith Road. On returning along the same road they found it impossible to turn, owing to the road being narrow, and they backed slowly—at about two miles an hour—into the Hammersmith main road. As they were crossing the road they saw defendant's van coming eastward rapidly towards them. He and a constable shouted to the driver of the van, who, however, appeared to take no notice. They had got the car almost across the road, and were near the farther kerb, when the pole of the van "lashed" obliquely into the side of the car.

The defence, briefly, was to the effect that the motor-car coming into the main road backwards was not properly managed, and that the accident occurred in consequence. The Judge said that the main question was whether those driving the motor-car were doing right in coming into the main road backwards as they had done. The jury returned a verdict in favour of the defendants. His Honour gave judgment accordingly, but allowed no costs.

MEASURED DISTANCES.

DURING the cases at the Steyning Petty Sessions last week it transpired that the police have a measured half-mile on the road skirting Henfield Common, and a measured quarter of a mile near the "Rock," at Washington.

As already announced, the police have a measured 200 yards on the Eltham Road, Eltham. As a result, three motorists were summoned at Woolwich last week.

THE Bridgwater police have a measured distance just outside the town on the Bristol road.

A CORRESPONDENT kindly informs us that a police trap is in operation on the Eastbourne Road, on the level stretch between East Hoathly and Horsebridge. A wire electrically connected with the police-station is fitted at each end of a measured furlong, whilst some distance farther on the police, in hiding, are also in telephonic communication with the station.

MR. A. F. PEMSEL, of the Hemel Hempstead Motor-Car Co., writes:—"Last week I watched two sergeants from the local police force measuring off the road outside Boxmoor Station (the main road from Watford to Aylesbury). I can only guess at their object in doing so. I should like, however, to state that motorists are in the habit of 'rushing' this level piece of good road past the station entrance, to the danger of vehicles entering or leaving the station yard from the said main road. I have occasion to notice this repeatedly, and wish there were some recognised means of warning automobile drivers of dangerous parts of the road where speed should be slackened."

A HONOR OAK PARK correspondent writes:—"Police trap between here and Eltham last Sunday afternoon."

A QUESTION OF ARREARS.

At Chelmsford County Court, last week, before his Honour Judge Tindal Atkinson, Messrs. Knight Bros., motor engineers, of Chelmsford, sued R. J. Vynar, of Chelsea, for £39 7s. 6d., arrears of instalments on the purchase of a motor-car.

Mr. F. P. Suthery, who appeared for plaintiffs, said the case was adjourned at the last Court for defendant to put in a defence. His wife now wrote to say he had gone abroad to see his sick father. Defendant himself wired from Prague, Bohemia, saying he had intended coming home, but had met with an accident. He also sent a medical certificate in German. His Honour said he should give judgment for plaintiffs, with stay of execution till after the next Court, which would give defendant leave to be heard. Defendant would have to pay the costs.

"BUYING" A MOTOR-CAR.

NICHOLAS J. WOOD appeared before Mr. Fenwick at Bow Street Police Court on Thursday last week to an adjourned summons charging him with obtaining a motor-car, value £1,600, by false pretences from D. M. Weigel, manager to the British Automobile and Commercial Syndicate, Ltd. Mr. A. Osborn appeared in support of the summons; Mr. Chas. Mathews, instructed by Sir G. Lewis, defended. It was alleged that on October 4th the defendant purchased from the complainant a Panhard motor-car value £1,600, in payment for which he gave a worthless cheque. The complainant, in reply to Mr. Mathews, said that no request was made to him by the defendant to hold back the cheque. After purchasing the car the defendant called at the company's premises almost every evening for petrol until October 9th. After a number of witnesses for both sides were heard,

the defendant then went into the witness-box and said that under the provisions of his father's will he did not come into his property until he was twenty-five years of age. When he purchased the motor from the complainant he certainly asked him to hold over the cheque for a few days, and he promised to do so. The case was again adjourned, Mr. Fenwick saying he wished to hear the witnesses for the defence as fully as he had those for the prosecution.

The case was further heard on Tuesday last, and in giving his decision Mr. Fenwick said it was one of those cases which ought to be fully investigated. The case depended upon how far the accuracy of Mr. Weigel's recollection as to what took place at the various interviews could be depended upon. He (Mr. Fenwick) was on the point of dismissing the case at the close of the evidence for the prosecution, but he thought it would be fairer to hear all that could be said. He did not say there was not a tittle of evidence against the defendant, but he did not think any judge would allow a jury to convict on such evidence, and the case would be dismissed, and he declined to commit the defendant for trial on the other charges brought against him. Mr. Osborn: On the part of the prosecution, I must ask you to bind Mr. Weigel over to appear at the Sessions with respect to these charges. Mr. Fenwick: Certainly; himself in £200 and two sureties in £100 each.

ACCIDENT AT MARKET HARBOROUGH.

AN inquest on the body of John Wilson, aged 26, a labourer, who was run over and killed on the Leicester road, just outside Market Harborough, was held last week. George Randall, of Debdale, said he was returning home from Market Harborough in a heavy cart. Before reaching the Workhouse Wilson came up, and asked for a ride. Deceased jumped on the cart, and all went well until they were near the Foxton cross-roads, when a motor-car passed them. He heard no warning of any kind. The horse was frightened by the "buzzing" noise, and started to gallop. Witness tried to pull him up, and then found that Wilson had slipped down, and was hanging on to the shafts. As soon as he had pulled up the horse he went back to the deceased, who had fallen on the roadway. Harry L. Stevens, coach builder, deposed that on the day in question he was riding on a motor-car from Market Harborough to Leicester. He had repaired the car for a Mr. Stainman, who had asked him to accompany him a little way, as he was doubtful about it working. Before reaching Foxton cross-roads they passed two or three carts, but he did not recollect passing Randall's cart. The driver sounded the horn before reaching the carts. The car was not going at more than ten miles an hour. The coroner, in summing up, commented on the variation in the evidence as to the speed of the motor-car, and the jury returned a verdict of accidental death, adding that they did not consider the motor-car was travelling at an unreasonable pace when it passed Randall's cart.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

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COMMENTS.



INTEREST in the Gordon Bennett Cup contest for next year has been revived by the visit of a deputation from the Automobile Club to Ireland. Various routes have been traversed and conferences have taken place with some of the most enthusiastic Irish motorists. It is thought possible that a circular route may be found most acceptable, and certainly from

a spectacular point of view such a course would be popular. But, before any definite proposal can be made, the consent of the French Club to the variation from a straight to a circular course will have to be obtained. Should the race eventually take place in the Emerald Isle the support of the Lord Lieutenant, the Earl of Dudley, may be confidently anticipated.

Numbering Cars.

THERE seems little doubt that many of the local authorities have taken their cue from what is known as the Montagu Bill, and are passing resolutions in favour of numbering with an unanimity that is almost alarming. At the invitation of the Yeovil Council, the local authorities of many rural districts are declaring that motor-cars should be regarded in a similar light to hansom and other vehicles, and, labelled with a number, go through the streets as though their owners were under "police supervision"—as well as amenable to the ordinary street regulations. This is a state of things never contemplated by motorists when the present agitation was inaugurated. And the pity of it is that it was practically begun in our own ranks.

The Logical Sequence.

SOME Councils are wiser than the promoters of the Bill, and at the meetings of the Welton District Council at Lincoln, the Kesteven County Council at Sleaford, and the St. Asaph Parish Council decisions to take no action in the matter have been arrived at. Unfortunately, however, a large number of approving resolutions have been passed, and the Branston (Lincoln) Rural District Council has attained distinction by deciding in favour of the numbering of automobiles, adding that the number should be placed "on the car near the lamps, so as to be visible by night as well as by day." And this is but a logical sequence of the unpopular numbering notion. This is a matter of supreme importance to the automobile movement, and having published the text of the Bill in our present issue we propose to return to the subject next week.

Poachers and Motorists.

"Truth" has not been unmindful of the treatment to which motorists have been subjected at the hands of county magistrates, although our contemporary slyly doubts if the owners of automobiles will find consolation in the reflection that "after all they are only experiencing the treatment to which poachers have been accustomed for generations"—a quaint

connection which finds illustration in the well-known Pillory of our contemporary as follows:—

Hawarden Petty Sessions.
Before Mr. W. C. Jones and other magistrates. George Wm. Bower, farmer, charged with cruelty to a bullock. The animal, which was suffering from consumption, was turned into a field and left there. An inspector found it in a dying condition, and on his intervention it was destroyed. Fined 20s. and costs.

Hawarden Petty Sessions.
Before same magistrates. Frank Bright Summers, charged with driving a motor-car at a greater speed than twelve miles an hour. The police-sergeant who pressed the case admitted that the road on which the offence occurred was quite clear of other traffic at the time. Fined £5 and costs.

Chelmsford County Police-court. Before Mr. T. Kemble and other magistrates. Charles Turner, charged with driving a horse and cart furiously. He was under the influence of drink, and his furious driving endangered a number of children in the road. Fined 15s., including costs.

Arundel Petty Sessions. Before Captain W. Kemp, Captain E. H. Hills, and Messrs. J. Harvey, and E. Henty. Allan Francis Fletcher, charged with driving a motor-car at a speed in excess of the legal limit of twelve miles an hour. Fined £7 16s.

The American Reliability Trials.

SCARCELY less astonishing than was the enormous number of perfect scores is the showing of the cars qualifying for first-class certificates in the recent New York to Boston and return reliability contest. Instead of about fifty winners of first-class certificates, as was generally expected, it turns out that there are sixty-five. That is to say, all the sixty-eight finishing cars except three averaged between twelve and fourteen miles an hour for the entire 488 miles of the distance between New York and Boston and return. Furthermore, one of these three cars was awarded a second class certificate, while another vehicle was given a third class one. In addition to the seventeen cars which tied for the President's Cup, there were twenty-five cars that averaged exactly fourteen miles an hour. Other cars to the number of thirteen averaged thirteen or more miles per hour, leaving a comparatively insignificant minority to fall below thirteen miles. Equally remarkable is the showing of points. Turning from the seventeen cars with 2,092 marks to their credit—the highest possible—it is found that four cars fell but one mark each short of this number. Then came two with 2,090, one with 2,089, four with 2,088, two with 2,087, one with 2,086, and two with 2,085. Thus it is seen that thirty-two cars—roughly just one half of those which finished—came through the ordeal with a loss of but seven or less marks.

Litigation in Ireland.

OUR pages this week contain a summary of a case which has occupied one of the Dublin law courts four days, providing some very entertaining "copy" for the Irish newspapers. In opening the case the Solicitor-General for Ireland gave a dissertation on motoring. The motor-car, he said, seemed to possess a great many attractions. In the first place one was almost certain to come to grief in some shape or other, either by colliding with a tramcar or a lamp-post, or a foot passenger, or other obstacle. Then, again, one had his whole internal

organisation shaken out, and he had also the delightful prospect of knowing that at any moment the whole thing might explode, and polish off both himself and his machine. These were some of the attractions of motor riding as he understood it, and he mentioned them for the purpose of impressing upon the jury that in any transactions between two gentlemen involving the sale or purchase of a motor-car, there was a strong duty cast upon the vendor of making a correct representation of its state and condition, and not conceal the defects which it would be necessary the purchaser should have in his knowledge. In reading the full report of the case, we have been struck by the strength of the language used in the case. In fact, the Judge had to ask the jury to leave out of mind the effect of the bad language, which had been as bad on one side as the other. There was little law in the case, and "the whole thing had been just tossed to the jury." In the end they disagreed—after a four days' hearing and evidence from two English witnesses, one on each side.

An Enthusiastic Yorkshire Motorist. THERE are few more enthusiastic motorists than Mr. H. R. Kirk, of Castle Grove, Headingley, and fewer still, perhaps, who can so successfully inspire enthusiasm in other folk. Until a year or so ago, all Mr. Kirk's energies were devoted to running a stud farm, which he owned and worked, and from



Photo by]

[Green Brooks.

which he turned out annually some very valuable Hackneys. He is a keen sportsman, and a life member of the Hackney Horse Society and of the Yorkshire Agricultural Society. An invitation from a friend to go a-motoring resulted in Mr. Kirk, like Oliver Twist, asking for more, and so irresistible did the delights of these excursions become that it was not long before he placed an order for his first motor-car. The first ride on the new vehicle was from Paris to Leeds, since which time he has covered many thousands of miles in this country and on the Continent. This ride was followed in a week or two by the local papers announcing the fact that the whole of a valuable stud of horses was to go to the hammer, "owing to the owner investing in motor-cars." Mr. Kirk is now

a member of the A.C.G.B.I., and also of the Yorkshire Automobile Club. As might be expected, he has had many interesting and exciting experiences since he took to the King's highway, and it is very gratifying to be able to chronicle the fact that, under all conditions of road and weather, he has never met with an accident, and, what is perhaps more important in some people's eyes, has avoided hurting the susceptibilities of the "gentlemen in blue." The first garden party to the members of the Yorkshire Automobile Club was given by Mr. Kirk in the grounds of Castle Grove, when, among other features, he organised a hill-climbing competition, awarding three prizes to the successful competitors. Mr. Kirk's present stud consists of an 8-h.p. De Dion, a 7-h.p. Panhard, a 12-h.p. Gladiator, and a 16-h.p. Panhard.

"A Motor-Car Accident."

JOSEPH BURNHAM, a hotel omnibus driver, has died at Stamford, from injuries received in an accident. Deceased's horse was startled by the Marquis of Exeter's motor-car, and, swerving suddenly round, threw the driver from the seat on to the road. At the inquest a verdict of "accidental death" was returned. Although the regrettable accident was in no way due to the motor-car but to the restiveness of the horse, which would probably have acted in a similar way had any other apparently unfamiliar object come that way, the newspapers have not hesitated to describe the affair as "a motor-car accident," and some have gone so far as to head their reports, "Killed by Lord Exeter's motor-car."

The Sheffield Club's Run.

ON Saturday, the Sheffield and District Automobile Club held its inaugural run to Worksop. The Club has already seventy-six members, and more than half of these formed into procession by the Town Hall on Saturday afternoon. At the head of the line was the president of the Club (Mr. B. Harvey Foster), on his 10-h.p. Wolseley car. A 24-h.p. Napier, owned by Mr. E. P. Reynolds, one of the vice-presidents of the Club, attracted much attention. Mr. J. R. Wade (hon. sec. of the Club) had a 12-h.p. Belsize, and the company included Mr. Herbert Barber, on a Mabley car; Mr. D. H. Bookless, 5-h.p. Marshall; Mr. E. F. Coupe, 8-h.p. Daimler; Mr. John Ellis, 8-h.p. M.M.C.; Mr. Gerald Flather, 1½-h.p. Werner; Mr. Harold Hill, 10-h.p. Benz; Mr. Benjamin Hind, 6-h.p. Darracq; Mr. W. James, quadricycle; Mr. F. Mellowes, 9-h.p. Napier; Dr. Parsons, Rochet car; Mr. J. H. Pickford (Rotherham), Kimberley Daimler; Mr. J. Robson, 4½-h.p. Locomobile; Mr. S. J. Robson, 4½-h.p. Locomobile; Mr. F. G. Smith, 4½-h.p. Locomobile; Mr. J. Truelove, 12-h.p. Belsize; Mr. W. Watts, 6½-h.p. Humber; Mr. Brook Shaw, 5 h.p. Decauville; and Mr. A. J. Blyde, 4½-h.p. voiturette. About half-past two the procession moved off down High Street, headed by the president in his car, and marshalled by Messrs. F. B. Cawood and Jas. Barber.

To Worksop.

AFTER passing through Darnall and out into the country districts speed was increased. Mufflers and overcoats were adjusted, rugs tucked tightly in, and masks put on to protect the face from wind and dust. There was little time for contemplation, but the mind received an infinity of fleeting impressions. Woodhouse Mills was soon passed through, and a few minutes later Swallownest came in sight. At Aston, a little further on, a brief halt was necessitated. Passing along the main road to the cemetery was a funeral, and the cars drew up and waited until the mourners had entered the church-yard. Several short steep hills tried the powers of some of the smaller cars and cycles somewhat severely, but they were all successfully negotiated. South Anston and Lindrick were reached soon after, Gateford was skirted, and a little after four o'clock Worksop came in view. Incidents were few on the journey, and all the cars and cycles reached their destination safely. About half way on the

journey of 19½ miles a little knot of policemen, accompanied by a constable with a bicycle, were observed on the look-out for motorists exceeding the legal limit of speed, but the members of the Club were proceeding at a reasonable rate, and the services of the "men in blue" were not called for.

The Future of the Club.

THROUGH the hospitality of the president of the Club the members were entertained to dinner at the Red Lion Hotel, Worksop, and the refreshment was heartily welcomed. Mr. Foster presided over the company, numbering about sixty, and there was a short toast list. The health of the President was proposed by Mr. Barber, and very cordially honoured. He announced that Mr. Foster had presented two cups for hill-climbing competitions. Mr. Foster, in responding, said that their run had been a most successful one, and if supported by their members they would be able to make their Club the first out of London. They had more members than, he understood, any Club out of the metropolis. No less than thirty-seven cars had assembled that day, and he did not think that any other provincial Club had mustered so largely on the occasion of their first run. Mr. J. R. Wade (hon. sec.), responding to the toast of "The Club," pointed out that they had seventy-six members on their books, and he did not think that any other Club had enrolled so large a number in such a short time as they had done. The Committee, he added, had made arrangements for the storage of cars in Sheffield either for one night or for a period at special rates. The party then broke up, and the majority of the company returned home, the journey in the evening twilight being a novel and exceedingly pleasant experience.

Motor-Omnibuses.

MOTOR-OMNIBUSES are likely to be a prominent factor in the traffic of London streets next summer. At the present time such a vehicle, to ply between Oxford Circus and Cricklewood, is being constructed by Stirling's Motor Works, Limited, for the London Motor Omnibus Syndicate, and there has been quite an outbreak of paragraphs in the London press with regard to the enterprise of the London General Omnibus Company in a similar direction. Meanwhile it is interesting to know that satisfactory reports continue to come to hand with regard to several motor-vehicle services that have been established in various places.

The Question of "Goggles."

THIS question will naturally appeal to all motorists, and no doubt many have heard, as we have, as motor-cars pass in town, with passengers all "begoggled," the remark made, "How ridiculous!" And so, at first sight, it would seem; but our experience is that the eyes need more protection in town than in country. In town the dust is unwholesome and chemically injurious, and this dust is kept in perpetual circulation by the traffic; but in the country the dust (when there is any) is left behind, and a journey from Brighton to near London can be made without the use of glasses, until almost in town, when it is found that the eyes begin to "smart." Should the writer have his glasses on when nearing town he would not take them off; but, again, if he was not wearing them, would put up with the inconvenience rather than wear them, for the sake of appearances.

"Goggles" and "Goggles."

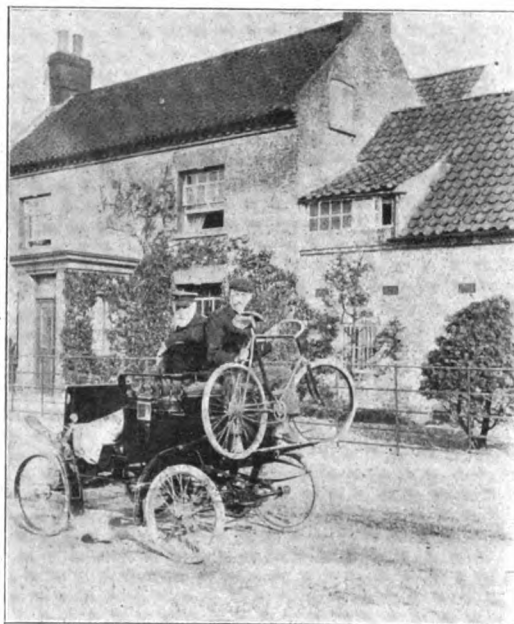
CONCERNING the subject generally, we should like the opinion of our readers whether it is best to ride entirely without glasses, except, of course, in a dust storm, or whether it is best to use them, especially when travelling at speeds exceeding the legal limit. Without them, the eyes "run" continuously, and at the close of a long ride, and for several days

afterwards, grit is found exuding from the corners of the eyes, especially in the mornings, on awakening from sleep. The wearing of the glasses a portion of the day and then omitting to put them on, we are afraid, would cause neuralgia, and therefore if one can travel safely without their absence causing inconvenience it would certainly be an advantage.

Motor Matters Generally.

ALTHOUGH common in France, the Limousine body has only recently become popular in this country, and the appearance of the covering on the car generally evokes admiration from the onlookers.

The idea of having a glass shield and curtains to be drawn or otherwise, as desired, seems splendid, but in regard to the glass front extreme care should be taken as to its use. Perhaps when starting on a journey the screen will be down, and after going some distance it will be raised, and then the passengers may for certain expect a chill or influenza. In extremely cold weather, when going a distance the glass will be found most comfortable, sheltering and shielding the passengers from the chilly blast; but if a storm arises, then the glass has to go up again through the impossibility of the driver seeing through an opaque mass caused by the mud.



MR. J. V. KINSLEY, OF BRIDLINGTON, GIVES A STRANDED CYCLIST A LIFT ON HIS "LOCOMOBILE."

Maidenhead Bridges Tolls.

MR. G. S. D. MURRAY has held an inquiry (on behalf of the Charity Commissioners) at the Town Hall, Maidenhead, "in the matter of Maidenhead Bridge and of the endowments thereof or attached thereto, and in the matter of the Charity Trust Acts, 1835 to 1894." It will well be within the recollection of our readers that Mr. Joseph Taylor, of Eton, was the first to bring to the public notice the alleged illegalities as to the levying and appropriation of tolls for passage over Maidenhead Bridge. In the latter stages of the agitation, Mr. Taylor has had associated with him Mr. Fullbrooke, of Slough, and Mr. C. Howlett, of Eton. To the petition which Mr. Taylor addressed to the Charity Commissioners, and which resulted in the present inquiry, there were no less than forty-six signatures of representative public men in the counties of Berks and Bucks. At the inquiry amongst those present were the Town Clerk, Mr. Battelley (solicitor for Mr. Joseph Taylor), and Mr. Staplee Firth, who appeared for the Automobile Club.

**Illegal
Tolls
Levied.**

IN the inquiry the case of Mr. Fullbrook, who in April, 1900, was stopped when driving a motor-car and eightpence was demanded of him, came into considerable prominence. Subsequently, in September of the same year the Town Council passed a resolution that the toll for motor-cars should be 6d. per day, and for motor-cycles 3d. per day. Mr. Firth referred at length to this matter, and argued that if the Corporation had a right to levy toll, the charge in Mr. Fullbrook's case could only have been 2d. Mr. Stuchbery said that frankly he thought 2d. to be the proper toll, but he had not the authority of the Corporation on that point. The Commissioner asked what would be the best way of bringing this before the Corporation, for if it was a public grievance, and a fair grievance, the sooner it was remedied the better. Mr. Kick, the Town Clerk, promised to bring it before the Council, so that another grievance is on a fair way to settlement. The Commissioner intimated that the Commission would probably be disinclined to say much about the errors of the past in consideration of the whole matter being put on a proper footing in the future. Efforts will now be made to free the bridge. In this connection we would remind our readers of the Maidenhead Bridge Legal Expenses Fund, subscriptions to which can be sent to Mr. J. Taylor, Mr. Cecil Hewlett, Eton, or to Mr. J. Fullbrook, of Slough.

**The Lincolnshire
Automobile
Club.**

THE Lincolnshire Club's final run of the season took place on Saturday, when Newark was the rendezvous. Owing to the bitterly cold weather only a limited number made the journey, but the roads were in fine condition. The Chairman, Mr. C. W. Pennell (Lincoln), was present. Mr. Hole drove his 16-h.p. Panhard, and there were also present—Mr. J. R. Richardson, Mr. W. Pennell, Mr. Combes, Mr. T. E. Foster, Captain Newsum, all of Lincoln; and Captain and Mrs. Lyall, Grantham. The types of machines included 8½-h.p. Buchet, 8-h.p. De Dion, 3½-h.p. Star, 6½-h.p. Darracq, and others. It was the smallest meet of the season, the record being that to Bawtry, when eighty cars turned out. Tea was served at the Ram Hotel, and afterwards the return journey to Lincoln was made.

**American
"Justice."**

THE anti-automobile fever seems to be an international complaint affecting all armed with a little brief authority. Recently a motor-car and tramcar collided in the streets of New York, and as the latter got the worst of the encounter vengeance was wreaked on the driver of the other vehicle. Twenty persons were hurt, and the luckless driver was sentenced to six months' imprisonment. With a celerity that is not usually associated with legal procedure, the victim's hair was clipped, his moustache razored clean away, and he was accoutred as a convict. Notice of appeal was given, and the disfigured motorist is now out on bail. This method should suggest new forms of punishment for motorists to many of the prejudiced persons who sit on our magisterial benches in this country. Upon hearing her husband fined for exceeding the automobile limit in New York Mrs. Foxhall Keene is reported to have said, "We will go to England to live; there is no justice here." Apparently there is little to choose between America and this country in this respect.

Club Discussions.

EVIDENTLY the Executive Committee of the Automobile Club recognises the necessity for the provision of standing orders in connection with the reading of papers and the discussions thereon. Based on the experience gained in the forum at Whitehall Court, it has been officially suggested that the opening paper should occupy twenty minutes in reading, thus making an effort at uniformity which might well be developed into

limitation of the length of speeches in the discussions. If the latter suggestion were adopted it would always be possible for the time allowed any specially interesting speaker to be extended; but, if the popularity of the discussions develops, the adoption of rules of debate will become necessary. Mr. C. Jarrott is to be asked to read a paper on Motor-Car Racing after Christmas, and if the Committee will arrange the remainder of the programme in good time, busy men will be able to keep the evenings of the Club discussions free from other engagements.

Local Debates.

IN addition to the discussions at the leading organisation of the automobile movement, papers are being read before many of the provincial Clubs, and the leading local organisations of engineers in the country. In this way much is being done to popularise automobilism, and we shall be pleased to receive early intimation of meetings at which the motor-car will form the subject of discussion. At the Rochdale Technical School, Mr. McNeil, of Manchester, recently lectured on the subject under the auspices of the Rochdale Engineers' Improvement Association, and at Bath we notice a local debating society has had quite an exciting evening in discussing the manners and behaviour of motorists on the King's highway.

**The Gordon Bennett
Cup Race, 1903.**

THE Executive and Races Committees of the A.C.G.B.I. have agreed that the Motor Power Company should be nominated to enter two Napier cars for the Gordon Bennett Cup Race, 1903, the decision as to the third car to be arrived at by an eliminating test. A cheque for £120 has been received from the Automobile Club of France in respect of three cars entered by the Club as challengers for the Gordon Bennett Cup race.

UNDER the auspices of the Aero Club there will be a balloon meet at Prospect Park, Reading, on Saturday, the 6th Dec. Several prizes are being offered in connection with the event.

WE understand that another meeting has this week been held between the railway companies and the petroleum spirit traders on the carriage question, but that no tangible result can yet be reported.

IN a speech at Belfast on Tuesday, Lord Dudley said that the establishment of motor-car services would be more satisfactory in many parts of Ireland than the establishment of light railways. It was a matter that Mr. Wyndham, the Chief Secretary, had very much in mind.

THE MOTOR MANUFACTURING COMPANY, LIMITED, are now in occupation of their new show-rooms at 95, New Bond Street, W., which it is expected will be more central and found more convenient to their clients. They are not able to carry out repairs at the new depot, but have made arrangements for them to be done in the vicinity by workmen well experienced in this class of work.

ON Saturday week a meeting of local automobilists took place at Market Deeping, Lincolnshire. Amongst those present were Mr. Huntley Gordon, on a 10-h.p. Pick, Dr. Benson, Dr. Gilpin, Messrs. Carter, Densham, Tryon, and Greenfield, all on their cars. After an exhibition, showing how easily the large cars could be manipulated, the party adjourned to the New Inn for dinner. A discussion followed on the merits of the respective cars.

A COMMITTEE of the Breconshire County Council has made a tour of inspection of roads in the county by motor-car, traversing in all a distance of about 200 miles. The cars which carried the Committee were a 10-h.p. Wolseley, lent and driven by Capt. D. Hughes Morgan, of Brecon; a M.M.C. car, lent and driven by Col. Thomas Wood; a four-seated Locomobile, also lent by Col. Wood; and a 3½-h.p. Benz Victoria, owned and driven by the County Surveyor, Mr. C. W. Best, who was accompanied throughout the trip by the Chairman of the Main Roads and Bridges Committee of Breconshire.

"LET WELL ALONE."

BELOW we reprint the text of the Registration of Motor Vehicles Bill, introduced by Mr. Scott Montagu, M.P. This proposed legislation is the outcome of that gentleman's own work and that of the Legislative Committee of the Automobile Club. Our readers can now judge for themselves what effect the passing of such a proposal will have upon the motor industry of the country. Our own opinion, and we are fain to think it is the view of the majority of automobilists throughout the United Kingdom, is that, should the above Bill pass through Parliament, motorists will labour under greater disabilities than they do at the present time.

The memorandum states that: "The object of this Bill is to prohibit the use on public highways of motor-cars, light locomotives, and such-like vehicles unless the owners are duly registered and the cars numbered, and unless proper means are taken under regulations of the Local Govern-

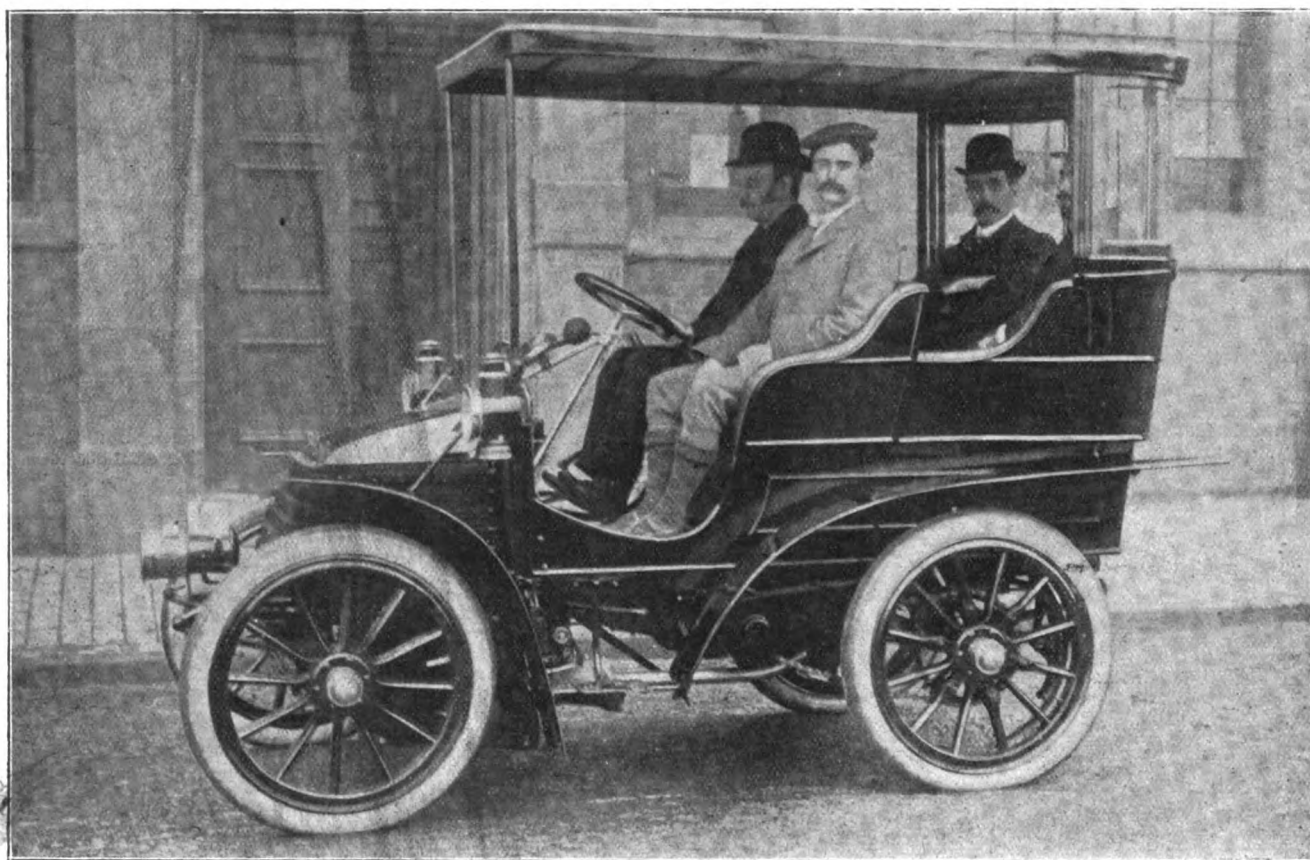
2. In addition to the powers conferred by the Locomotives on Highways Act, 1896 (herein-after called the principal Act), and notwithstanding anything in the said Act contained, the Local Government Board may make regulations.

(1.) Prescribing the conditions under which and the mode in which and the places where the registration and numbering of such vehicles may be effected and the persons (residing in the United Kingdom) also may be registered as owners of such vehicles.

(2.) Fixing a sum not exceeding *five shillings* per annum for each vehicle, which shall be charged and paid to the County Council in whose district the licence is granted as duty or licence in respect of such registration, and which duty shall be levied and dealt with as the additional duty imposed by the principal Act, such licence money to be applied in aid of the Highway Fund of such County Council.

3. The person proceeded against for breach of any byelaw or regulation made under this or the principal Act or of any provision of such Acts may appeal to the Court of Quarter Sessions.

4. "Vehicle" shall mean and include any vehicle referred to as light locomotives in the principal Act as well as any vehicle propelled by



LORD STANLEY'S 10-H.P. WOLSELEY CAR—MR. H. AUSTIN AT THE WHEEL.

ment Board for ensuring the identification of the persons owning or unlawfully using them, and their punishment for breaches of such regulations.

"The restrictions on this mode of transit are made more elastic and more suitable to the varying conditions of traffic in different places and at different times.

"Aggrieved persons are given a right of appeal in the usual way against convictions by justices.

"The powers conferred upon the Local Government Board are extended so as to include vehicles of a somewhat greater weight and capacity than were provided for under the principal Act."

A BILL TO PROVIDE FOR THE REGISTRATION OF MOTOR VEHICLES, AND TO AMEND THE LOCOMOTIVES ON HIGHWAYS ACT, 1896.

Be it enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

1. After the commencement of this Act any person driving or assisting to drive a vehicle as herein defined on a public highway shall, unless some person is registered as owner thereof, and unless such vehicle bears thereon a number or such other mark of identification as may be prescribed, be guilty of an offence punishable summarily.

mechanical power if it is designed to carry its load upon its own platform, and does not exceed, including such load, a total moving weight of *fourteen tons*, or when used for the purpose of drawing one vehicle does not exceed a joint total moving weight of *twenty tons*, and which is so constructed that no smoke or visible vapour is emitted therefrom, except from any temporary or accidental cause.

5. The Locomotives on Highways Act, 1896, is to be read as one with this Act, except section four, which is hereby repealed.

6. This Act may be cited as the Locomotives on Highways Act, 1902, and shall come into operation on the *first day of January, nineteen hundred and three*.

THE Automobile Club of America has resumed the regular weekly talks, which proved so popular last winter. On the first night the subject was the recent reliability run to Boston and back.

THE Baldwin Chain and Manufacturing Company, of Worcester, Mass., U.S.A., have sent us a chart giving illustrations and sizes of the various types of chains they manufacture for use on motor-cars.

CONTINENTAL NOTES.

BY AUTOMAN.

ONE of the most interesting problems in connection with motor-cars has always been the question of the most suitable ignition. Incandescent platinum tubes held their sway for years, and some of the best manufacturers of automobiles would not hear of any other system, and ridiculed electricity as a means of igniting the explosive mixture in the cylinders. Notwithstanding all opposition, however, electric ignition made its way steadily and finished by entirely supplanting tubes, which are now a thing of the past. They have been banished for two reasons, first on account of bother with the burners and the attendant risk of fire, and, second, on account of the fact that tube ignition cannot be retarded or advanced. The only defect of the



THE "AUTO-VELO" TROPHY,

Awarded to Messrs. Werner Frères for the best average motor-cycle performances in the Paris-Vienna Race, the points being allotted for reliability, speed, and regularity.

electrical ignition is, perhaps, the attention required to the batteries and the recharging or renewing of the same. In order to overcome this trouble dynamos and magnetos have begun to replace batteries. With the first there is the danger of burning out the armature, if too high a speed be reached, and the difficulty of getting a spark at a slow speed for starting purposes. The magneto, on the other hand, gives a current at a low speed, and for all practical purposes cannot be burnt out. Hitherto with the magneto the spark has been produced by means of a sudden rupture of the circuit in the cylinder. This necessitates a mechanism more or less complicated, worked by the cam shaft, and requiring several small springs; the method of retarding or advancing the ignition has to be applied to this mechanism, which needs also provision to prevent an accident, should the motor back-fire. All of this constitutes a certain difficulty, and adds to the cost and care of a motor. It is, however, or was until a few weeks ago, perhaps the most satisfactory form of ignition, and as such was adopted in most high-class cars on the Continent.

HERR EISEMANN, of Stuttgart, has, however, invented and perfected a new form of ignition, which is, I think, destined to become universal, and which is actually creating a sensation here in automobile circles. It has been adopted for the new Mercedes cars, and I had the good fortune to be able to examine the other day the first that has been imported into France, and which had just completed a trip of 1,000 kilometres on a 40-h.p. Panhard. It is a magneto of the ordinary type, but with two commutators, which form part of the machine itself. One of these collects the alternating current and converts it into a continuous current; the other distributes the current to the four cylinders. The continuous current from the magneto passes into a transformer coil in the secondary circuit, which gives a high-tension current, capable of flying across the terminals and creating a very long spark. I actually saw a spark of nearly half an inch when the machine was revolved by turning the driving shaft by hand. The armature of the magneto is carried on a sleeve on the driving shaft, and its position can be changed with regard to the driving shaft in such a manner as to advance or retard the ignition by cutting the lines of force earlier or later. The whole apparatus takes up very little more room than the ordinary magneto, and can be placed close by the cylinders, so that the high-tension wires will be very short, and will not be in proximity to other parts of the metal work. The only difficulty I can foresee in this new ignition is the question of the insulation of the high-tension wires, but they will be so short and direct that I think a little care in the placing of the apparatus will entirely obviate this danger.

A SPECTATOR of the kilometre trials on the Dourdan road informs me that a Wolseley car turned up for trial the other day with a Buchet four-cylinder vertical engine replacing the horizontal type which has been for so long one of the distinguishing features of this car. The car was, I believe, of the 30-h.p. type, but the trials were not successful this time, as it seemed difficult to get all the cylinders to work together, and little over forty miles an hour was accomplished. The car was then taken to the workshops of Buchet to have the difficulty remedied, and finally, as I am informed, it was decided to put off further trials until a more powerful machine arrived.

THE Dourdan trials are, however, suspended for the time being, as there is a little difficulty between the police and the A.C.F., owing to the latter having neglected to obtain the necessary permission or authorisation for the holding of these trials. It is quite likely that these difficulties will be satisfactorily arranged in the near future, for the Government is watching over the automobile industry in France, and does not intend to allow any "motorphobe" mania to seriously endanger its progress. The inroads in the French trade already made by the Cannstatt Daimler Company with the Mercedes car, which is being imported into France very largely, is giving the trade food for reflection, and showing them that they must look to their laurels.

THE other day I happened to be at the Hotel du Lion d'Or at Rheims, in the Champagne district of France, and I met Baron Pierre de Crawhez, chairman of the Racing Committee of the A.C.B., and president of the Automobile Club of Namur and Luxembourg, who organised the Circuit des Ardennes last summer. I had not seen the Baron since I met him on the Bastogne road, when his 70-h.p. Panhard was lying in the ditch as a result of a collision with Coppee. Rheims seems to be the half-way house between Brussels and Paris, and the Lion d'Or has a large garage for motor-cars. The Baron spoke to me about the Gordon Bennett Race for 1903, and made the following suggestion, which will no doubt interest English readers. Should it be found impossible to run the cup on British soil, the most natural country to run it in would be Belgium, where the Circuit des Ardennes presents a suitable course, provided the A.C.F. would accept it. There are many reasons in favour of this plan, for Belgium is in the centre of the competing countries, Germany, France, and England,

and consent would be given without any difficulty by the local authorities, who have full powers over the roads. The cost would be very small (about £40 would be required for communal authorities). The roads are, as it will be remembered by those who took part in the last race, excellent, and the means of transport and accommodation for visitors can be easily and comfortably managed by special trains with sleeping and dining cars. It is likely that a Belgian car will compete next year, for I understand one is being specially built by M. H. P. Dechamps, who has left the works which bear his name, and who has commenced manufacturing automobiles in partnership with the Baron de Caters, in the Avenue van Volxem, at Bruxelles-Forest.

ON Thursday morning last week, at the Place de la Concorde, Paris, the trials of delivery wagons, light and heavy, began, and on Wednesday evening last they came to an end. The trials were divided into two distinct sections, namely, "town service" and "suburban service." The first section was divided into five different categories, namely: (1) Cars for two or four people, without luggage, with arrangements for making them open or closed. (2) Cars for four people, with a gallery to carry 66 lbs. luggage per passenger. (3) Cars for six people, with gallery to carry 66 lbs. luggage per passenger. (4) Delivery wagons carrying 10 to 14 cwt., and with a seat for a porter. (5) Delivery wagons carrying 6 to 10 cwt., and with a seat for a porter. The second section consists of two classes, namely, cars carrying at least 15 cwt. of goods, and with a seat for a porter, and cars carrying at least one ton.

THE weather was abominable; it had been snowing all the night before the trials began, and snow was still falling fast at 8 a.m., when the first car left the Hotel Pastoret on Thursday morning. Out of twenty-one entries, twenty cars came up to the scratch. Out of the starters there were fifteen arrivals, who had braved the intense cold of the morning's frost and the difficulties and dangers of the return through the mud and slush of the thaw which began during the morning. On Friday the frost came on again keener than ever, and the drivers and observers were literally covered with icicles when they returned. There were eighteen starters, and seventeen arrived in good time, one heavy delivery wagon remaining with its radiator frozen up at Versailles, two hours being lost in getting it thawed. On Saturday the same eighteen set off again, and the weather was still keen, the roads being in splendid condition, dry and hard. Seventeen of the competitors returned in good time, but the eighteenth, a Huber limousine, had a collision with another vehicle, and did not complete the day's run. On Sunday there was a day of rest, save for those who had repairs to execute, and

the committee of the Club examined the cars and took notes of the repairs effected, in order that they might count in the ultimate results. Amongst the competitors, there are no cars using alcohol, but this is due to a defect in the programme, for the consumption is taken in litres of either fuel, and no allowance is made for alcohol, which is always slightly in excess in consumption over benzine.

THE Compagnie Generale des Cycles et Automobiles Rochet, of Paris, has acquired the patent rights in the Chapelle motor-bicycle. M. Chapelle has joined the Rochet Company, and will superintend the manufacture of the machines.

It is not only English motorists who are suffering at the hands of the police in the way of traps and measured distances. It is the same in the Liege district of Belgium. A meeting of the Liege Automobile Club has just been held to protest against the rigour with which the police are prosecuting *chauffeurs*. It was stated at the meeting that during a single year no less than 1,500 charges had been brought against motorists, the bulk being of a trivial character, secured by policemen hiding in hedges and among groups of farm labourers. It was decided to bring the matter before all the other automobile clubs in Belgium, with the view of taking the matter to Parliament.

ON my last visit to England I was much struck to see and hear that there are still British advocates of the system of numbering of automobiles, in

spite of the fact that it has been proved a failure wherever it has been adopted on the Continent. It has either resulted in indiscriminate fines without a fair hearing, as has been the case in some parts of Belgium; or in protracted legal proceedings ending in the discomfiture of the police, as in France. In the first place it does irreparable harm to the trade, and in the second, whilst putting individuals to great trouble and expense, it makes a mockery of the law and encourages evil-doers to defy it. What a strange thing it is that we always insist on learning our lessons by bitter experience of our own, instead of profiting by the experience of others. In the case in question it would be so easy to avoid taking the wrong course, and it seems to be flying in the face of Providence to neglect to take the advice of our neighbours across the Channel.

THE Wirral Motor and Cycle Company, Limited, has been registered with a capital of £3,000 to take over the Wirral Cycle Company as now carried on at Seacombe, and to develop and extend the same. The registered office is at 22, Brighton Street, Egremont.

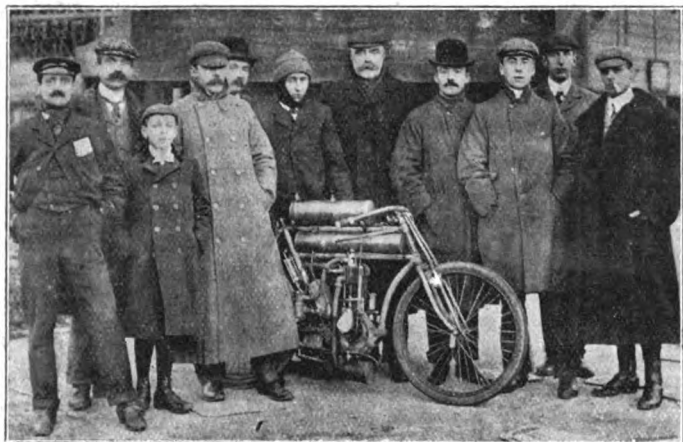


MODERN EXCURSIONISTS AT THE LION MOUND ON THE BATTLEFIELD OF WATERLOO.

[L'Automobile Illustrée.]

MOTOR-CYCLING NEWS.

THE advance of the motor-cycle has been very marked within the last few months. This application, which the production of the light internal combustion motor has rendered possible, offers a self-propelled vehicle to the multitude at a price befitting their pockets, both in original outlay and cost of operation. The outlay on petrol is almost infinitesimal and the performance of these machines excellent. If one may judge from the activity in this department noticeable at the Cycle Shows this week, the cyclist has taken up, or is expected to take up during the coming season, the motor-bicycle with enthusiasm.



GROUP TAKEN AFTER THE RECORD RIDE BY F. W. CHASE LAST WEEK ON THE "BAT" MOTOR-BICYCLE.

WE regret to note a tendency to build motor-bicycles with motors of high horse power. While this may meet the requirements of the few, we consider that for ordinary use a machine fitted with a motor of not more than 2-h.p., carefully designed to reduce weight to the lowest possible point without sacrificing strength and durability, will best meet the demands of the average motor-cyclist. The modest powered machine can attain a fair speed, but yet can be pedalled home in case of motor troubles. It is possible that the two-speed gear may come into general use on motor-bicycles, so that, even with a moderately-powered engine, the stiffest gradient can be surmounted without resorting to the use of the pedals.

IN the details of modern motor-bicycles many ingenious devices are to be found, a proof of the great attention which is at present being centred on these machines. Notwithstanding the introduction of several chain-driven motor-bicycles, the belt drive appears to be holding its own. The Minerva position of the motor is still to be found on a large number of machines, but the favourite location seems to be vertically in the frame just forward of the bottom bracket. Spray carburettors are displacing those of the surface type, exhaust valve lifters are becoming general, and altogether the motor-bicycle of to-day shows a marked advance on that of a year ago.

A MONTH or so ago we illustrated and described the new bicycle motor which is being introduced by Messrs. De Dion and Bouton. Since that time a number of further improvements have been incorporated, and in the latest form radiating fins are again provided on the full length of the cylinder. The arrangement of the exhaust valve and contact breaker at right angles to the plane of the fly wheels is retained, but the contact maker itself has been re-designed, and is now on the positive make and break principle. The width over the crank case is four inches, which enables the motor to be fitted within a narrow tread width. With the motor a simple form of float feed spray carburettor is being supplied.

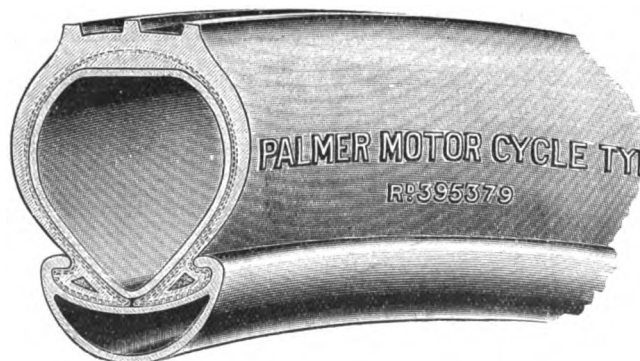
THE members of the Motor Cycling Club will hold a run to Dunstable on Sunday next, meeting at the Marble Arch at 10.30 a.m.

THE HUMBER COMPANY's novelty for 1903 is the adaptation of their chain-driven motor-bicycle to the Olympia, which cyclists will remember as a most comfortable machine for two. There are three wheels, the passenger sits in front and has the full benefit of the scenery whilst being right out of all discomfort from dust or the exhaust gases. The back part is the same as the bicycle, all the control being in the hands of the rear rider. A Humber motor-tricycle, weighing under 170 lbs., is also being made, as well as a strong trailer for attachment to a motor-bicycle.

A MEETING is to be held at the Lion Hotel, Clumber Street, Nottingham, at 8 p.m. on the 2nd December, to consider the question of forming a motor-cycle club for Nottingham and district. Mr. E. G. Young, of 26, Radcliffe Road, West Bridgford, is the active spirit of the movement.

MESSRS. BAYLISS, THOMAS, AND COMPANY have found the 2½-h.p. Excelsior motor-bicycle so satisfactory during the past season that they have decided to make it their standard for the 1903 season. At the same time they will also market a 2-h.p. and 2½-h.p. for those who prefer lighter machines with smaller engines. The bicycle itself has been in many respects remodelled and improved. For example, duplex forks will be used; the hubs, too, have been made stronger and wider. The bottom bracket has been widened, and there is no necessity to bend the cranks in order to clear the engine. The surface carburettor has been retained, but the size of both the induction and exhaust pipes has been increased. A new lubricating pump is fitted, which enables the operator to see that the oil is finding its way to the crank chamber. The belt-drive is retained, and experiments are being made with a new driving pulley, which is said to give satisfactory results.

THE Palmer Tyre, Limited, have just brought out a new tyre specially designed for use on motor-cycles. The outer covers are made with a specially strong grade of the Palmer "Fabric," in which every thread is separated and cushioned in vulcanised india-rubber. The tread of the tyre is very thick, but contains no canvas or other materials that affect resiliency. The tyre is moulded and vulcanised to a special shape, so that, when inflated, the rubber is under compression. It is stated that a



two-inch tyre only makes a track about one inch wide, so that it does not throw mud wide of the mud-guards when travelling at high speed. It is claimed for the new tyre that ordinary 3-8 inch tacks driven into the tread up to their heads will not puncture the air tube. The liability of puncturing by thorns, etc., is thus considerably reduced.

THE British Westinghouse Electric and Manufacturing Company, Limited, is reported to have secured an order for a complete plant, comprising a gas engine, dynamo and switch-gear, to be erected at Sandringham for charging the batteries of electric automobiles.

HERE AND THERE.

LADY YARBOROUGH drove through Hyde Park on Sunday in her electrical brougham.

LORD AND LADY DUDLEY are having a motor-car tour through the north of Ireland.

A SERIES of "smoke talks" is to be held during the winter by the Rhode Island Automobile Club.

AMONG the objects of the Hunslet Engine Company, Limited, recently registered, is the building of motor-cars.

FOR not stopping at once when signalled to do by the driver of a horse-drawn vehicle, Mr. George Croxford, a Lincolnshire motorist, has been fined £1 and 4s. 6d. costs at Lincoln.

AT a general meeting of the shareholders of the New Grappler Tyre Company, last week, it was unanimously resolved to supply the additional capital asked for by the directors.

THE municipal authorities of Aberdeen have just invited tenders for the supply of an electrically-propelled tower wagon for use in connection with the Corporation electric tramways.

MR. GRANGER, in asking at the last meeting of the Isle of Ely County Council for a return of all prosecutions in the Isle of Ely for driving motor-cars, said that in the neighbouring county of Huntingdon between £400 and £500 had been received in fines from automobilists.

ON another page we reproduce a photograph of the 10-h.p. Siamese phaeton lately completed by the Wolseley Tool and Motor-Car Company for Lord Stanley. The car, which is painted dark brown and upholstered in red, is fitted with a canopy and specially-designed glass screen at the rear.

THE Roadway Autocar Company, Limited, ask us to mention that they have received a letter from a lady who informs them that she found on the Maidstone Road, near Ashford, on Sunday, November 2nd, a brown leather case about twelve inches long, containing motor tools, some of which are marked R. C.

A GOVERNMENT expert has made an inquiry at Kingussie as to the cause of an explosion that occurred by which a cottage was practically wrecked. It was found that the explosion was due to a rather remarkable combination of circumstances. A merchant had been left with a stock of petrol at the end of



THE PARTICIPANTS IN THE AUTOMOBILE PAPER CHASE ORGANISED BY COUNT SCHONEBORN-BUCHHEIM, PRESIDENT OF THE AUSTRIAN AUTOMOBILE CLUB. [Allgemeine Automobil Zeitung.]

MESSRS. CASTLE AND SONS, carriage makers, of Worksop, have decided to be of assistance to motorists passing that way. They have arranged to have a regular supply of petrol by water.

THE Watford Engineering Company are now keeping a stock of petrol and heavy oils at their works at the lower end of High Street, Watford. They also undertake repairs to motor-cars of all kinds.

REFERRING to the ascent of Gas House Hill by the Sandringham car, reported last week, Messrs. J. W. Brooke and Company, Limited, remind us that one of their 10-h.p. cars has also performed the feat.

THE Bristol and District Motor Club, open for all classes of motorists, was formed at a meeting last week. Mr. Charles Franklin, Ash Lodge, Chesterfield Road, St. Andrew's, Bristol, is the secretary of the new club. A run was held to Almondsbury on Saturday last.

As mentioned in a recent issue. Messrs. T. Cook and Son are now conveying tourists between Brussels and the battlefield of Waterloo by motor-car. On another page we are able to reproduce a photograph of a party of motoring tourists at the Mound of the Belgic Lion.

the season, and he emptied the contents of some of the tins into a sewer which runs into the river Spey. The river, however, being in flood, caused a backwater in the sewer, the result being that the oil was not allowed exit. As a result the vapour therefrom appears to have percolated back through the sewer to the house, where it became ignited in some way, with the disastrous consequence stated.

THE motor-omnibus service started by the Hemel Hempstead Motor Car Company in February, 1901, has run without interruption ever since. Two well-appointed Daimler omnibuses are employed, and the fare charged between Hemel Hempstead and Boxmoor Station on the London and North-Western main line is threepence. Up to last month the railway company ran a service with two omnibuses, making the same number of double journeys with two conveyances as the motor-car company did with one car. Their fare was 6d. per passenger. Shortly after the motor-omnibuses appeared on the scene the large two-horsed omnibus which ran to the chief trains disappeared, and since then two one-horsed conveyances have been used. Now the railway company has reduced its fare to fourpence, and instituted a reduced service, which is kept up by a one-horsed omnibus.

OIL MOTOR-CARS OF 1902.*

By CAPTAIN C. C. LONGRIDGE.

(Concluded from page 745.)

Not satisfied with the sufficiency of these results, the author questioned Messrs. Carless, Capel and Leonard as to the temperature at which petrol vapour and air would ignite. On August 29th they replied: "From our experience we should have thought it would be impossible for a mixture of petrol vapour and air to ignite, except on the application of a light." He then addressed an inquiry to Mr. A. Phillips, of Reading, as to the temperature of premature ignition in air-cooled motors. The answer was: "From practical experience with air-cooled motors I find that explosion usually takes place when the walls of the explosion chamber are just below red heat."

There are, therefore, the following phenomena:—1st. Failure of petrol vapour and air to ignite at even partial red heat. 2nd. Ignition of lubricating oil under similar conditions. 3rd. Automatic ignition of petrol charges in water-cooled motors at comparatively low temperatures. 4th. Similar ignition in air-cooled motors at higher temperatures. The conclusion to which these phenomena point is, that the automatic ignition of petrol charges is due, not to compression or temperatures attainable under running conditions, but solely and directly to the ignition of the lubricant employed. It takes place at a fairly low temperature in water-cooled motors because the oil used has a comparatively low flash point; and it occurs in air-cooled motors at a higher temperature because the lubricant employed has a higher flash point.

Turning for a moment to the lubricating oils in common use with water-cooled motors, the following figures are typical:—

Flashing Point.	Burning Point.
410 deg. to 450 deg. Fahr.	460 deg. to 550 deg. Fahr.

If the author's suggestion be correct, it might be supposed that three results would be noticeable:—1st. Premature ignition would be more frequent when excessive lubrication is employed. 2nd. It would be continually occurring with lubricants of which the flash point is below 600 deg. Fahr. 3rd. It should leave evidence of its occurrence in the form of carbon deposit. The first result is distinctly noticeable. The second and third results would not necessarily follow. As Mr. H. B. Case, Managing Director of the Vacuum Oil Company, recently observed to the author: "The assumption that decomposition begins at burning point may be accurate, but practice seems to show that decomposition does not go far enough up to a considerably higher point than the burning point to cause deposit of consequence. This seems reasonable in view of the fact that the flash and burning points are determined by an accumulation, during a considerable period of heating, of enough vapour to flash or ignite; and, in practice, the vapour escapes, as it is driven out of the oil. After one flash an oil will go to a higher temperature before another flash occurs; and, if at the burning point the flame is blown out after ignition, the oil will go to a higher temperature before it will ignite again. The period of time which will elapse before another flash or a re-ignition occurs varies with the character of the crude petroleum from which the oil was made, and the processes of refining. The wide variation in these two things makes it impossible to deduce accurately from what one oil does, under given conditions of service, what another oil, even though similar in tests, will do under the same conditions." From this it will be seen that to produce the results in question three conditions must be fulfilled:—There must be sufficient time for decomposition; sufficient oil to generate enough vapour to flash; and sufficient continuous burning to cause any deposit of consequence. In practice these conditions are not so frequently present. Excluding the suction stroke, when the temperature is too low for the purpose, the duration of oil exposure to vaporisation or decomposition in the presence of air is confined to the compression stroke. The time factor, is, therefore, very short, unless indeed oil vaporisation is continuously proceeding between the hot surface of the piston and the cylinder wall. On the other hand, continuous burning is or should be confined to the working stroke; very little carbon, therefore, should be formed. On this point Mr. Veitch Wilson, Chief of the Lubricating Oil Department, Price's Patent Candle Company, wrote to the author on September 9th: "The question as to what we may attribute the tendency of gas-engine oil to carbonise is an exceedingly difficult one, and suggests a prior question, viz., whether the carbon found in gas-engines proceeds from the fuel (gas, oil or petrol) or from the lubricant. From data before me, supplied by the authorities already referred to, I think that I am correct in saying that, in the case of a gas-engine, the relations of gas and of lubricating oil used, gas being reduced to actual weight in accordance with its known specific gravity, are about 96 to 97 per cent. of gas against the balance in lubricating oil. Analysis shows that the composition of town gas, or of gases from mineral oil or from spirit, closely approximate one another, viz., hydrogen, say 84 per cent., carbon about 16 per cent.; and, on this assumption, it seems not unfair to suppose that the bulk of the carbonaceous deposits which are found in gas and oil-engines is due to the fuel rather than to the lubricant." If this view is correct, lubricating oil, as it undoubtedly flashes during the explosion stroke, might also occasionally do so during the compression stroke, without betraying the fact by any material increase of carbon deposit.

The arguments that ascribe premature ignition to the flashing or burning of the lubricant, might be countered by ascribing it to incandescent

carbon in the cylinder or ports. It is quite possible that this also may be a cause of pre-ignition. But it does not fully meet the case. As incandescence would be continuous, it should also lead to continuous pre-ignition; it should make pre-ignition independent of the amount of lubricant used, but the reverse is the case; it should confine premature explosion to cases where such deposit is present, but this is not in accordance with fact.

Speaking with the reserve due to imperfect study of the problem, the author inclines to think that low-flash lubricants are a cause of premature charge-firing. The easiest way out of the difficulty, therefore, would be to use only oils of the highest obtainable flash point. Unfortunately, the oils of this description now on the market are extremely viscid. This gives rise to two fresh difficulties: one, the feeding of such oils into the cylinder; the other, the spreading or dispersion of the lubricant within the cylinder. The first difficulty could be overcome by a mechanically-operated lubricator, such as Messrs. Snowdon use for their "Sinol," a graphitic lubricant of high viscosity. The second is thus described by Mr. Case: "An oil fed into steam is blown, by the velocity of the steam, into minute particles, which are carried through all the steam and deposited on all surfaces with which it comes in contact. In a petrol engine a drop of oil entering the cylinder remains almost intact, and oils of as high flash point (585 deg. and 640 deg. F.) and viscosity (234" @ 210° and 320" @ 210°) as 'Hecla' and 'Extra Hecla' will not spread over the surfaces." Both Messrs. Bluman and Stern and Messrs. Snowdon are inclined to differ from this view; the managing director of the former writing: "I am of opinion that by the combustion in the cylinder, the lubricating oil is spread in somewhat similar manner to the process going on in a steam cylinder"; that of the latter stating: "Any good oil, as 'Sinol,' is diffused or sprayed all over the cylinder." The fact, however, that inventions have been patented with a view to overcoming the difficulty mentioned by Mr. Case, rather points to its recognised existence, at least in the case of the more viscid oils.

As the author would, no doubt, be asked why in gas-engines oils with 400 deg. to 450 deg. Fahr. flash point do not cause premature ignition of the charge, he may at once say that he has not studied the question. Very possibly, the cylinder temperature being kept lower and the quantity of the lubricant used being much more accurately determined, decomposition is sufficiently impeded. Again, it would appear as if hydro-carbon vapour exerted an influence on lubricants which a gas mixture does not. On August 28th, Messrs. Crossley Brothers wrote to the author: "Some short time after we had commenced manufacturing oil-engines, it was brought home to us that the class of oil suitable for lubricating a gas-engine piston would not do so for an oil-engine, as there appeared to be more tendency for the oil to carbonise and to cause the rings in the piston to stick."

The practical conclusions to which the author arrives are, first, petrol motors should be fitted with positive feed-lubricators, ensuring a sufficient, and no more than sufficient, oil supply; second, that with such lubricators high flash point oils should be used in preference to the oils now commonly employed. The high viscosity of such oils is favourable to the retention of compression; on the other hand, it tends to increase friction and thus also the temperature of the rubbing surfaces.

Nickel Steel for Automobile Work.—The author advocates nickel steel, in automobile work, for rivets, pins, exhaust valves, rods, shafts, axles, and springs. Its chief merits are:—(a) Stiffness or resistance to deflection under impact, and toughness or resistance to fracture under repeated impact.—Steel with 3 per cent. nickel shows 48 per cent. greater stiffness, and 45 per cent. greater toughness, than similar carbon steel. With 5 per cent. nickel the difference is even greater. (b) Elastic limit.—The elastic limit of mild and medium hard steel is usually taken as 46 to 50 per cent. of the ultimate strength. With 3 per cent. nickel steel it is stated to be 63 to 74 per cent. (c) Tenacity.—In simple carbon steel, a crack once formed quickly develops, and the material breaks short. In nickel steel the rend is gradual. The latter gives warning, the former does not. (d) Temper.—Nickel allows a reduction of carbon, makes the steel more sensitive to temper, and facilitates the tempering of irregular shapes. Where a forging is too complicated for oil tempering, the requirement may be met by using a somewhat softer and tougher steel and introducing from 3 to 4 per cent. nickel. (e) Resistance to oxidation and heat.—An 18 per cent. nickel alloy is said to be practically incorrodible. A high nickel alloy also withstands well the action of heat. (f) Anti-frictional properties.—The American Sullivan Machine Company state:—"We believe that the nickel renders the wearing parts of machines which run on other parts less liable to cut, the nickel apparently having the property of making the surfaces smooth with wear, even though not always properly oiled."

Conclusion.—The author has endeavoured to bring the present technique of motor-car manufacture briefly before the members of the Institution, because the industry is undoubtedly one of growing importance, and because there are so many features that admit of improvement, and so many points that require the elucidation which the members are pre-eminently qualified to give. But it is not only to the members individually but to the Institution as such this subject is presented. From the former opinions and information are solicited; to the latter is submitted the question, whether considering the magnitude of the industry, the Council of this Institution might not, in accordance with the practice and scope of the association, afford the same assistance as they have given to the gas-engine industry. A Gas-Engine Research Committee has been formed; could not the scope of this Committee be extended to the investigation of the many problems surrounding and impeding the progress of the petrol engine?

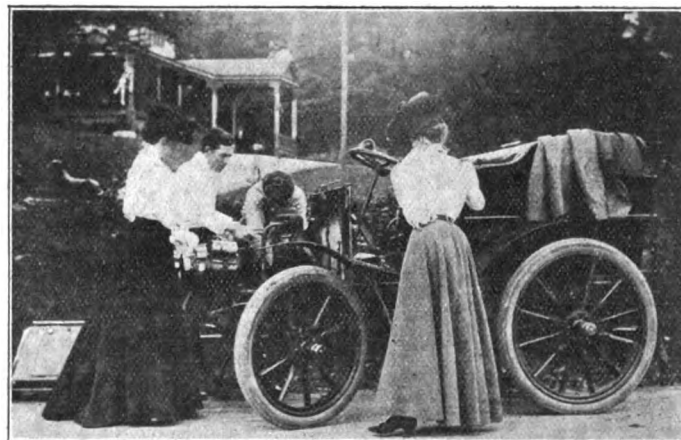
* Abstract of Paper read before the Institution of Mechanical Engineers

The discussion on Captain Longridge's paper on "Oil Motor-Cars" was concluded on Friday evening last. Those who took part in it mostly confined their attention to such technical details as the construction of valves, arrangement of cylinders, heating of explosive charges, transmission gear, and other matters of this nature. The opinion was expressed that the chief matter needing attention was not so much the motor as the transmission gear and the details of sparking mechanism by means of which the charge in the cylinders of internal combustion engines is exploded.

In the course of a long reply, in which he met many of the criticisms on his paper, Captain Longridge stated he had avoided mere description, because it was fully and regularly given in the automobile press. Mr. Holroyd Smith complained of the absence of details. He (Captain Longridge) had sought to give illustrations of principles and lines of improvement, but avoided mere details, such as figures, dimensions, materials, etc. Mr. Holroyd Smith thought all the illustrations were old ideas, and defective. That only proved that most inventions were evolutions or perfected repetitions of former crude ideas. If they were defective, why did not the speaker follow the more practical line of suggesting improvements? It was evident from the teaching, and suggestions and prophecies, attributed to the author, that Mr. Holroyd Smith had really not read the paper, and therefore he would not follow his remarks in detail. With Mr. Iden, Mr. Beaumont, and Mr. Austin's opinion that the two-piston, one-cylinder engine was complicated, he could not quite agree. It was certain that this type had done good work, and had distinguished itself in the late 500-mile Reliability Trials in America. As regards the horizontal and vertical position for engines, he drew attention to the importance of the facility of the horizontal motor for obtaining the same power with a longer stroke and slower speed, and therefore as he would at another time show, with probably lower fuel consumption. He thought it a grave mistake to subordinate the choice or evolution of the motor in any way to that of transmission. This was an inversion of the right principle, which was to develop the motor so as to reduce transmission, including change speed gear, to an irreducible minimum. Mr. Lucas had embarked on a distinctly progressive course by eliminating change speed gear; and this would be, he understood, the great feature of the new Charron, Girardot and Voigt 1903 car. Mr. Beaumont and Mr. Sennett were confounding his (Captain Longridge's) proposed impulse every revolution motor with a fairly common type, in which, as in the Butler engine, the charge was received on one side of the piston, transferred to a receiver, and then expanded into the combustion chamber. This cycle was open to objections, from which, as also from that attributed by Professor Burstall, his proposed engine was entirely free. Piston speed was more vital than Mr. Beaumont appeared to think, because a certain speed was required for efficiency, but an excess seriously affected explosion and combustion. He apologised to Professor Hiorns for not having more fully stated the conditions under which hematite had been suggested, and he agreed as to the excellent running surface of this material. At the conclusion of his reply he would give the further promised information on steel cylinders, and try to confute the metallurgical superstitions. He differed from Mr. Beaumont and Mr. Austin, and thought that, when the internal troubles, due to the erratic working of the automatic inlet valve and jet carburettor, were considered, neither device could be called simple. He heartily approved of mechanically-operated valves, and agreed with Professor Burstall that the magneto was a better system than accumulators, and mentioned its adoption for large Continental commercial engines. He upheld and quoted evidence for the correctness of the proposition, that exhaust governing was more economical than volume throttling, and thought that Mr. Iden's objection as to cylinder fouling probably arose from over-lubrication or imperfect combustion. He advised the trial of water and oil for the base chamber lubrication, and did not think that either Mr. Rainey's or Professor Robinson's experiments proved that lubricant vapour could not be a cause of premature ignition. To the professional body, so ably represented at the discussion, he conveyed the thanks of all present, and trusted they would continue their practical interest in the industry; and to the President and Council of the Institution he again very earnestly submitted the desire that the Gas Engine Research Committee should also embrace the petrol motor.

Captain Longridge next explained the analysis for steel cylinders submitted by the Weldless Steel Tube Company and by Messrs. Krupp, and then, as follows, explained that there was no reason to say that steel cylinders would not wear well or would prove troublesome to lubricate. Continuing, he said, "I come to two points that I must accentuate, because they have been mentioned in the discussion. I think they are superstitions rather than facts, and as such I feel bound to contest them at every occasion. I do not deny that *certain* steels may have proved bad to wear and difficult to lubricate; but I do deny, or, at least, I cannot see any grounds to admit, the general assertion that steel cylinders will not wear and cannot be easily lubricated. The question of lubrication resolves itself into that of wear, because, given a smooth surface with immunity from wear, there could be no difficulty with lubrication. It is the wear, the abrasion, the roughening of the surface that leads to lubrication troubles. What, then, are the factors that resist abrasion? First, there is hardness, or resistance to scratching. A hard polished surface, offering the maximum resistance to scratching, presents also the minimum frictional resistance—and the least wear. As steel can be made with any degree of hardness, it follows that in this respect it can be endowed with exceptionally perfect anti-frictional and wearing properties—quite as good as cast iron. In course of time, however, whatever be the material, it must wear; but if that wear be uniform over the whole

area, then the quality of hardness reduces the amount of abrasion to a minimum, and maintains the surface in its original excellent condition; but if, from some want of homogeneity, or from the presence of some hard foreign substance between the rubbing surfaces, irregular wear, scratches, or grooves are produced on the metal, then the very factor of hardness, which was in the first instance a merit, becomes a defect, because it impedes the levelling down and the filling up of the abraded surface; and thus increased friction, leading to further abrasion, and, finally, perhaps, seizing. It is clear, then, that in addition to hardness, something else is needed to improve the wearing capacity, to increase the resistance to abrasion. This second factor is tenacity. In former days, hardness and tenacity were if not essentially, at least casually identified. About 1843, Wertheim experimentally concluded that the tenacity of a metal was proportional to the $\frac{\text{specific gravity}}{\text{atomic weight}}$; and some thirty years later Bottone stated that the hardness of a metal varied in the same ratio. Hence it was surmised that both properties, varying inversely as the atomic volume, or directly as the number of molecules in the unit space, were at least one in cause. This gave rise to or fostered another superstition: That strength and hardness in cast iron go together! I believe the credit of proving the fallacy of this conclusion belongs to Professor Turner. In 1885-87, by an ingenious experiment, he showed that while hardness and tenacity doubtless mutually depend on cohesion, and thus on the number of molecules in a given space, yet the two properties are physically distinct. We may have cast iron or steel high in the scale of hardness, yet low in that of tenacity, and *vice versa*. This is a very important distinction. To resist the gradual uniform wear of normal friction, the attrition or grinding away of the material in fine impalpable powder, hardness is the essential property; but to resist an irregular pressure, tending to strip off shavings or cuttings, to furrow



MOTOR TROUBLES ON THE ROAD.

(Automobile Topics.)

and plough the material, tenacity is the important factor. Hardness is manifest by the resistance to the force required to separate the smallest particles or molecules of the substance; tenacity is displayed by the resistance to the force needed to separate the aggregated molecules of the mass as a whole. Hence the best material for wear and lubrication is that in which hardness and tenacity are duly combined; but in steel we are able to vary the two properties within very wide and very close limits, consequently there is no reason to contend that steel is deficient in wearing properties, or consequently troublesome to lubricate. The difficulty that exists is purely experimental, it is the testing which has already taken place in the case of cast iron required to find the best ratio of hardness to tenacity for cylinder steel. Here it is that the peculiar effect of nickel on hardness and tenacity may stand in good stead, and in this lies the interest of the communication made by Mr. Lloyd on this subject.

I do not attach much importance to the supposed spongy, absorbent nature of cast iron, nor to what might also have been suggested, the presence of graphitic carbon; but I believe with Professor Turner that we need not look for any further reasons than the abrasion hardness and the tenacity. I trust I have made my meaning clear, and that other gentlemen will follow up the subject until the metallurgical superstition of bad wear and troublesome lubrication, that frightens would-be users of steel cylinders, is finally laid to rest."

ONE of the Societe Electromotion's electrical vehicles was last week driven from Paris to Vernon and back, a distance of ninety-four miles, on one charge of the battery, which comprised ninety-six cells of the Phoenix type.

MOTORISTS in Derby are about to form a local automobile club, and on Monday a meeting will be held at the Royal Hotel to consider the matter.

THE NATIONAL SHOW.



As at the Stanley, the exhibits at the National Show, which is this week being held at the Crystal Palace, comprise a large proportion of motor-bicycles, the principal displays being those of the Singer and Quadrant Companies, and Messrs. Bayliss, Thomas and Co., Limited.

Considerable interest has been shown during the week in the 7-h.p. chassis and car exhibited by the "Union" Nurnberger Motorfahrzeug Fabrik, of Nuremberg, Germany, and from the point of view of novelty and attraction they have been the *clou* of the exhibition. The feature of the "Maurer Union" system is the transmission mechanism. The vertical motor is situated in the fore part of a tubular frame, and carries on its shaft, formed with the fly-wheel, a large disc, so mounted that it can be brought into contact with a friction wheel carried on a screw-threaded counter-shaft. A single side chain connects the latter with the rear road wheels. Any desired speed can be obtained by varying the point of contact

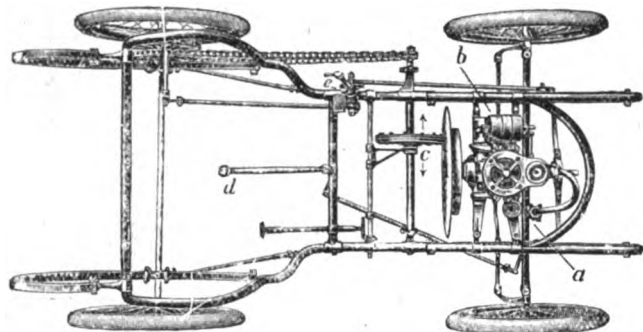


FIG. 1. —PLAN OF THE MAURER UNION CAR.

of the friction wheel with the disc, by means of a hand wheel at the side of the steering column. The further the friction wheel is moved from the centre of the disc towards the periphery, the faster the speed of the car, while if the friction wheel is moved over the centre of the disc, a reverse motion is obtained. The idea of a friction drive for motor-cars is by no means new, but the experiments hitherto made have not proved successful. In view of the fact that a large number of the Maurer Union cars are running in Germany, it cannot be said that there is nothing in the idea. The impression the gear leaves on our mind is, from a brief inspection, not a very favourable one, but probably a lengthy trial might bring forward results of such a satisfactory nature as to cause a change in our views.

A new car which made its first public appearance in the Anniversary run to Oxford is the 12-h.p. Sunbeam, built by Messrs. John Marston, Ltd., of Wolverhampton, and, judging from a brief inspection, it is one of which much should be heard in the near future. The main frame is strengthened with steel plates, and in the interior a second frame of angle steel carries the motor and transmission gear, the general arrangement being on Panhard lines. The dimensions are 6 ft. 3 in. wheel base, and 3 ft. 11 in. wheel gauge. The 12-h.p. four-cylinder vertical motor, the pairs of cylinders of which are cast in one piece without joints, is placed in the front of the frame, and is remarkable for its smoothness of running. The valves are easily accessible, the unscrewing of a single plug allowing of their removal. A ball governor is placed on the large gear wheel fixed to the cam shaft. Its action consists in closing more or less an admission valve above the carburettor, an arrangement which the makers have adopted as the system of regulator which puts the least strain on the motor, at the same time reducing the consumption of petrol to a minimum. The working of the regulator is modified by a spring worked by the accelerator pedal, and is set by a hand lever on the steering column. Four speeds are provided, these being divided into two groups, each held, as well as the reverse, by a fork, the whole being actuated by a single lever. All the gear wheels are machine cut; they are all independent, being mounted on squares or bolted together, and are automatically lubricated. Inclined non-reversible steering and three powerful brakes are provided. The foot brake is composed of a steel band working round a drum fixed to the differential box. This brake is applied by a toggle lever worked by a pedal, holding firmly in both directions. The rear wheel brakes are composed of steel bands covered on the inside with camel's hair belting. There is also the usual sprag to avoid running backwards. The wheels are of the artillery pattern, with 32 in. x 3½ in. pneumatic tyres. The lubricators, which are automatic, are placed in sight of the driver. The body is of the tonneau type, and, judging from the care bestowed upon every detail, the car should prove not only reliable, but comfortable and easy to drive. On the same stand are shown two of the curious-looking "Mabley" cars, to carry two persons, one being fitted with a detachable box over the front seat, making a most handy vehicle for tradesman's use. They are fitted with genuine De Dion engines, and have transmission by means of leather belt from engine to second shaft, and then by chains to driving shaft.

The General Motor-Car Company, Limited, of Norbury, is one of the newest concerns to enter the automobile industry, and, judging from the rapid progress made is likely to attain a good position. Foremost

among the exhibits is a special 40-h.p. racing car, which has been built by the company for Mr. W. G. Crombie who, we understand, intends to enter it for the Nice races next year. The four-cylinder motor is provided with a governor acting on the inlet, and by means of an "accelerator" the engine will run up to a speed of 2,000 revolutions per minute. Four speeds forward and a reverse motion are provided, these being controlled by a single lever. The change-speed gear and transmission is on the lines of the Mors, that is to say, the power is transmitted through a clutch to the gear-box, and thence from the differential shaft by two side chains to the rear road wheels. The car has a very long wheel base—7 ft. 6 in.—and the seat is placed much further back than usual. A feature of the car, which equipped for racing only weighs 700 kilog., is the wind cutter with which it is provided; this extends from a point and is brought well up to the driver's seat. We shall look with interest to the doings of the new "General" car when the 1903 racing season opens. On this stand is also to be seen a neat little tradesman's delivery motor-car, with 4-h.p. motor, belt and chain drive; this will carry over 200 lbs. and two people at a speed of twelve miles an hour easily. A 2-h.p. motor-bicycle is shown; this is fitted with a free engine, chain drive, and magneto ignition. The motor is mounted vertically in the lower angle of frame, and in such way that the latter is strengthened considerably. A special feature is the ease with which the machine can be started. The speed of the motor is reduced by enclosed spur-gearing, the power being then transmitted through a chain and clutch to the rear wheel. The engine can thus be kept running, although disconnected from the machine, just the same as in a motor-car.

We have already illustrated and described the 1903 model of the motor-bicycles built by the Quadrant Cycle Company, which are being made in two sizes—2-h.p. and 3-h.p. In Fig. 2 we illustrate the Quadrant motor-tricycle, which is exactly the same as the bicycle in every detail except the front fork. In the place of the front fork and wheel of the bicycle the steering socket is elongated and stayed to the frame. This elongated socket has a cross bridge fixed rigidly at the lower end, each end of this bridge terminating in a short pillar about 6 in. high. A corresponding pillar working parallel with it and joined to it by four links is arranged to carry each side wheel. Steering is done by the handle in the usual manner, and by means of light rods running parallel with the fixed cross bridge, the gear causing one end of the fixed bridge to fall, with a corresponding rise at the other end. The principal alteration in the Quadrant machines for 1903 is in connection with the contact-breaker. This device is formed of a bell-crank lever, pivoted loosely on a stud from the plate of the commutator; the latter carries a second stud holding the contact screw. The end of the bell-crank nearest this is provided with a platinum contact, while the other is hardened to resist wearing by the cam upon which it rests. The bell crank is pulled by means of a spring towards the contact screw, against which it presses when the other end drops into a deep notch in the cam. When, however, this end is raised from this notch the contacts are separated. The device has the great advantage that it is practically

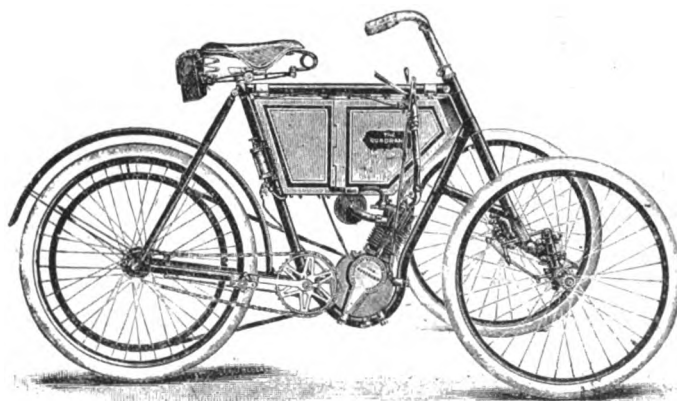


FIG. 2. —THE QUADRANT MOTOR-TRICYCLE.

self-adjusting, and it is impossible for the motor to misfire owing to faulty contacts.

The Benz cars exhibited by Messrs. Hewetsons, Limited, are of a type that has already been illustrated and described in the *Journal*. Three of the cars are of 10-h.p., with two-cylinder motors, comfortable tonneau bodies, and four speeds and reverse, the transmission being by means of a single belt, gear, and chains. Three 16-h.p. cars and a couple of the well-known Benz 6-h.p. tonneaux are also staged. For business purposes the firm are showing a couple of light vans of respectively 5 and 10 h.p., and a 10-h.p. lorry to carry 30 cwt., built for the Corporation of Huddersfield.

The Rochet voiturette, described in connection with the 1902 Automobile Exhibition at the Agricultural Hall, is to be seen at the stand of the British and Foreign Motor Car Company, Limited, who also stage a 10-h.p. Rochet chassis and a complete 10-h.p. touring car. The novel feature of this vehicle is the speed change gear, which has already been illustrated in our columns. Four speeds forward and a reverse motion, controlled

by one lever, are provided, the makers claiming to be the first to adopt this improvement.

The new record of 228 miles 250 yards in six hours, established by F. W. Chase last week on his Bat motor-bicycle, has caused considerable attention to be centred this week on the exhibit of the Bat Motor Manufacturing Company, Penge. The Bat bicycle has only been on the market a few months, but it has already made an excellent name for itself. The machine is designed with the idea of making a thoroughly reliable, strong, and powerful motor-bicycle. It has a close, compact frame, firmly stayed. In the No. 1 pattern a $2\frac{3}{4}$ -h.p. De Dion air-cooled motor is employed, and

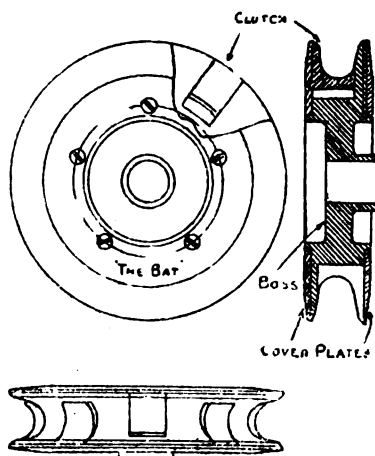


FIG. 3.—THE BAT DRIVING PULLEY.

in the No. 2 one of $2\frac{1}{2}$ -h.p. The motor is placed vertically in the frame, and a stay runs from the bottom of the motor casing to the rear axle. The power is transmitted through the Bat patent pulley, and a Chicago raw hide belt to the rear wheel. Reference to Fig. 3, which gives an elevation, plan, and section of the pulley, will show that the grooved periphery is recessed in eight places equidistant from each other for the purpose of accommodating a similar number of "clutches." The latter are each free to move about a pin on which they rock, so that the shaped portion of their bases, when coming under the stress of the belt, is thereby pressed down to and aligned with the solid portion of the grooved path in the pulley. The effect of this is to force the upper inner face of the clutch inwards on to the belt, clutching or gripping it, and as these clutches are set alternately on each side of the groove, it will readily be seen that the belt is gripped by them in a very effective manner. A neat and effective form of belt fastener is used, and the switch, operated from the Bowden brake lever, renders the breaking of the current instantaneous. A spray carburettor is used, and a petrol tank of a capacity of $1\frac{1}{2}$ gallons is provided. Another novelty, so far as the roadster "Bat" is concerned, is the spring frame (Fig. 4), which can be fitted if desired. The saddle is carried on a second diagonal which is retained by a guide and links to the main frame, and is supported on two strong spiral springs, which can be adjusted to suit riders of various weights. This same sliding portion carries the rests for the feet—for it should be noticed that the "Bat" has no pedals, as the power of the engine is stated to be sufficient to take it up any hill; pedals can, however, be fitted.

The Duryea Company have on view five of the Duryea power carriages, ranging from a little phaetonette to carry two up to a comfortable wagonette holding eight. The same 10-h.p. engine is used in each, but a different ratio of gearing is employed. The smallest car, with a normal rate of progression of about 22 miles an hour, and can attain, if needed, a rate of 45 miles, whilst the largest vehicle progresses at a modest 16, which can, when required, be increased up to 32. A unique feature of these cars is the "one-hand control." A slight side movement of the single lever directs the course of the car, a slight rotary movement of the handle opens or closes the throttle; whilst a tap with the other hand on the top instantly puts the motor out of gear, and a further depression of the handle brings the low gear into play for emergencies.

The Progress Cycle Company, Limited, exhibit five of their neatly-finished 9-h.p. Progress cars, with tonneau and double-phaeton bodies. The well-known De Dion-Bouton motor, with water-jacketed cylinder and combustion chamber, furnishes the motive power. It is placed in a vertical position, under a bonnet. An exhaust valve regulator is applied by means of a lever, working on a serrated quadrant, just underneath the steering wheel, and within easy reach of the driver. It is used for reducing the noise of the engine, when the full power is not required. The speed of the car can also be varied by using this means instead of the ignition lever. Two speeds and a reverse are provided. The slow and fast gears are always in mesh, each being connected to an independent friction clutch. Between the motor and speed gears is placed a clutch worked by a pedal. As the speeds of the car are changed by friction clutches, it is not necessary to use this in changing speeds, except in reversing. The power from the speed gears is transmitted to the back axle by a shaft fitted with universal joints

at both ends, and bevel pinions. Wheel steering is fitted, while the frame is constructed of steel tubing. The motor and the whole of the mechanism are fitted upon two lengths of channel steel, securely bolted to hangers, carried by the tubular frame—thus forming a double frame.

One of the new De Dietrich (Turcat-Mery) cars is shown on the stand of the Burlington Carriage Company, Limited. Although combining many of the best points of the latest Panhard and Mercedes practice, the new car exhibits much originality in detail. Broadly, it follows the standard arrangement of vertical motor in the fore part of the frame, friction clutch, change-speed gear, and two side chains. The motor comprises four cylinders and develops 16-h.p. The governor runs in an oil bath case, and magneto ignition is employed. The pump for ensuring the circulation of water around the cylinder jackets is of large dimensions, and is chain driven. The cooling system, however, is so arranged that should the pump fail, natural circulation proceeds in a manner sufficient to allow the motor to be still driven. The carburettor is fitted with a regulator or throttle, by means of which, and the firing control, the motor is claimed to be as flexible as a steam engine. A powerful brake applied by a pedal is fitted on the differential shaft. Powerful band brakes, applied by side lever, are also fitted to the chain sprockets on the road driving wheels. There are a number of special features in the car to which we hope to refer in a later issue.

Mr. E. W. Hart, of Luton, is present with an interesting array of cars, including an attractive electric runabout, used by Miss Hart to drive to and from school. The vehicle is fitted with a small battery permitting a distance of about 25 miles to be run on one charge. A 9-h.p. Renault car of the latest type is also staged, this being provided with a special tonneau body. An attractive vehicle is to be seen in the 12-h.p. Hart car. This follows the modern practice, the engine having two cylinders set in the fore part of the frame. Three speeds ahead and one reverse are available. The tonneau body is finished in heliotrope, and has a comfortable appearance. The next car we inspected was one of the so-called 20-h.p. Paris-Vienna Darracq "flyers," converted into a touring car, with a tonneau body of the Roi des Belges type. The car on the stand which has probably attracted most attention during the week is the 8 to 12 h.p. genuine Mercedes car, fitted with a Roi des Belges tonneau body, in white and gold. So far as concerns the motor and mechanism of this kind, it is practically a replica of the 40-h.p. Mercedes, the four-cylinder motor having mechanically-operated inlet valves, magneto ignition, the Mercedes radiator, etc.

A large display of Beaufort cars is made by the Beaufort Motor Company, of Baker Street, W., ranging from a 6-h.p. phaeton to an 18-h.p. six-seated tonneau. The 6-h.p. car has a single-cylinder motor, and two speeds, the power being transmitted to the rear axle by a single belt and gear wheels. The 8-h.p. cars have a single-cylinder engine and three speeds ahead and one reverse. In these cars the transmission of the power is through, a clutch gear-box, jointed longitudinal shaft, and bevel gear to the rear live axle. We next examined the 12-h.p. Beaufort cars, which

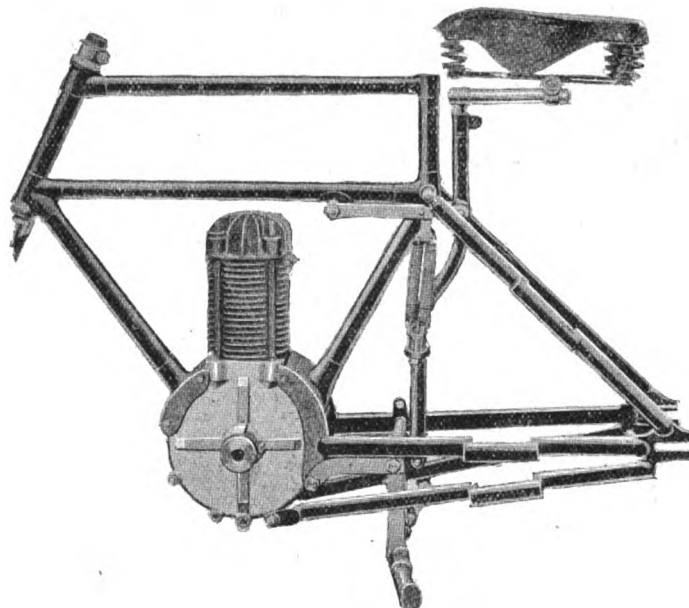


FIG. 4.—THE BAT SPRING FRAME.

have a double-cylinder motor, the two cylinders with the water jackets being cast in one piece. In other respects the vehicles follow the arrangement adopted in the 8-h.p. Of the 12-h.p. cars, a tonneau is being exhibited as well as a well-finished brougham, with a body specially built by Mr. G. Page, of Camden Town. Finally, we come to the 18-h.p. Beaufort car, with special "Alexandra" body, seating six persons. This vehicle has a two-cylinder motor, four speeds ahead and one reverse. The governor, which works on the inlet, runs in an oil bath. Automatic lubrication of the various parts is maintained by the pressure of the exhaust. We may add that in all the Beaufort cars a special form of rotary magneto ignition is

employed, and by means of which the sparking can be advanced and retarded as desired.

Messrs. Bayliss, Thomas and Co., Limited, exhibit no less than forty of the Excelsior belt-driven motor-bicycles, which is probably the largest collection of motor-bicycles ever shown by any firm. The machines are made in three different patterns, with motors of 2, 2½, and 2¾ h.p. respectively. They are suspended below the bottom tube of the frame, but in the case of the larger sizes the frame is modified to allow space for the larger cylinder and bigger combustion-chamber. It is worthy of note that the engines are manufactured entirely by the firm, and the larger sizes are fitted with carburettors sufficiently large to permit of an ample supply of mixture, no matter how fast the engine may be running. The mudguards are wide and substantially fitted, and the front one is carried well forward in advance of the steering socket.

Messrs. Hobart Bird and Co., Coventry, show a specially designed motor-bicycle. It has a 2½-h.p. vertical motor of British make, spray carburettor, and a large petrol capacity. The Wearwell Motor Carriage Co., Ltd., display two motor-bicycles having the 2½-h.p. engine supported within the frame, on the lower cross tube and driving the rear wheel by a belt. One of the engines is fitted with spray carburettor and the other with a surface carburettor, both having an exhaust valve lift. The motor-bicycle shown by the Centaur Cycle Co. is a chain-driven machine, with the Humber motor and the Humber drive. It has, however, some modifications especially in the arrangement of the front fork, which follows the lines of the well-known Centaur pattern, and is still further strengthened by a brace in front.

Although the Raleigh Cycle Co.'s motor-bicycle, as made this year with the engine over the front wheel, has given satisfaction as regards its power and pace, yet the company have had to bow to the popular prejudice against front-driven motor-cycles, and is introducing a rear-driven machine of special design, in which an adaptation of their X frame is used. The engine, which is hung perpendicularly in front of the crank bracket, develops 2-h.p., and all the controlling levers may be manipulated without removing the hands from the handle-bar. A spray carburettor is used. The Imperial Motor Co., of Brixton Hill, S.W., are making their P.D.C. motor-bicycle in two sizes—2-h.p. and 2½-h.p. In both, the motor is located vertically in a special frame and drives the rear wheel by a twisted belt. A spray type of carburettor is employed. On this stand is also to be seen one of the "bi-carriages" made by Mr. L. Straker, of Farnborough, Kent. It consists of a comfortable seat attached by C springs to a tubular axle, so arranged that the wheels turn on their hubs as on a car. The axle is attached to the frame by three tubes. The carriage enables a motor-bicycle to be quickly converted into a tricycle for two persons.

The Whippet Motor and Cycle Manufacturing Co. show a motor-bicycle with F.N. motor and the Whippet two-speed gear, enabling the rider to assist the engine uphill, by means of the high gear, without exhausting himself, the low gear being retained for pedalling the machine in case of derangement of the motor. Four motor-bicycles are shown by the Star Cycle Co., Ltd., all fitted with 2-h.p. vertical engines. One has magneto ignition and spray carburettor, and the three others ordinary electric ignition and surface carburettors. In all, the frames are designed to give long wheel base, and are especially strengthened, the front forks being fitted with a forward pair of forks so as to make this vital part of the machine doubly secure. The transmission is by means of the Lincona belt, and all machines are controlled by the usual switch-handle. The large belt pulley rim is built into the wheel by means of spokes and nipples, thereby preventing strain on the wheel spokes. The Ilford Motor Car and Cycle Co., Ilford, display their Regina motor-bicycle, which is fitted with a 2½-h.p. genuine De Dion motor in vertical position just in advance of the bracket. The valve lifter is operated by Bowden twist handle, a switch handle being provided on opposite side, thus giving complete control of the machine without removing the hands from the bar. The machine is driven by a Lincona belt, and a method of adjusting this is afforded by a small jockey pulley depending from the bottom stay and moving vertically in a slot.

For the 1903 season the motor-bicycle of the Rex Motor Manufacturing Company, Limited, is being fitted with a 2¾-h.p. (75 mm. by 75 mm.) engine, mounted vertically, near the crank bracket. It is slung in a kind of cage, and is well stayed. It drives by a belt to the back rim. A surface carburettor is fitted on the top rail. There are three control levers, the throttle lever, the air lever, and the lever which combines the functions of spark advancer and retarder, and exhaust valve lifter. A compression tap has been added to the top of the cylinder. Perhaps the most unique feature about the Rex motor is the method of carrying away the exhaust. The usual exhaust pipe and box are dispensed with, and instead the exhaust box is ingeniously designed so as to be part of the motor itself (see Fig. 5). It works on the following principle:—A chamber of good capacity is cast just below the exhaust valve chamber, and the gases pass direct into this and expand; before they can pass into the atmosphere they strike up against a series of baffle plates, which form the cover of the exhaust box. These baffle plates are made in one casting and are drilled with small holes, and the gas issues out from them with practically no pressure. The device is claimed to be most effective as a silencer, and puts practically no back pressure on the motor. It also gives a distinctly neat and finished appearance to the motor.

A big display of the 1903 Model Rex cars is shown by the Rex Motor Manufacturing Company, Limited, all having the engine in front under a bonnet, and driving the rear axle through a clutch gear box, and bevel

gear. The first car we examined was a two-seated touring car, fitted with an 8-h.p. single-cylinder motor, and provided with three speeds forward and one reverse, the power of the motor being transmitted direct on the top speed. Of the Rex 10-h.p. cars there are three or four well-finished specimens. The majority have tonneau bodies, but one is fitted up as a brougham. The vertical single-cylinder motor has a diameter of 115 mm., and a stroke of 115 mm., and runs at a maximum speed of 1,200 revolutions per minute. It is fitted with a governor acting on the exhaust. The road wheels are of the artillery type, shod with 32 by 3½ in. tyres. For the first time the Rex Company show a two-cylinder car—a 14-h.p. tonneau, having three speeds and reverse. This company appears to be making rapid strides in motor construction, for it is only a couple of years ago that their exhibit consisted of a 4½-h.p. voiturette.

The 1903 model of the Singer motor-bicycle has already been illustrated and described in the *Journal*. At the Palace the stand of the Singer Cycle Company, Limited, is naturally attracting much attention, for in addition to the motor-bicycles, there are motor-tricycles, tandem tricycles, and tri-voiturettes; a new variation of the latter, consisting of a governess cart, in which the usual single seat at the rear of the axle is replaced by a double-seated, coach-built body, with a door behind, giving easy access, is a distinct novelty. The tandem tricycle arranged for lady at back is a splendid piece of workmanship, and of fine appearance. By detaching the rear portion it is converted into a single tricycle. The single lever control is retained in all these motor-cycles. We may add that the Singer chain-driven motor-bicycle has not been designed to supersede the gear-driven machine, but is made to meet the demand for a chain driver. The spokes on one side of the rear wheel are entirely dispensed with, so that the engine is perfectly accessible. The motor pinion drives a larger wheel on a hollow axle, which serves as a countershaft running through the bottom bracket; at the other end of this shaft another chain pinion drives back to the road wheel. The hollow shaft is mounted upon roller bearings. Through this hollow shaft, upon another set of roller bearings, the crank axle proper passes, and is provided with a gear on the Crypto principle for pedalling

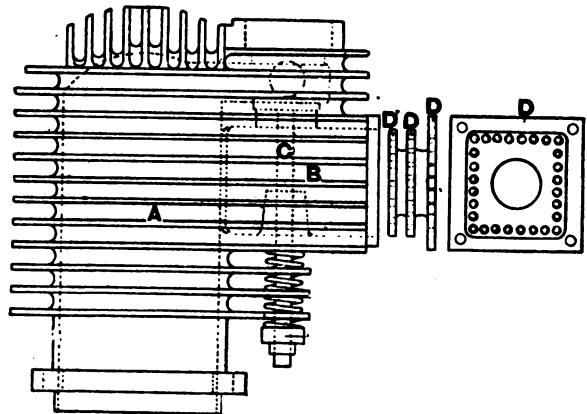


FIG. 5.—CYLINDER OF REX BICYCLE MOTOR, SHOWING NEW EXHAUST DEVICE.

A cylinder; B, exhaust chamber; C, exhaust valve stem; D, silencer baffle plates.

purposes, upon the left side. To reduce the strain upon the chains caused by the impulses of the engine, a special spring buffer chain wheel is fitted to the road wheel.

The Dorman Engineering Company, Limited, show no less than five patterns of their motor-cycles, fitted with the "Whirlwind" engines, as well as samples of the motors themselves, with all the necessary fittings. The motors vary in power from 2 to 3 h.p., and are fitted in both in inclined and vertical positions. The 3-h.p. machine is fitted with a water-cooled engine in a vertical position. This machine carries sufficient oil and water for a run of 150 miles, and is suitable for hilly districts, and for drawing a trailer. The D.E.C. 2-h.p. engine, with complete set of fittings ready for attaching to cycle, has been considerably improved in several details, and comprises specially-designed crank and fly-wheels, by which is obtained a firm crank shaft and long bearings, thereby securing long life. Another special feature is the accessibility of the valves; by unscrewing a set screw half a turn, a special swing-over bridge exposes the inlet valve dome. The inlet valve and its seating can then be taken bodily out, and the exhaust valve removed. Motor-bicycles with the 1903 Minerva engine are shown by Mr. Harry S. Roberts, of Deanshanger, and Messrs. Frank H. Parkyn, Limited, Wolverhampton.

Mr. E. Blundell, of Wem, Shropshire, is showing his liquid patching tyre cement, "Patcho," a new composition for repairing inner tubes or outer covers of bicycle or motor tyres, without the aid of rubber or chalk. To repair a puncture or burst, the neighbourhood of the puncture is cleaned and roughened with sandpaper or emery, and the cement is applied. After two minutes allowed for drying, the repair is described as complete. A Yorkshire motorist, who has tried "Patcho," reports that it has proved most successful in repairing an old motor outer cover full of holes and cuts.

[There are a number of other exhibits which we hope to deal with later.]

THE STANLEY SHOW.

As might be expected, the display of motor-bicycles is the dominant note of the Stanley Show at the Agricultural Hall, Islington, N.—that convenient and accessible home of so many popular trade exhibitions.

The latest American petrol car to appeal for the favour of British motorists is the "Rambler," which is being introduced into this country by the Petrol Motor Power Company, and of which an illustration is given in Fig. 1. The motive power is supplied by a 6½-h.p. horizontal single-cylinder motor. The water circulation is on the gravity system, a special arrangement being fitted for causing cool air to rush through holes

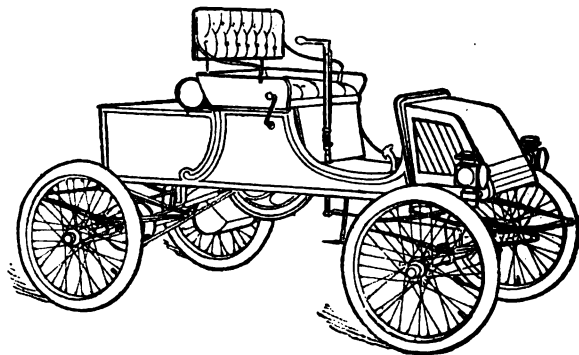


FIG. 1.—THE RAMBLER CAR.

provided for the purpose through the water-tank. Two speeds forward and a reverse motion are provided; the change speed gear is of the Crypto type, the drive being direct through a single chain on the high speed. The car is equipped with Goodyear tyres, and on the level can attain a speed of twenty-five miles. It may here be mentioned that one of the "Rambler" cars made a non-stop run in the recent Anniversary run to Oxford.

Two new American petrol cars are to be seen on the stand of the Kitto Automobile Company—the Cleveland, and the Waltham. The former has a 8-h.p. single-cylinder, horizontal motor in the rear of the frame. The throttle is worked by a foot button. A float feed carburettor of the Longuemare type furnishes the mixture. One notable feature is the automatic check release for starting the engine. The valve is opened and the engine is started by the usual ratchet crank. At the first kick of the engine the compression release valve closes automatically. The cylinder is water-cooled, the circulation being maintained by a small circulating pump. An automatic multiple feed lubricator keeps the various bearings and cylinder well oiled. Two speeds and one reverse are obtained by a Crypto-type gear, the power being transmitted to the rear axle by a single chain. The Waltham Runabout has a frame of steel tubing. The axles are strongly trussed to support the heavy lateral springs which are mounted upon them and carry all the weight of the frame and machinery. The motive power is supplied by an 8-h.p. De Dion motor. The speed of the motor is controlled by pressing the foot on a button or throttle on the floor of the carriage. The throttle and carburettor are so well adjusted that, by this means alone, the speed of the motor can, it is claimed, be governed at will from 250 to 2,000 revolutions per minute, giving a speed to the carriage of from 3 to 20 miles an hour. The transmission gear is mounted on the direct shaft from the motor; it operates on the band brake principle, giving two speeds forward and one reverse. On the high speed the power of the engine is conveyed direct to the rear axle by a single chain without the operation of any gears. The controlling mechanism consists of a lever located on the left-hand side of the carriage.—To start the carriage, it is pushed forward a few inches, which causes the slow-speed gear to operate. A further movement of the lever forward will engage the direct gear, and the car will then take a speed according to the pressure given by the foot on the throttle. To stop the car the foot is simply lifted from the throttle and the lever pulled quickly back as far as possible against the reverse, which acts as a powerful brake until the vehicle stops, and then if still held back will cause the car to move slowly backward until the lever is allowed to take its natural upright position. The car is further provided with a powerful emergency brake acting upon the rear axle. The new Kitto motor-bicycles are fitted with 3½-h.p. air-cooled engines, built in the frame in such a way as to constitute part of the seat tube. The top tube of the machine is used as a lubricating oil-tank. Belt-driving is adopted, while the "mixture" is furnished by a special combined mixing valve and throttle.

Messrs. Brown Bros., Limited, show the new pattern of Brown motor-bicycle. The 2-h.p. motor is vertical, and is placed in the popular position in front of the crank-bracket, a couple of plates on the frame and bracket holding the crank-case secure. A spray carburettor is fitted, and the machine is controlled by two levers only. In addition to this, the firm show the type with the engine inclined on the lower cross tube, a position which finds favour with a good many motorists. Both the patterns are of the belt-driving class. Car motors of various powers and an 8-h.p. Brown

car are also to be seen. In addition to these Messrs. Brown display a most complete collection of parts and accessories, including coils, accumulators, lamps, jacks, lubricators, gear wheels, chains, etc.

Messrs. Davis, Allen and Co., in addition to exhibiting a number of Mitchell 2-h.p. motor-bicycles, have on view one of the "Indian" 2-h.p. chain-driven machines, of which an illustrated description was given in our issue of November 30th, 1901. The East London Rubber Company are introducing a new motor-bicycle, which they have named the "Kerry"; it is carried inside a special loop frame, and drives the rear wheel by a belt. The engine has a cylinder 70 mm. bore by 80 mm. stroke, and develops 2½-h.p. at 1,400 revolutions per minute. A float feed type of carburettor is employed, and a neat form of exhaust valve lift is fitted.

No less than three types of motor-bicycles are shown by Messrs. Bradbury and Co., Limited, of Oldham. The new one has a motor of 2 or 2½-h.p., placed vertically in the frame; the case of the engine is a malleable casting in which the whole of the lugs and the crank bracket shell are included. Consequently the crank case of the engine can, without any fear of fracture, be used as part of the frame. The cylinder is cast in one piece with the head, and the silencer is placed close to the exhaust outlet. The first movement of the exhaust valve lifting lever breaks the electric circuit. Lubrication is provided by a pump placed conveniently at the fore part of the tank, where the oil reservoir is situated. The drive is through a Lincona belt. Fig. 2 shows the Bradbury 2½-h.p. motor-cycle provided with an extra rear seat, which may be readily attached and detached. The machine is provided with an extra tank, with compartments for both oil and petrol. A well-designed trailer is exhibited, and a chain-driven motor-bicycle driven by a Clement-Garrard engine is also shown.

Tyres naturally form an imposing collection—could they be brought together—and are now numerous enough to puzzle the novice anxious to make the best selection. All the well-known makes are represented. The Collier Twin Tyre Company, Limited, show the tubes of the tyres which went through the 4,000 miles test of the Automobile Club, while prominence is naturally given to the fact that these tyres lost least marks in the daily runs. The "Radax" motor-tyres are shown on various sections of rims. These are made in certain sizes, moulded and vulcanised throughout, and the strain being distributed, elasticity and easy running are secured. Stand 1 is occupied with specimens of the Camel motor-cycle tyres, and other goods of Messrs. F. Reddway and Company, Limited. Messrs. Toni and Company take occasion to call attention to their new form of motor tyre in which the thickened edges of the cover are clamped one on each side of the metal rings, thus holding them with absolute firmness. The clamp itself prevents creeping, and automobilists will regard with interest a practical trial of this idea. The Grappler motor tyres are shown in weights suitable for cars of all sizes, nuts and bolts being adopted at intervals round the rims. The Continental Caoutchouc and Gutta-percha Company have a representative display of the "Clipper Continental" motor-tyres, the features of which are universally known. A novelty is shown by the Ducasable Automatic Tyre Syndicate. A string of strong indiarubber balls containing atmospheric pressure only, is placed within the tyre in place of the usual inner tube. In each ball is a small aperture to allow the free passage of air where the ball receives the load. According to the claims of the Syndicate the tyre can be punctured without any interference with the running of the car, and motorists will look for the future performances of this innovation.

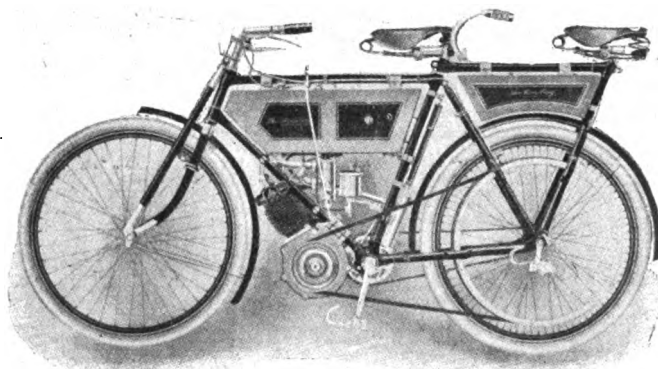


FIG. 2.—THE BRADBURY MOTOR TANDEM.

Considerable interest is being shown in the 1903 models of the Minerva Company's bicycle-motors, exhibited by Mr. D. Citroen. As we have already announced, three sizes are being made—the 1½-h.p. Romania, arranged to be fitted in a vertical position, a 2½-h.p. Minerva of the old type for use on high-powered machines, and a 2-h.p. Minerva, which is attracting great attention by the fact that it is fitted with mechanically-operated inlet valves. We give two views of this motor in Figs. 3 and 4. In the motor the inlet valve mechanically opens the moment that the piston begins to descend, and is not closed until the piston has arrived at the end of its stroke. The fresh gases occupy, therefore, the whole of the volume of the cylinder. The compression has been greatly increased, the combustion chamber and the cylinder being cast in one piece. The sparking plug is placed just above the inlet valve. The exhaust is quite free, the angular bends of the

tubes having been eliminated and a silencer constructed which, whilst being small, avoids back pressure upon the motor. Referring to the illustrations, it will be seen that the cylinder does not possess any radiators on its lower part; only the top part, the combustion chamber, and the valve boxes being so provided. D is the combustion chamber, cast in one piece

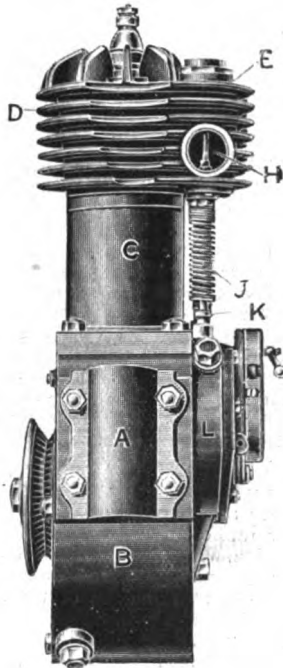


FIG. 3.—SIDE VIEW OF THE NEW MINERVA MOTOR.

with the cylinder. An interior partition almost completely separates the two valve chambers. H is the inlet by which the gas prepared by the carburettor is sucked in by the motor. I is the outlet for the burnt gas. This outlet inclines at 45 degrees, and considerably facilitates the escape of the gases, as these do not encounter sharp angles. Both valves are opened

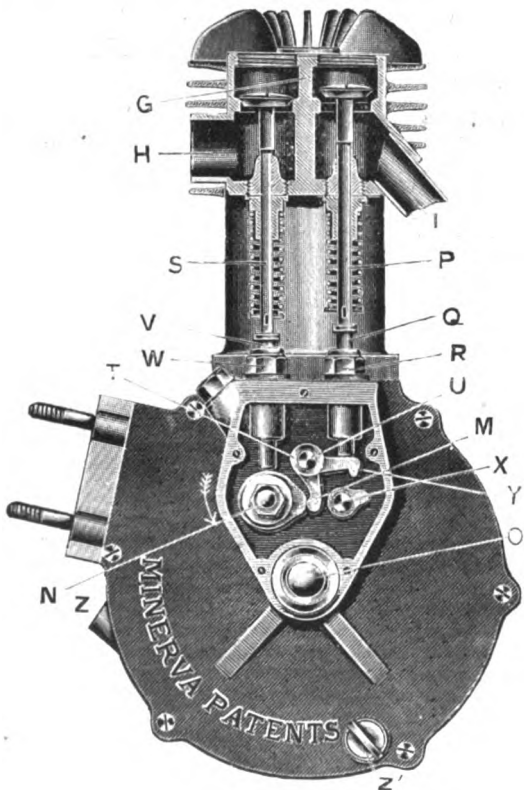


FIG. 4.—SECTIONAL VIEW OF NEW MINERVA MOTOR, SHEWING VALVE-OPERATING MECHANISM.

by being lifted by rods raised by the action of the cam seen in Figure 4. The cam M is keyed upon the shaft N, which is operated from the interior of the crank case by a two-to-one spur wheel keyed upon the shaft O. This cam M operates the inlet valve S through a lifting rod V sliding vertically

in a guide-socket W, the cam M turning in the direction of the arrow indicated in the illustration. After having operated the inlet, it operates the exhaust valve P through the medium of a bell crank T turning round a pivot U, and lifting the rod Q sliding in the guide R. Half of the thickness of the cam M is cut away, so that although the cam is made in one piece it has two distinct profiles, of which the larger controls the exhaust valve P, and the smaller the inlet valve S, in order to hold the exhaust valve open for a longer period than the inlet. The small cam X turns freely on its pivot when actuated by an external rod connected to the operating lever on the bicycle top-bar, and when so turned the cam raises the arm Y of the bell-crank and so holds the exhaust valve open.

Other features of interest to automobilists will be described in our next issue.

CORRESPONDENCE.

THE AUTOMOBILE CLUB BILL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am the owner of a $3\frac{1}{2}$ -h.p. car which I have had in use for nearly four years, and during that time I have ridden many thousands of miles with great advantage to my health and at little expense to my pockets. With the police, until recently, I have never had any difficulty; but during the last three months I have been stopped twice, although my car will not travel, at its best, more than fourteen miles an hour. This, Sir, I consider is a shame, and I can only suppose that the police have recently had special instructions to stop all motorists.

Whether this is so or not I do not know positively, but it certainly seems to me that the activity of the police is being caused by the ill-judged action of those motorists—in Parliament and out of it—who want to alter the present law. Why should Mr. Montagu want to alter the existing law; or, why should he seek to interfere with other people's pleasures? It appears to me a very injudicious act on his part, and I trust other Members of Parliament will take care to block any Bill seeking in any way to alter a condition of progress which has been so eminently satisfactory.

Thinking as I do I beg to append a signature suggesting to sensible folks the advisability of not seeking to alter present conditions.—Yours truly,

LETTING SLEEPING DOGS LIE.

GRADIENTS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In Mr. Alford's article, "From North to South," in your last issue, he states that the Kirkstone Pass, approached from the Patterdale side, "is a hill about four or five miles long, having an average gradient of one in eight"! Assuming four and a half miles to be the length, this gives a rise (not from sea level, be it remarked) of about 2,970 feet from the foot of the hill. I do not know the length of the foot of the hill above sea level, but it is considerable, and even supposing it is only 200 feet, then, according to Mr. Alford, the summit of the Kirkstone Pass must be about on a level with the top of Helvellyn!

Motorists' statements are as a rule very loose as regards grades, but Mr. Alford's estimate pales into insignificance compared with a statement I saw a few weeks back of a motorist on a small-powered petrol car, who "frequently encountered hills of one in five, and sometimes of one in four and a-half, on main roads." Can any of your readers tell me of a main road with a slope of one in five. Personally, I doubt there being one, when subjected to the test of clinometer or, better still, theodolite. Another point in connection with statements as to hill slopes is the use of the word "about." One often hears a hill described as "about one in seven or seven and a-half at its steepest part," the speaker being, apparently, under the delusion that the extra half is of small value; well, so it may be with a hill of one in fifty, where half only makes a difference of one per cent., but at one in seven and a-half makes a difference of, approximately, 7 per cent.—Yours faithfully,

T.

FURRED BOILERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In your issue of the 8th inst. Mr. J. G. Kirsten, and in yours of the 15th inst. "Steamer," ask for full particulars of "Vulite," which I recommended for the boilers of steam motor-cars. Being acquainted with the constituents of Vulite, and knowing that it contains neither acid nor alkaline matter, after giving it a severe trial, I am able to thoroughly recommend it as a prevention of incrustation. I use it myself and, therefore, can speak from experience. It is manufactured by the Vulite Syndicate, Ltd., 40, Wilson Street, Finsbury, E.C., to whom I suggested they should advertise their preparation in the *Journal* so that others may also benefit by its use. I know only too well the harmful effects which result from the majority of boiler compositions, therefore should not recommend this one did I not find it advantageous. As I reside at Burton-on-Trent, where the well waters are so extremely hard, I found it absolutely necessary to look around me for something to prevent my pipes and boiler furring. I shall be only too glad to be of service to any inquirers on this matter.

In reply to "Steamer," the blow cock is fixed at the top of my boiler for blowing off the steam, but I have a special blow-off cock from the bottom of the boiler for blowing off water and also any sedimentary matter, but my principle is to blow off the boiler every day after the steam has run down to

20 lbs. pressure. I also open all steam pipes as far as possible so as to get rid of any sedimentary matter that may be in them. "Steamer" will not have any further difficulty with his pipes or water-gauge when he employs the compound above referred to. I shall be glad to know how he succeeds with its use.—Yours truly,

FRANK THATCHER.

HOW TO DRIVE MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It would be interesting to have the opinions of your readers concerning the best methods of driving a motor-car. Few people are able to spare the time necessary for a course of lessons from competent teachers, and the majority have to rely upon themselves, or the advice of friends, who possibly were in a similar position a few months previous, but have worked out their own salvation in what seems a satisfactory manner.

Their method of driving may, however, be far from the best. One will drive with the spark advancing lever only; while another will use the throttle lever. In running down hill there are more ways than one of arranging matters. One driver goes at it on the top speed, with motor running out of gear, relying solely on his brakes; while another stops his engine and uses it as a brake. Yet another will use the middle or low speed gear, with engines either working or switched off, or in or out of gear. Which is best? Other problems might suggest themselves, answers to which would make interesting reading and greatly assist those who are anxious to drive well.—Yours truly,

"GEAR BOX."

ANTI-FREEZING SOLUTIONS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Can any of your readers suggest an easy method of guarding against fracture of the cylinder of water-cooled motors owing to frost? The present would be an opportune time. We are not all fortunate enough to have a properly-equipped motor-house, and there is always an element of danger attached to lamps and stoves, to say nothing of the trouble of stoking. One does not feel disposed to empty and fill eight or ten gallons of water two or three times a week, and the emptying may not be a sure safeguard, as there is always a possibility of water remaining in the jacket owing to air-lock. Equal parts of glycerine and water have been suggested, but that would be somewhat expensive. Is there any cheap compound that may be added to the water and that will serve the purpose without being detrimental?—Yours faithfully,

J. G. HUGHES.

"J. W. G." writes:—Where or from whom can spare parts for a "Jackson Doctor's" car be purchased?

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Tavistock ...	E. H. Renton, London	—	£1, etc.
Shoreham ...	C. Farrer, Queen's Gate, W.	22 m. p. h.	£5 10s.
*Oxford ...	F. Prior, Headington, Oxon.	—	£1, etc.
"	S. F. Beevor	—	"
"	W. Hodges, Kensington	—	"
"	A. Williams, Wolvercote	—	"
"	G. Williams, Gunnersbury	—	"
"	E. Lisle, Wolverhampton	—	"
"	T. Jenner, Twickenham	—	"
"	W. R. Sleigh, Ashurst	—	"
"	C. K. Gregson, Regent's Park, N.W.	—	£5, etc.
*	R. Annis, Oxford	—	£1, etc.
Chertsey ...	E. Meyers	20 m. p. h.	40s.
Epsom ...	J. Chitty, Lavender Hill	16 m. h. p.	£3.
Nottingham	G. Woolridge, Birmingham	18 m. p. h.	40s.
*Birmingham	S. Timmins, Birmingham	17 m. p. h.	10s., etc.
*Woking.....	R. Macgregor, London, W.	21 m. p. h.	£3.
"	P. Pugh, Esher	21 m. p. h.	"
*York	J. Dehey, Selby	18 m. p. h.	£2 2s., etc.
*Bishop's Stortford	S. Willatt, Takeley	—	25s., etc.

Where no alleged speed is given it is understood to be above the legal limit.

* Motor-cycle cases.

SAMUEL TIMMINS, who was fined at Birmingham, is an employee of the Midland Motor Company, and was testing a new motor-cycle. The police alleged a speed of 17 to 20 miles an hour uphill.

EIGHT cases came before the Bullingdon Petty Sessions, at Oxford, on Saturday, in which the drivers of motor-cars, on the occasion of the run of the Automobile Club from London to Oxford, on the 8th inst., were summoned for driving at a faster rate of speed than the law allows. The police alleged that the pace varied from twenty-nine miles an hour downwards. Seven defendants were fined £1 and costs. One, who, it was

stated, refused his name and address, and was followed by a constable on a bicycle, was fined £5 and costs.

In the case against Mr. Renton at Tavistock, Dr. Marshall, who prosecuted, stated that the car came round the corner at such a furious pace that had his pony not shied on to the grass by the side of the road there would have been a collision. He shouted to the defendant and his companion, but they did not stop, and he informed the Tavistock police, who had them stopped at Okehampton by telegram, and their names and addresses taken.

THE DAIMLER MOTOR COMPANY, LIMITED.

THE directors of the Daimler Motor Company have issued the balance-sheet and accounts for the year ending September 30th, 1902. The accounts show a loss on the year of £19,751 8s. 6d. This loss is attributable to four causes: First, re-arrangement and re-organisation of the shops and stores with a view to more economical production; second, loss on the sale and in the value of cars of the old type and of stock for such cars, which had been accumulated in former years; third, cost of designing and manufacturing new types of cars; fourth, increased cost of management and establishment. The report says that when the present Board took charge of the business, the Company had no up-to-date cars able to compete with the English and foreign cars then in the market. Only cars of the old type were being constructed, and a large quantity of finished parts of the old type were in stock. The Board decided to stop the manufacture of these cars, to dispose of them at the best possible price, and to design and construct cars which could compete with any car in the market, and in this they have succeeded, as shown by recent results. Sales show about the same result as in the previous year. More orders for cars were received than in any previous year, and at the close of the year there were in hand orders from customers for eighty-four cars, the net value of which was £62,000, or three times as much as on the 30th September, 1901. This is in a great measure due to the high merits of the new types of cars which are now being manufactured, and is a proof of the wisdom of the policy adopted by the Board. In the report for the year 1900-1901 the shareholders were informed that the Board proposed to make an issue of debentures. In March, 1902, an issue of £60,000 five per cent. debentures was made, the whole of which was underwritten through the North of England Industrial Trust, Limited. By the end of the year £43,050 had been received, and £16,950 had to be paid up. This operation involved the paying off of the £13,000 loan mortgage. It has in consequence now disappeared from the balance-sheet. Mr. E. Manville retires by rotation from the office of director, and, being eligible, offers himself for re-election. The auditors, Messrs. Monkhouse, Stoneham and Co., retire, and offer themselves for re-appointment.

ALLEGED BREACH OF WARRANT.

In the Nisi Prius Court, No. 1 (Dublin), before Mr. Justice Johnson and a city common jury, Major Harold B. Sykes has sought to recover £210 damages against Captain H. R. Langrishe, of Knocktopher Castle, co. Kilkenny, for alleged breach of warranty in the sale of a motor-car, and also for misrepresentation. The defence was a denial of the breach and also that there were any misrepresentations of fact. Counsel for the plaintiff were the Solicitor-General, Mr. O'Shaughnessy, K.C., and Mr. Wm. Gibson; for the defence there were Serjeant Dodd, Mr. R. F. Harrison, K.C., and Mr. Gerald Fitzgibbon.

The Solicitor-General said that on the 1st January there appeared in the "Irish Times" the following advertisement:—"Motor-car for sale, 8 horse power, Peugeot; one-third of original cost; perfect order; twenty miles an hour over any road; mount any hill; trial allowed.—Apply to owner, Knocktopher Abbey, co. Kilkenny." Then, on the 13th March the following appeared:—"Motor-car for sale, in splendid order throughout; guaranteed to climb any hill with full load." Counsel went on to open correspondence which had arisen out of the advertisement, and had passed between plaintiff and defendant, complaining at the beginning of what he called the deliberate attempt on the part of the defendant, in his affidavit of discovery, to suppress plaintiff's letters. Mr. Harrison, K.C., admitted that the defendant had destroyed these letters. Continuing, the Solicitor-General said the defendant asked £210 for the car, stating that it had cost him £650. As a matter of fact, the car was bought secondhand for £300. The car being represented as absolutely reliable, was purchased by the plaintiff for £210. When it reached the plaintiff the wheels had to be tied up to keep the thing together. At last Major Sykes decided to take it to Messrs. Hutton and Co., at Dublin, at whose premises it had remained. Counsel concluded by reviewing the offers which plaintiff had made to get defendant to agree to a reasonable settlement. He was willing to hand over the machine if he got back £150, but that and all other offers had been refused, and plaintiff had no alternative but to come before a jury.

Evidence for the plaintiff was given by himself, Mr. H. E. Wells, a motor engineer, Mr. J. R. Evans, instructor in practical engineering to the Board of Technical Education in Ireland, who said £100 would have to be spent on the car to bring it into a proper condition, Mr. H. Tooms, head of the engineering department of Messrs. Hutton and Co., and Mr. E. Instone, of Coventry, who said in April, 1900, he examined the car for Captain Langrishe, and a cheque for £300 for it passed through his (witness's) hands. He did not know that the purchaser gave up another car worth £200.

Serjeant Dodd then opened the case for the defendant, who, in his evidence, said he arranged for the purchase of the car with a Mr. Scarborough through correspondence, and paid for it by a cheque down for £300, another cheque for £50 in six months, and also handing over a six h.p. Vallec car, for which he was allowed £200. The car was a second-hand one, and cost new £650. Witness used it for the first season of 1900 in England, and then brought it over to Kilkenny for 1901. In February of this year he had it overhauled by an expert local mechanic who spent a fortnight on it. W. Simpkins, who was employed by the defendant as driver, Mr. F. Browne, Mr. Douglas, Captain Skeffington Smyth, and Colonel Chaloner Knox then gave evidence, the latter saying he was present when defendant bought the car at the Automobile Exhibition in London in April, 1900, and could corroborate him as to price and terms of purchase.

Mr. Claude Johnson, secretary of the Automobile Club of Great Britain and Ireland, was a witness on the concluding day of the trial. He said he had four cars of his own, and had had a good deal of experience with motors. He had been on the car, the subject of this action, when a prize was won for readiness in starting. That was in July last. On one occasion he went on the car, in England, sixty-four miles at night. Mr. Harrison, K.C., and Mr. O'Shaughnessy having addressed the jury, they, after two hours, returned to court, stating that they were not able to agree. They were then sent back, and with explanations of the questions submitted by the Judge. Half-an-hour later they came in again. They were not long in consultation this time. Some further progress had then been made, and the issue appeared to have been narrowed. But they had again to go back. They had, however, found that the car on delivery was in perfect working order, and that it was capable of mounting the steepest hill. Once more they returned to their room to find answer to an issue not yet decided, and, finally, his Lordship announced that the result of their findings appeared to him to amount to a disagreement of the jury.

MEASURED DISTANCES.

THERE is a measured quarter of a mile at Dringhouses, near York. At Headington (Oxon) the police have a "quarter of a mile 'trap,'"—to quote from evidence in the case at Bullington—commencing at the Barton turn and ending just before the Quarry.

MOTOR-CAR OBSTRUCTION.

At the Durham County Police Court, William Greenwell, of Sunderland, has been summoned under the Highway Act for obstructing the roadway by laying a 2-inch pipe across the road and footpath, from his motor-car to the river Browney, near Langley Moor. Constable Bruce gave evidence, and said the defendant's car stopped at this place twice a day to take water, and caused an obstruction to the roadway and footpath for ten minutes at a time. For the defence, it was pointed out that it was necessary for the car to pick up water at intervals. In the present case every care had been taken, and he urged that there was no wilful obstruction. The Bench dismissed the case.

POLICEMAN AS TRADER.

At the Mistley (Essex) Petty Sessions, Frank Youngs was summoned for having ridden on a motor-bicycle without a light on the night of November 3rd, at Ramsey. Police-constable Gardiner stated that just after midnight he saw the defendant riding a motor-bicycle, to which a trailer was attached. There was no light. The defendant said that the policeman offered to sell him a lamp for 4s. 6d. Replying to the Chairman, the constable said that defendant's statement as to the lamp was correct. Witness gave 3s. 6d. for the lamp. The Bench fined defendant 2s. 6d. and costs, the Chairman remarking that the constable ought to be on his guard against selling lamps at a profit.

MESSRS. CASTLE AND SONS, of Victoria Square, Workson, have arranged for a regular supply of petrol by water.

THE Bakewell (Derbyshire) Rural Council has expressed its approval of the Yecovil proposals with regard to motor-cars.

THE yachtsmen of the country have formed a Marine Motor Association with the object of encouraging motor-launch racing.

A CONFERENCE of those interested in light motor delivery vans will be held at the Automobile Club on Thursday, the 4th prox., at 4 p.m.

AN American inventor has devised a simple attachment which can be applied to any petrol car, which, it is claimed, absolutely destroys the odour of the petrol, or of any burning oil coming from the cylinder. "It is automatic and consists of a fluid which mixes with the exhaust, from the exhaust pipe or muffler, leaving only a very slight and pleasant odour."

THE War Office have issued instructions with regard to the enlistment of recruits for the Mechanical Transport Companies of the Army Service Corps. Recruits are to be attested for the Army Service Corps for three years with the colours and nine in

the Reserve. The limits of age and standard of physique will be those laid down for drivers of the Army Service Corps. On enlistment the recruits are to be sent to Aldershot for final approval, and for posting to Mechanical Companies if found suitable. Mechanics only are to be enlisted, and the trades mentioned as suitable are engine drivers, engine erectors, fitters, gas fitters, metal turners, moulders, plumbers, riveters, metal shipwrights, tinsmiths, and whitesmiths.

ON the 14th inst. two cars underwent the 100-mile non-stop test of the Automobile Club. The Firefly Motor and Engineering Company's two-cylinder 12-h.p. car, seating four persons, successfully went through the run without a stop. The speed up Dashwood Hill with full load was 8.71 miles per hour, and up Aston Hill 8.75 miles per hour. The consumption of petrol for the 100 miles was 5 gals. $\frac{3}{4}$ pt., and of water 2 gals. 1 pt. As mentioned in our last issue, the 9-h.p. Earl car of the Great Central Garage, Limited, also made a non-stop run. The hill-climbing speeds given last week need a little revision. The car took its four passengers up Dashwood Hill at the rate of 10.45 miles per hour, and up Aston Hill at 10.2 miles. The consumption of petrol for the 100 miles was 4 gals. 2 qt. 1 pt.

AT the meeting of Kensington Borough Council, on Tuesday, a discussion took place with respect to the motor street-cleansing machine which has been at work since December last, and about which complaints have been made. The Works Committee brought up a report, with the following conclusions:—That the machine is a valuable adjunct to the working plant of the borough, and that although the noise made by the machine at night is less than an ordinary heavy vehicle, the regular repetition of the sound disturbs the rest of residents. It was therefore recommended that the machine be withdrawn from its present night work, and fitted with a removable tank body with tipping gear, so that the same could be used for ordinary cartage purposes, when not engaged in street-cleansing and watering. The Council agreed with this recommendation.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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COMMENTS.



A LREADY the French Automobile Club has issued a challenge to the British Club to contest the ownership of the international trophy in 1903, and the A.C.G.B.I. Committee has held a meeting to consider the selection of the British champions. They have agreed that the Motor Power Company should be nominated to enter two Napier cars—but in doing so have recorded that they do not wish it to be taken as a precedent by which the winner of the Gordon Bennett race in one year should claim the right to enter two cars in the following year. Some will probably ask why this intimation is made, and why the dual nomination should have taken place on the first occasion.

The Eliminating Test.

HAVING thus decided as to two of the three cars, the Committee have laid down conditions as to an Eliminating Test for the third car, which will probably cause some discussion among the manufacturers who are looking forward with something more than an academic interest to next year's event. Constructors will have to contribute at the rate of £50 per car towards the cost of organising the race, which will be run on a mile track and on a hill—the location of both to be announced later. The Eliminating Test on the Welbeck or similar course will consist of three runs *down* (the time to be taken over the flying kilometre); three runs *up* (the time to be taken over the flying kilometre); three runs *up* (time to be taken over the standing mile); three runs *up* (time to be taken over the standing mile), and three times up the hill. To arrive at the results there will be ascertained (1) the mean speed made over the six journeys over the flying kilometre, and from this will be calculated how long the car would take, travelling at that mean speed, to complete twelve miles. (2) There will also be ascertained the average speed made by the car on the six journeys over the standing mile, and from this will be calculated how long the car would have taken in covering three miles at that average speed. (3) From the records made in the three ascents of the hill it will be ascertained what was the average speed, and from this will be calculated what would be the time occupied, when travelling at this average speed, in covering one mile. The total time which would be occupied in covering the sixteen miles above referred to will thus be ascertained, and the car which proves to have been the fastest over the sixteen miles will be the winner.

Last Day of Entry.

ENTRIES for the Eliminating Race must be made before noon on Monday next, the 8th inst.—each entry to be accompanied by a cheque for £500. If a car entered is not at the appointed place by an hour to be stated on April 10th, or any subsequent date which may be fixed by the Committee, the £500 will be forfeited. Surely the Committee should be allowed to exercise a discretion with regard to this matter; if the failure to arrive be due to any unforeseen accident. The absolute forfeiture, without any qualification whatever, seems somewhat severe. Unless the car presented for the Elimination Test conforms in

all respects with the requirements of the Gordon Bennett Rules and unless the car is, in the opinion of the Committee of the Club, a *bona fide* racing car suitable to compete in the Gordon Bennett Race, the £500 will be forfeited.

A Criticism.

OF course it is necessary that stringent rules should be made, but we would have preferred that the Committee should have reserved the right of returning the money if substantial reason were shown for any deviation from clause j. The other point, as to the entry of two cars of one maker without trial, is of great importance to the industry. Of course, last year's winner is entitled to again enter a car without reference to any preliminary contest, but the right to two out of the three entries may be disputed. In fact, by asking that this course should not be made a precedent, the Committee would seem to be doubtful as to the wisdom of their own decision. Certainly it would have given more general satisfaction had the one car been nominated without contest, and both the second and third representatives made the subject of competition. In view of this it is rather a pity that so short a period elapses between the date of publication of the conditions of selection and the date of the entry of cars.

Balloon Chase at Reading.

As briefly announced in our last issue a balloon hunt will be held at Reading to-day (Saturday). The balloon engaged in the contest is a new one, Vivienne II., belonging to Mr. Leslie Bucknall, who with the Hon. C. S. Rolls and Mr. Frank Butler will make the ascent. The chase will be sustained by the Volunteer Automobile Corps, and among the prizes offered is one by Mr. Charles Cordingley. He has offered an award to the value of £10 to the automobilist or volunteer cyclist who, starting from the place of ascent in the public park, captures the despatches on the descent of Vivienne II. Weather permitting, it is hoped the balloon will leave the ground at noon, and, circumstances permitting, it should return to earth again between three and four p.m. We trust Mr. Leslie Bucknall's enterprise will be well supported and have the much-to-be-desired assistance from the clerk of the weather.

Automobiles at the Durbur.

IN view of the many motor-cars that have been sent out to India lately, the owners of which had hoped to use them when seeing the Durbur at Delhi, we are pleased to hear that Lord Curzon has decided against the recent prohibition of their use. The decision of the Committee not to allow automobiles on the camp-roads was unnecessary, and, to local firms that had invested largely in motor-cars, unjust. The matter having been brought to the attention of Lord Curzon, he has decided to permit the running of motor-cars subject to approval of the design of proposed vehicles, to guarantees as to the competency of the driver, to the use of particular roads, and to prohibitions which may be notified on special occasions. In view of the special character of the proceedings these regulations appear wise and necessary, provided

the "approval of the design of proposed vehicles" is given in a proper spirit.

Automobiles in India.

It would be well if the Government of India would relax its very stringent regulations with regard to petrol. At present it is practically classified as an explosive and subjected to almost as many precautions as nitro-glycerine—a needless severity in the face of the experience of Cairo and other places where motor-cars are becoming recognised as familiar means of locomotion. The Bombay Boiler Act is also adversely affecting the introduction of steam cars, and we are glad to see that several leading Indian papers are urging that rules unnecessarily tending to limit the general use of the automobile should be rescinded. As we have recently observed, the automobile will do much for the development of our great Dependency, and those motorists who are attending the Durbar at Delhi can render useful service by impressing this fact upon all in authority with whom they come in contact.

Maidenhead Bridge Tolls.

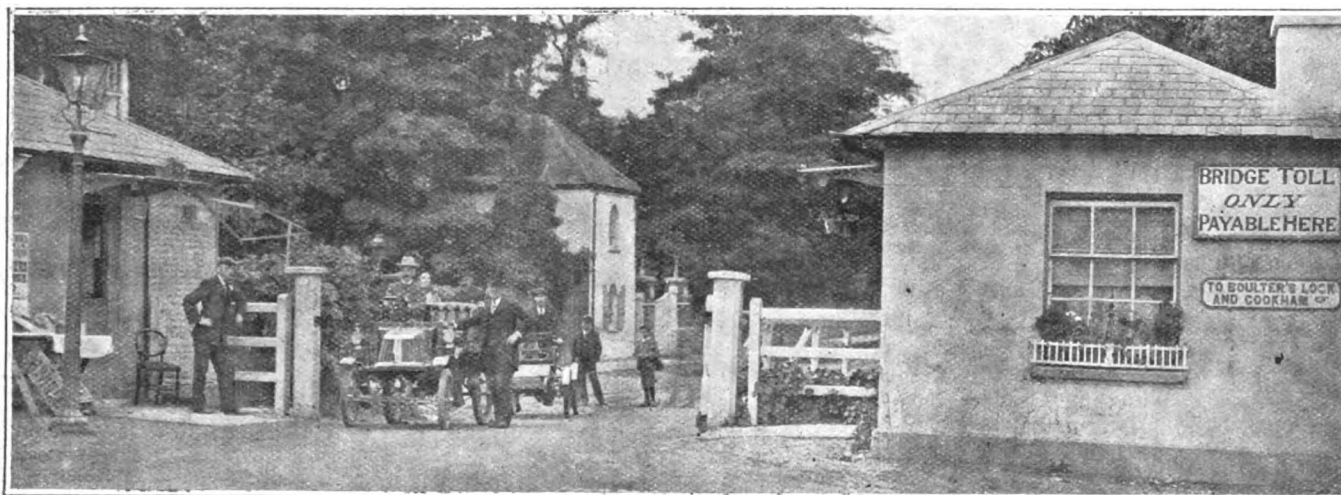
In our last issue we referred to the movement which has been started to free Maidenhead Bridge from toll. This is the only toll-gate now remaining to obstruct the great Bath Road, and, according to the prime movers of the agitation, the Maidenhead Corporation since 1836 have had no

Riker's Novel Device.

MR. A. L. RIKER, the well-known American motor-car designer, has recently taken out a patent for a safety device intended to stop a motor-vehicle in case the driver should accidentally be thrown from his seat or in case the car is started by anyone not in the seat. The motor is connected to the gearing by a friction clutch, and a system of levers is provided, by means of which the driver can put the motor in and out of gear. The motion of one of the intermediate parts in this lever system is limited by two movable stops on a sliding rod connected by a lever to the hinged front seat of the vehicle. Normally, when no one is seated in the vehicle, the seat is raised on the hinges by a coiled spring, and this puts the movable stops in such a position that the clutch cannot be engaged. In case the driver should be thrown from the seat the action of the spring would disengage the clutch, and so bring the car to a stand.

A Case for Inquiry.

PROSECUTIONS by the police, and subsequent attempts to secure reversals of the convictions they secure, are always unsatisfactory. Evidence of this comes in the case of Mr. Samuel Harvey, a member of the Committee of the Nottingham Automobile Club, who was convicted at Grantham for driving a motor-car at a speed beyond the legal limit. He subsequently made two applications to the magistrates for summonses



THE MAIDENHEAD BRIDGE TOLL-GATE—THE LAST REMAINING TOLL-GATE ON THE BATH ROAD.

Photo by]

[Lug, Slough.

right whatever to levy any toll, and they have therefore since that date been acting illegally. Our illustration shows the toll-gate at Maidenhead which it is now being endeavoured to remove. In the picture are seen the three gentlemen who have taken the matter up seriously—Mr. J. Fullbrook, of Slough, being at the wheel, Mr. Howlett in the car, and Mr. Taylor, of Eton, at the side. On Monday next an interesting development of the situation will take place, as Mr. Joseph Taylor has informed the Mayor and Corporation of Maidenhead, as well as the Chief Constable of the county, that he intends to attend at Maidenhead Bridge to exercise his right as a member of the public to pass over the bridge in a vehicle, and to resist payment of toll, in order that the legal right of the Corporation to levy toll may be challenged, as he is of opinion that their attempting to do so is wholly illegal. We are glad to learn, that as a result of recent proceedings, the Bridge Committee have recommended the reduction of the toll for motor-cars from 8d. to 2d., and that on Monday night the Corporation agreed to the reduction.

for perjury against some of the witnesses in the trial. The later employment of a detective brought out new evidence, but again the magistrates refused to grant a summons. Surely the interests of justice require the sifting of evidence, and the magistrates should have been willing to have caused further investigation, even though such may not have been palatable to the police.

The Halifax Automobile Club.

AT the annual dinner of the Halifax Automobile Club, Mr. J. T. Simpson, the President, proposed the toast of the Club, and testified to the pluck and energy of the members of the Halifax Club in taking to the sport of automobilism—considering the geographical conditions of the district. Several members gave interesting reminiscences of early trips on motor-cars. The menu of the dinner commenced with "Savourie à l'Automobile" as a "starting handle," and ended with dessert and coffee as "lubrication."

The Charm of Motoring.

PRACTICALLY all motorists agree that as a vehicle for pleasure driving the automobile has no equal—its uniform, yet perfectly controllable motion, the sense of security experienced in driving it, and the independence, both as regards time and route, as compared with railway travel, give motoring a charm of its own and constitute it a form of exhilaration that is greatly relished by all who know it by experience. The sustained speed and comfort of touring cars has revived interest in country touring. With horse-drawn vehicles this would be a hardship. Thirty to forty miles a day would be the limit of travel with a good team of horses, and at the end of the day's trip the tourists would be tired and worn out, while with the motor-car twice this distance can easily be covered in less actual running time and with less tiring effect upon driver and passengers.

The Practical Side.

FOR a number of practical purposes also the motor-car has already proved eminently suitable, notably as a doctor's carriage. Physicians whose practice extends over a large district find that they can attend to their patients more promptly. take charge of a larger practice, and find more time for recreation by the use of the automobile. The various advantages of automobilism have not yet attained their climax; the motor-vehicle has not yet reached the height of its development. Anything like finality cannot be reached in such a comparatively short period, but the progress made not only in the construction but in the adoption of motor-cars since the abolition of the red flag in 1896, augurs well for further rapid developments in the future.

Road Inspection in Wales.

LAST week we briefly chronicled the inspection of roads in Breconshire by a committee of the County Council. The tour was a great success, giving the various members of the committee such a thorough idea of the state of the roads all over the county as they could have obtained in no other way, and also affording them the opportunity of comparing the roads in Breconshire with those in the adjoining counties of Carmarthenshire, Glamorganshire, and Monmouthshire. Considering the very rough nature of the roads traversed, the gradients, and the load carried (many of the cars having at times more than their proper complement of passengers, some of whom were heavy weights), the cars behaved exceedingly well. It is worthy of note that among the party there were as many as six J.P.s, and they may congratulate themselves on the fact that Sergeant—or is it Chief-Inspector?—Jarrett was not brought up from Surrey to watch their cars on that particular occasion. The distances travelled on each of the three days of the tour were 69½, 64, and 63½ miles respectively; and the average rate of speed indulged in was—but, after all, it is hardly a matter of public importance.

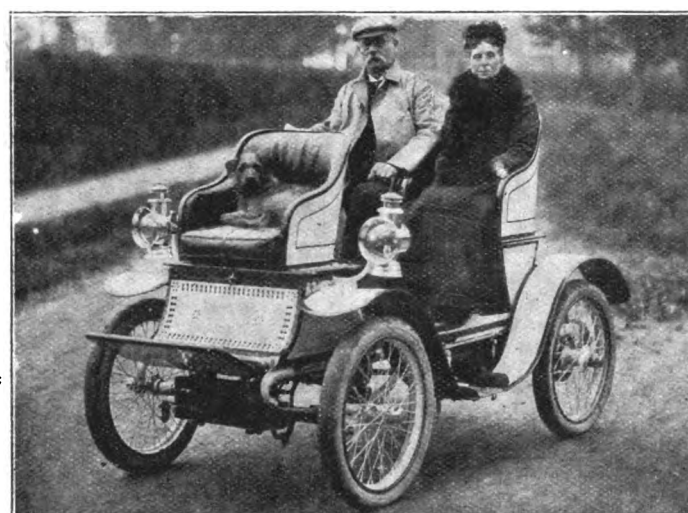
Universities and Motor-Cars.

AN automobile department has been added to the curriculum of the Columbia University, New York. Dr. C. E. Lucke, under whose supervision this branch of instruction will be maintained, speaks of it as follows:—"With the growth of the automobile, not merely as a car for pleasure or as a touring machine, the demand for skilled and scientific builders will increase. Of course, it is intended to fit men for other work than merely the building of motors for automobiles. The electric car, as a traction machine, is closely allied to the automobile, and the skilled builder of machinery for such cars is a man who will be in great demand. The generation of power, fuel consumption, etc., will be one of the most important of the subjects to be handled. The engineer who designs motor-cars must be in a position to design any style of motor, or carriage, he may be called upon to

build. For instance, if a brewer should say, 'I want a truck with a propelling capacity for five tons of beer barrels,' one must be able to sit down and plan a motor of sufficient power to propel such a load over such roads as the proposed truck would have to run. This can be done with scientific accuracy, and it is only science that is capable of making such plans." All styles of motors will be thoroughly explained. A motor-car will be set up in the laboratory, and the generation of power, fuel combustion, and every feature will be made the subject of practical demonstration.

Motor Tractors for the Fire Brigade.

IN the equipment of the Metropolitan Fire Brigade the London County Council is taking renewed interest, and, on the suggestion of Commander Wells, the Fire Brigade Committee has recommended the acceptance of an offer of the Wolseley Tool and Motor Car Company to build an experimental 10-h.p. tractor which will be used to draw either an engine or a ladder mounted on a van. We are glad to see the fire-brigade authorities recognise the importance of superseding horse by motor power, and also to record that British firms are in a position to help them in giving their views practical form.



MR. CHAS. HOMEWOOD, OF BALCOMBE, ON HIS DE DION VOITURETTE. (See page 779).

Illicit Commissions.

IN common with those engaged in other industries, the motor-car trade is interested in legislative efforts to secure purity in business. The difficulties are great, but we would suggest that they are not insurmountable if motorists are determined. We are afraid some employees—both of firms and private owners of cars—have not preserved an attitude that is above suspicion in the matter; they should remember that anything which savours of undue preference for special goods simply because of favours received is, morally, indefensible and may shortly be rendered legally actionable. There are a few industries which are said to have a low code of honour, and where illicit commissions are the order of the day; it is to be hoped that those concerned with the driving of cars will not allow such a taint to rest upon the progress of automobilism.

The Electrification of the Railroad.

COMPETITION among themselves, the extension of tramways, and the threatened rivalry of automobile road-carrying services have combined to create a watchfulness on the part of railway companies, which will eventually prove to the advantage of the public. Ere long the densely-populated towns in the industrial centres will be connected with the speedy electric

tram, and anticipation of this fact is partially responsible for the electrification of the railways, which has already commenced. There is no doubt that great changes are imminent, and the greater utilisation of the highways of the country will reveal how distant from the main arteries of traffic are many of the railway stations that have done duty in the past.

The National Maintenance of Roads.

It is not only the growing traffic of our great towns with which the authorities of the future will have to deal, but also the development of the main roads. In fact the Government might well direct an inquiry into the whole subject, so that some universal scheme may be devised for the maintenance of the roads. This is a matter of national concern, and the sooner the nation recognises that fact—as well as the changes that are coming over our methods of locomotion—the better will it be for the prosperity of the country.

The Numbering Question.

THAT the rural councils are passing resolutions in favour of the numbering of motor-cars with such unanimity should make motorists suspicious as to the merits of the Registration Bill which Mr. Montagu has brought forward. The chief advocates of the proposal are anti-automobilists; and we feel that had the suggested discussion on the subject taken place at the Automobile Club considerable hostility would have been shown by many of those interested in the matter. In order to silence opposition some sort of compromise may have been necessary; but the proposal to number cars is asking motorists to concede too much.

Middlesex and Numbering.

THE Middlesex County Council has adopted the following resolution:—"That representation be made to the Local Government Board requesting them, either by legislation or otherwise, to secure, in the interest and for the protection of the public, that a registered number be so affixed on the back of every motor-car as to ensure its identification. That the present provisions as to speed limit should be revised." Surely motorists will recognise what we have so often urged, viz., that the eagerness of county and other bodies to pass such resolutions is proof of the unwisdom of any advocacy of numbering from our own ranks. These authorities are displaying prejudice against the motor-car.

Motor-Cars for Public Institutions.

DOCTORS are showing increased interest in automobilism, and a suggestion lately thrown out in the medical press is added proof of the influence of motor-cars on the health of the people. We venture to think it will not be long before many of our large hospitals, and especially such institutions as sanatoria for consumptives, realise that in the automobile they have a ready means of providing health-restoring measures for their patients. At the present time in connection with many asylums and establishments for the crippled, blind, or otherwise deficient, occasional drives are provided at considerable expense, and necessarily very limited in application. The Boards of Management of such places should consider the opportunities which the automobile places at their disposal.

Business Methods.

THE old complaint made by British consuls abroad as to the lackadaisical methods of many English business houses is now arising in connection with the automobile industry. A well-known motorist writes to say that four years ago he had a car made by an English firm, "and that she is reliable," continues our correspondent, "is proved by the fact that she runs better than ever after having travelled at least 50,000 miles

Recently, however, the clutch leather required renewing, so I wrote to the firm in question for a new one; this was sent, but without the rivets for fixing. I then wrote for the rivets, asking for them to be sent by post. They were sent by 'rail,' and as I was at an out of the way place in Scotland, I got them about a week later; when they arrived they were the wrong kind. I then wired and received by return the proper rivets. I also wrote to the firm, complaining and asking them if they had not already sent the rivets on receipt of my telegram to do so. The result was a further consignment of the same sort as I was sent at first—viz., the wrong ones. Altogether I could not use my car for a fortnight. I also have a French car, and, whenever I want a new part, all I have to do is to wire, and the correct parts are sent at once." Carelessness on the part of some subordinate was probably the cause of the trouble in this case—as in many others—but the incident demonstrates the necessity for principals and managers to keep an eye on all transactions.

A MOTOR-CYCLE club is being formed at Nottingham.

BARON HENRI DE ROTHSCHILD has promised to read a paper at a meeting of the Automobile Club in January.

H.R.H. THE PRINCESS OF WALES has been graciously pleased to accept, for the children of the Royal Household, a copy of Mr. Thomas Stevens' illustrated juvenile book, the "Babes of the Empire."

ON Sunday morning last His Majesty the King of Portugal drove in King Edward's new 22-h.p. Daimler from Sandringham to the Roman Catholic Church at King's Lynn. During the time His Majesty was at his devotions the car remained in Mr. Frank Morris's new garage on London Road.

ON Tuesday afternoon a successful balloon ascent was made from the Crystal Palace by Mrs. Miles, Mr. Leslie Bucknall, and Mr. Frank Butler with M. Gauldron as aeronaut. The party made a difficult descent about twelve miles from Folkestone, having occupied one hour seven minutes in the journey.

MESSRS. DE DION BOUTON, LIMITED, ask as to point out that their coils are not made to take more than a 4-volt current, and that if a 6-volt accumulator is used there will be great risk of "shorting" the coils. They themselves recommend the use of dry batteries. We may add that one of the new 6-h.p. De Dion light cars, recently described in our columns, may now be seen at their depot in Brook Street, W.

FOR the coming season, Messrs. Dennis Bros., Ltd., of Guildford, have decided to manufacture as their standard productions the improved 9-h.p. car with De Dion engine; a 12-h.p. car fitted with Aster or De Dion fast running double-cylinder engine and long body, and a car fitted with a new 12-h.p. Aster slow-running engine with four speeds forward and reverse motion. The latter car will have a wood fitch-plate frame.

ALTHOUGH very little is heard of the Arrol-Johnston cars in the South, a large number of them are being turned out by the Motor-Car Syndicate, Limited, from their large works at Underwood, Paisley. Two vehicles have been supplied to the Duke of Portland, who has now ordered a third. The Arrol-Johnston cars are also used, among others, by Lord Charles Montague, Lord Elcho, Sir C. B. Renshaw, M.P.; Sir Charles Cayzer, M.P.; Sir Edward Carbutt, the Rt. Hon. R. W. Hanbury, M.P., Minister of Agriculture; and the Hon. Thomas Cochrane.

IN addition to the cars mentioned in previous issues, the following, which took part in the Anniversary Run to Oxford, are to be awarded non-stop certificates unless protests are received:—Mr. W. Munn's 8-h.p. De Dion, "Achilles"; Mr. G. D. Barnes' 10-h.p. Dennis, "Buzzer"; the 9-h.p. Earl, "Cautious"; Mr. W. B. Kelly's 8-h.p. M.M.C., "Freedom"; Mr. E. K. Lowe's 2½-h.p. Excelsior, "Good Luck"; the 12-h.p. Beaufort, "Inferno"; Mr. C. F. Wahl's 8-h.p. De Dion, "Loreley"; Mr. J. M. Gorham's 22-h.p. Daimler, "Paratus"; and Mr. C. R. D'Este's 2½-h.p. Ormonde, "Spy."

THE CHELMSFORD STEAM-CAR.

A DESCRIPTION of the new steam car lately completed by the Clarkson and Capel Steam Car Syndicate, Ltd., of Chelmsford, will no doubt be of interest to our readers. The vehicle, of which a general view is given in Fig. 1, took part in the recent anniversary run to Oxford, and attracted a considerable amount of attention. In Figs. 2 and 3 are illustrated an elevation and plan of the chassis, showing the arrangement adopted. It will be seen that the main frame is rectangular in shape, and is constructed of channel steel. The boiler, A, which is of the multitubular type, with vertical fire tubes, is fixed in front. The burner, A¹, is carried immediately beneath it, and the lamp, P, for initially heating the vaporising coil, is so arranged as to be easily accessible beneath the floor of the front seat. The funnel, A², projects up vertically from the bonnet; it is given an oval shape in order to prevent it from obscuring the view of the driver and passengers. The boiler

the vapourising coil of the main burner. It enables the same fuel to be used for this purpose, and entirely avoids the use of methylated spirits or petrol.

The engine, illustrated in section in Fig. 6, consists of two horizontal double-acting cylinders having a bore and a stroke of 4 ins. It develops 12-h.p. at a normal speed of 500 revolutions per minute, and is fixed centrally beneath the floor, with its cylinders projecting to the rear. The crank chamber is entirely enclosed and the differential gear on the countershaft is also arranged inside it. The slide valves are placed beneath the cylinders and are operated by Joy valve gear. By placing the valve-box underneath the cylinders any condensed steam in starting from cold automatically drains away. Separate exhaust pipes, E, are led from each cylinder, one on each side of the car. They convey the exhaust steam through feed-water heaters C², to the upper tube of a V-shaped (in plan) cooler E¹, which forms the front of the bonnet. The steam is thus led into both ends of this tube, and some of it is condensed in this first cooler. The bulk

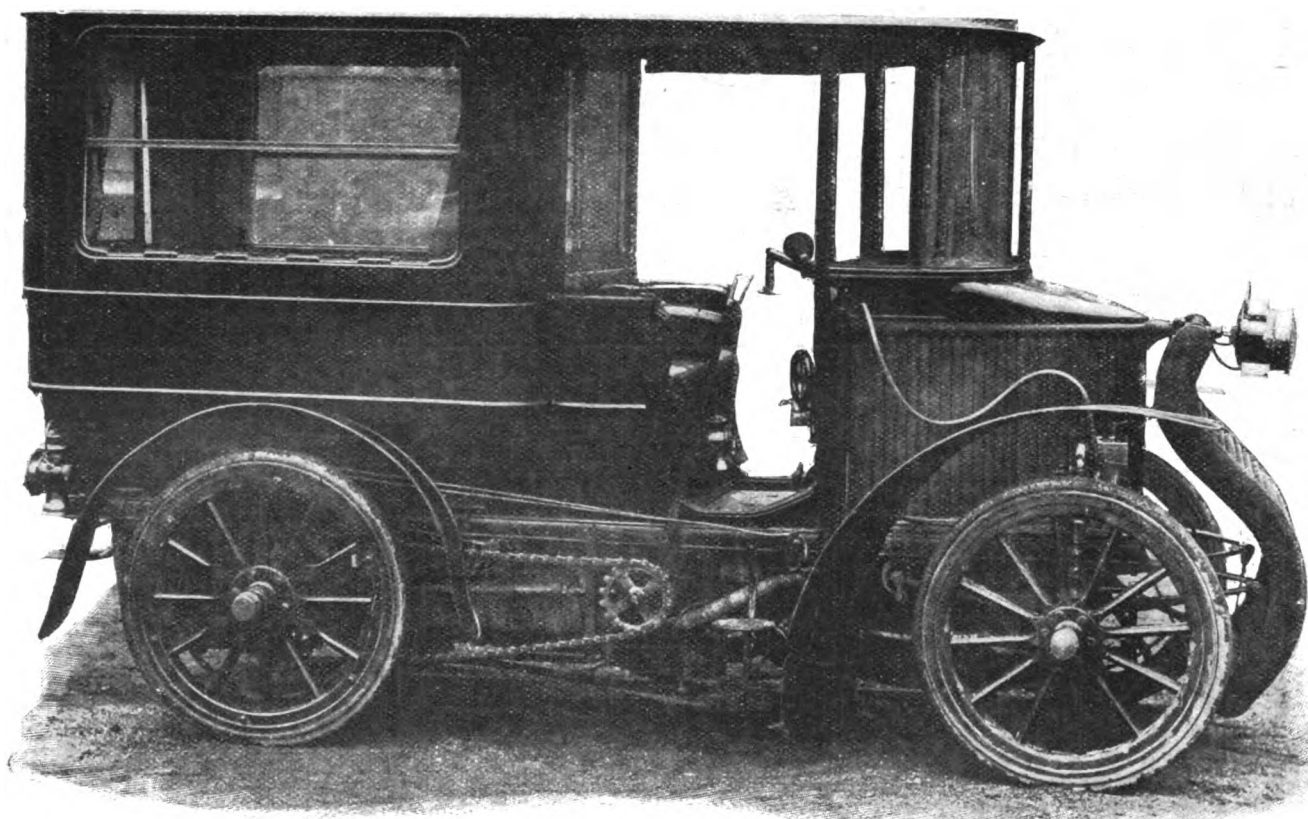


FIG. 1.—GENERAL VIEW OF CHELMSFORD STEAM CAR.

is tested to a pressure of 750 lbs. to the square inch, and its normal working pressure is 250 lbs. The boiler itself is shown in vertical and horizontal sections in Figs. 4 and 5. The shell is made of steel and is in one piece with the top plate. The bottom plate is flanged around its edge and is riveted in place, as seen in the illustration. Altogether it contains 512 weldless steel tubes, $\frac{9}{16}$ in. diameter. The boiler is provided with all the usual fittings, the water gauge being fixed on the dialboard, as also a duplicate pressure gauge. Twin safety valves are provided. It is fired by one of the well-known Clarkson burners, the fuel feed being automatically regulated by the boiler pressure. It is constructed for burning ordinary paraffin or kerosene oil; its full calorific properties being obtained with natural draught, no steam jet or other means of forced draught being required, whilst at the same time it is entirely unaffected by the direction or force of the wind, "blowing back" being unknown. A neat burner is fitted beneath the front footboard for initially heating

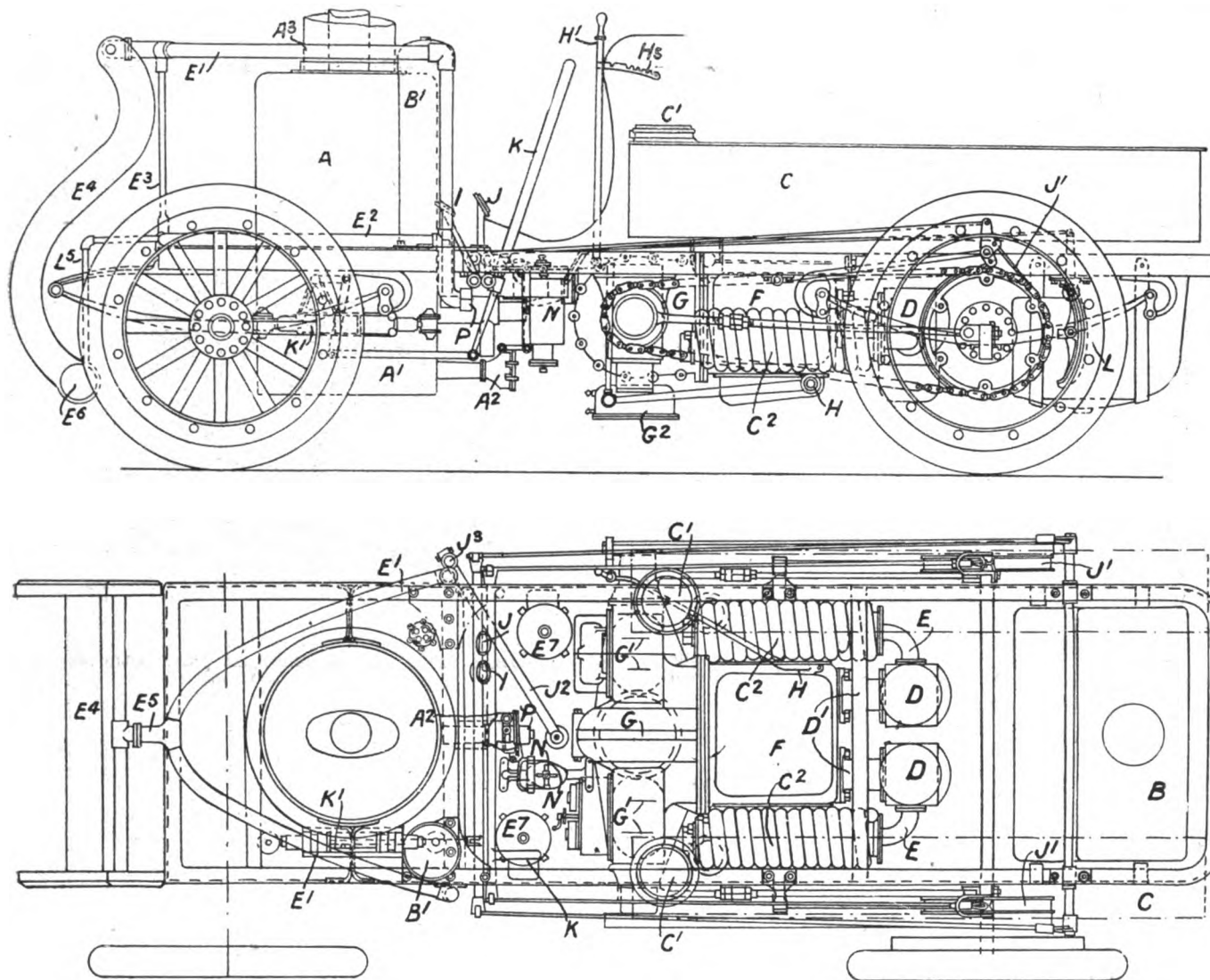
of the steam, however, passes through from the centre of this tube to a large S-shaped condenser, E⁴, which is carried in front of the car. Here the greater part of the steam is condensed, and the water finds its way to a drum placed beneath. A small pipe also lets any condensed water from the V-shaped cooler go to the same drum, and a pump on the countershaft forces this water back through two filters into the water tank. The filters remove the greater part of any oil that may find its way into the condensers, but a sponge-box is also provided in the water tank itself, and the sponges appear to effectually remove or absorb any traces of oil which may be left. The feed heaters are covered externally with wire wound into spiral form in order to assist in cooling the exhaust steam. Any uncondensed steam is led into the flue above the boiler so that it passes invisibly away through the funnel.

The oil-tank, B, holds twenty-four gallons, and is fixed at the rear beneath the frame, a gauge enabling the level of oil to be seen

D

at a glance. The oil is pumped from this tank to a pressure receiver, B', in the front of the car. From the latter the oil flows direct to the burner through a stop cock, immediately in front of the driver. A relief valve on the oil delivery pipe is set to come into operation at the desired pressure and to thus return any surplus oil back to the suction side of the pump. The automatic device, N, which regulates the burner contains a small plunger, operated upon by the steam pressure, against the action of a spring. It closes down the fire to a minimum when the pressure reaches 250 lbs. per square inch and it opens it up full at about 180 lbs. per square inch. Provision is made by which air can be pumped into the chamber B' by hand when

capacity of thirty-four gallons, sufficient for a run of 120 miles. A large gauge glass on the left of the dash-board shows the level of the water in the tanks. The water is forced by a pump through the feed water heaters into the boiler, and the driver regulates the quantity delivered to it by a by-pass. All the steam pipes are made of weldless steel. A neat pressure gauge is mounted in the centre of the dash-board; it has duplicate scales and needles for recording the steam pressure, and a needle and scale for indicating the pressure of the fuel feed. The speed of the car is for the most part controlled by the throttle valve near the water gauge, while, close by, is a shut-off cock, which enables the driver to cut off the fuel feed to the burner. A large side lever, fitted to



FIGS 2 and 3.—ELEVATION AND PLAN OF CHASSIS OF CHELMSFORD STEAM CAR.

A, Boiler.
A', Burner.
A'', Funnel.
B, Main oil tank.
B', Pressure chamber.
C, Water tanks.

C', Feed water heaters.
D, Engine.
E, Exhaust pipes.
E', Condensing tubes.
F, Crank chamber.
G, Differential gear.

G', Oil reservoir.
H', Valve gear control lever.
I, Brake pedal.
J, Brake pedal.
P, Starting lamp.

desired, and two try-cocks are fitted in order to enable the driver to ascertain the level of the oil in it. The relative space occupied by the air at a certain pressure is so calculated as to maintain a sufficiently high pressure for feeding the oil into the burner when the car is at rest, and when the oil pump is consequently not working. An auxiliary pump permits the oil to be fed into the pressure tank by hand, and so replenish the supply, if the car has at any time been left standing for an unusually long period with the burner alight.

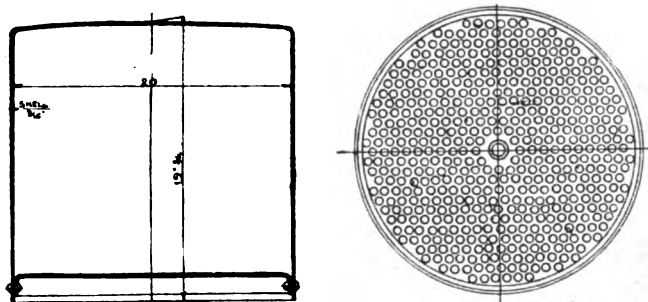
The water is carried in two long tanks, C, placed beneath the seats in the main portion of the body. They have a combined

the right of the driver, is connected with the valve gear. It carries a quadrant with notches, and operates the reversing gear, besides enabling the driver to vary the cut-off in a forward direction of travel. A vertical hand lever projecting upwardly through the floor is connected with the fuel and water pumps. Either of these can be brought into play when required, so that when the lever is given a few strokes by hand oil can be forced into the pressure tank, or water forced into the boiler when the car is at rest.

The power is transmitted by spur gearing to a differential countershaft, connected by two side chains with the rear road

wheels. The countershaft drives no less than four pumps—one for the feed water, one for forcing the lubricating oil, one for the fuel feed, and a fourth to pump the condensed water back to the main tanks. The steering is either by wheel or lever, the latter being adopted in the car illustrated. The lever is hinged to an upright side pillar, the lower end of which carries a crank connected by the usual system of rods to the hubs of the steering wheels.

The brake power is most satisfactory, consisting as it does of two independent brakes, both of which act directly on the road wheels, whilst on an emergency the engine itself can be used as a powerful auxiliary. Two foot-pedals, I and J, projecting from the floor-board in front of the driver's seat, are connected respec-



FIGS. 4 AND 5.—VERTICAL AND HORIZONTAL SECTIONS OF BOILER.

tively with side brakes of the shoe pattern, and of the band type. The shoe brakes press upon the inside face of rims bolted to the wheels, and the band brakes operate upon drums which are rigid with the large chain wheels. In both cases the brakes on each side of the vehicle are inter-connected by steel cables in such a way that the pressure is equalised. Solid rubber tyres have been adopted, and by a careful consideration of length and flexibility of the springs, and spring cushions, most satisfactory results have been attained, for at the moderate speed of sixteen miles an hour at which the car travels one may almost imagine that pneumatics are fitted.

This vehicle is fitted as a private omnibus or long distance touring car, the driver's seat being protected from the weather, and seats for four other passengers being provided inside the closed portion of the body. All available space has been fitted up as a cupboard or lockers. Above the boiler and on each side

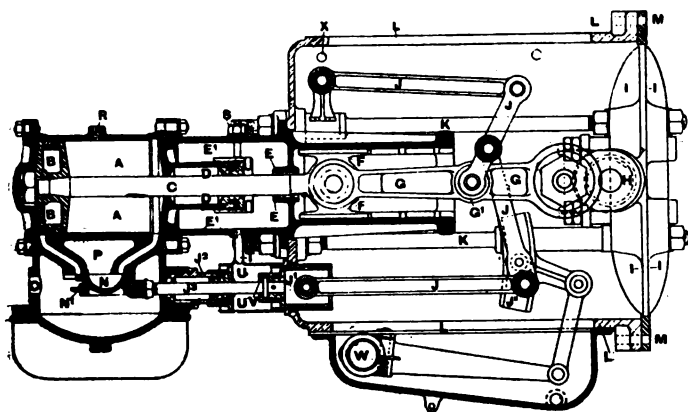


FIG. 6.—LONGITUDINAL SECTION OF ENGINE.

- | | |
|--|--|
| A, Cylinder. | K, Steel rods from bed plate to distance |
| B, Steel piston. | piece. |
| C, Piston rod, forged solid with cross head | L, Aluminium engine casing. |
| D, Stuffing box. | M, Holes to take countershaft gear case |
| E, Bushed diaphragm to retain oil in engine- | bolts. |
| case L. | N, Slide valve. |
| F, Cross head running in segmental guide. | O, Steam inlet. |
| G, Connecting rod. | P, Exhaust. |
| H, Hollow forged steel crankshaft. | R, Entry for lubricant for cylinder and |
| I, C at steel bed plate. | valve |
| J, Joy valve gear levers. | S, Locking screw to stuffing-box. |
| | W, Rocking shaft of reverse. |

of the funnel small leather lids are found, these, when lifted, disclosing handy receptacles within easy reach of the driver and his companion on the front seat. Although passengers travelling

in it under ordinary circumstances would not recognise the fact, it is provided with all necessary conveniences for making it serve the purpose of a dressing-room and lavatory. The car can be prepared for service in twelve minutes, and when once steam is up it may be kept for hours ready to start instantly. The weight of the steam car exclusive of fuel and water is 28 cwt. The capacity of the steam car will go a long way towards popularising it, for it carries enough water for 100 miles without a stop, fuel for 120 miles, and lubricating oil for 1,000 miles. As a result of a 1,000 mile trial, extending over nine days, on a circular up and down route, it has been found that 5.86 miles can be run on one gallon of fuel, or, in other words, about a penny per car mile, with six people on board.

THE EISEMANN HIGH-TENSION MAGNETO IGNITER.

WE are now able to give two illustrations of the new high-tension magneto ignition device recently introduced by Herr Eisemann, of Stuttgart, and described by our Continental correspondent in the last issue

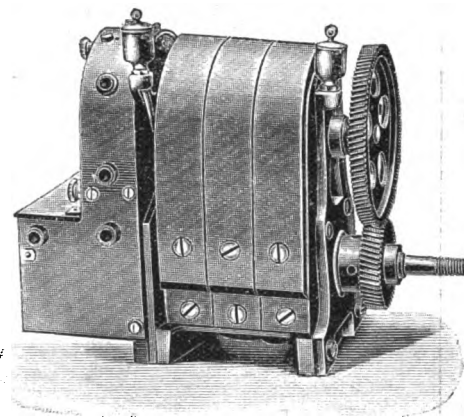


FIG. 1.—THE EISEMANN HIGH-TENSION MAGNETO IGNITER.

of the *Journal*. This machine takes the place of the accumulator and contact breaker, and, whatever the number of cylinders used, requires only one coil without trembler, the ordinary form of sparking plug being used. It is claimed to give a spark at any rate, slow and fast, and can be adapted to any make of engine or car with a minimum of difficulty. The igniter creates an alternating current by the rotation of an armature in a magnetic field; this alternating current becomes transformed into a continuous current strong enough to produce an igniting spark between the points of the sparking plug. The inter-

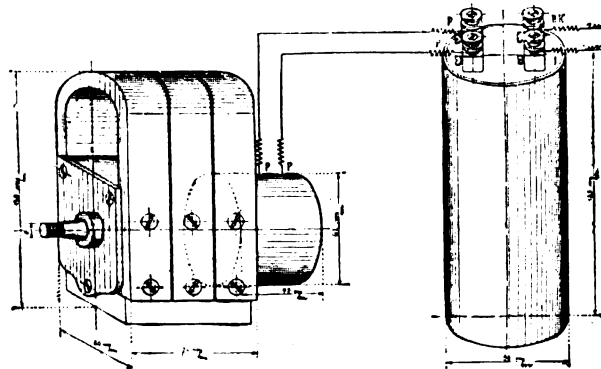


FIG. 2.—DIAGRAM OF MAGNETO AND COIL CONNECTIONS.

mittent transmission of the sparks to the different cylinders (if more than one) is caused by a distributor disc provided on the inductor and running synchronously with the same; the firing can be advanced and retarded as usual. We may add that the Eisemann device is being introduced into this country by Messrs. G. T. Riches and Co.

Amongst the foreign exhibits there will be the Wolseley, the Napier, and the Mercedes. Honeycomb radiators and mechanically-worked induction valves are now classic, and I hear that Colonel Krebs, the managing director of Panhards, has a new motor with these improvements.

SPEAKING of mechanically-worked induction valves, I notice a peculiar error into which Mr. S. F. Edge has inadvertently fallen in upholding the superiority of suction induction valves as against mechanically-worked ones, and no one seems to have remarked it. Mr. Edge says that in order to gain the same initial pressure and volume as would be gained by mechanically-operated valves he makes the crank throw of the Napier car one-sixteenth of an inch longer. This, of course, could be done just as well with the engine which has mechanically-worked valves. It means increasing the horse-power of the motor, and has nothing whatever to do with the question as to the superiority of one system or the other. This refers, of course, to the opening of the valve, but with regard to the closing Mr. Edge claims that the automatic suction valve closes quicker than the mechanically-worked valve; here, however, I think that this entirely depends on the shape of the cam which opens the latter, and the strength of the spring which closes it, for although the mechanically-worked valve is opened by a cam it, of course, closes in the same manner as the automatic suction valve, that is to say, by means of a spring.

IN my notes last week, on the authority of a spectator at the Dourdan kilometre track, I mentioned that the Wolseley car with a four-cylinder Buchet vertical motor had been making trials. Had my informant not been an official connected with the trials and familiar with the cars, and one who followed the Paris-Vienna Race in an important official capacity, I should not have credited his assertion. As it was I questioned it, and suggested that he might be mistaken, remembering that the Wolseley had horizontal cylinders. In reply he told me it was not only the same car, but that he had seen the letter applying for the trial. The following day the *Auto-Velo* confirmed my information. On hearing from London some doubts as to the matter, I went to see Georges Prade, of *l'Auto-Velo*, who had been present on the day in question, and I found him suffering from the same inexplicable error. It seems that the car in question was a new racing car made by the General Motor-Car Company, though how it came to be confounded with the Wolseley car I cannot tell.

THERE was a stormy scene at the meeting of the Municipal Council in Paris with regard to the absurd regulations as to the speed of motor-cars in Paris, in the Bois de Boulogne and in the Bois de Vincennes. Paris and its two great parks are under two different jurisdictions, the former being the Prefet de Police, and the latter the Prefet de la Seine. The same police carry out the regulations in each case, so that it happens that policeman X, whilst in the Bois de Boulogne, must stop any car that exceeds 12 kilometres ($7\frac{1}{2}$ miles) per hour, and whilst in Paris, where there is no limit of speed except the legal 30 kilometres ($18\frac{1}{2}$ miles), he must use his own discretion as to what is furious driving. Monsieur Joussetin, the councillor for the "Ternes" ward, where the greater part of the motor garages are situated, urged the town council to brush away and dispose of the absurd persecution to which motorists are subjected, for the simple reason that they have the misfortune to be using a new means of locomotion, which is much less dangerous and productive of accident than the existing systems. During the course of his discourse Monsieur Joussetin pointed out that an ordinary cab horse trots at 16 kilometres an hour, a carriage horse at 20 kilometres an hour; whilst the Government imposes an average speed of 20 kilometres per hour for the postal vans in level parts of Paris, and 16 kilometres in hilly parts like Belleville or Montmartre. In conclusion the question was referred to a special commission.

THE use of motor-cars is making but slow progress in Sweden. A few motor-lorries are employed in Stockholm to carry parcels

and heavy goods, and a few may also be seen on the country roads. A very limited number of motor-carriages is employed, but it is hoped that the exhibition to be held in the capital next year will give an impetus to the movement. The duty in Sweden on motor-carriages is 15 per cent. ad valorem, as per amount of invoice, or if the Customs authorities should not consider that true and correct, the value is fixed by a survey. The duty on motor-parts of machinery is 10 per cent. ad valorem.

A STUDY of what is happening daily in France under the numbering system, together with a little reflection on the attitude of some English local benches with reference to the motor-car question, will be productive, I feel sure, of wiser counsels. Let me state a few supposititious cases. Mr. A. and Mr. Z. are owners of motor-cars. The former is a quiet law-respecting individual with a $3\frac{1}{2}$ -h.p. Benz; the latter a motor fiend. Mr. A. has number 1826 and Mr. Z. number 1026, but a streak of black grease out of an axle box has *accidentally* converted the 0 into an 8. Mr. A. may find himself confronted with five or six summonses from five or six different towns along the Great North Road, and obliged, willy nilly, to attend at each and defend himself or else pay as many fines. Even should he be able to prove an *alibi*, it is doubtful, in the present state of mind of some of the local benches, whether it would get him off a fine, and in any case he would have all the expense and worry.

SUPPOSE, again, the case of a car that is in the maker's hands for repairs and is out on trial. The owner's number must still be on the car, for it would be impracticable to keep changing numbers. If the car passes over a police trap, or even past an over-zealous officer of the law, it is the owner who will be summoned, not the offender, and the same thing will happen when



THE A.C.F. RECORD-BREAKING COURSE ON THE DOURDAN ROAD.
THE TIMEKEEPER'S TENT IN THE FOREGROUND.
[*La France Automobile*.]

one's mechanic takes the car out with or without permission. The result will be that people who do not want to see their names in the papers in connection with police proceedings will be absolutely precluded from buying motor-cars, and the trade will suffer for it.

MESSRS. SHIPPEY BROTHERS, LIMITED, have been appointed sole British agents for the Janney Steinmetz Company, of Philadelphia, U.S.A., whose specialities are high-pressure steel petrol tanks, boiler shells, and other appliances connected with the steam car industry.

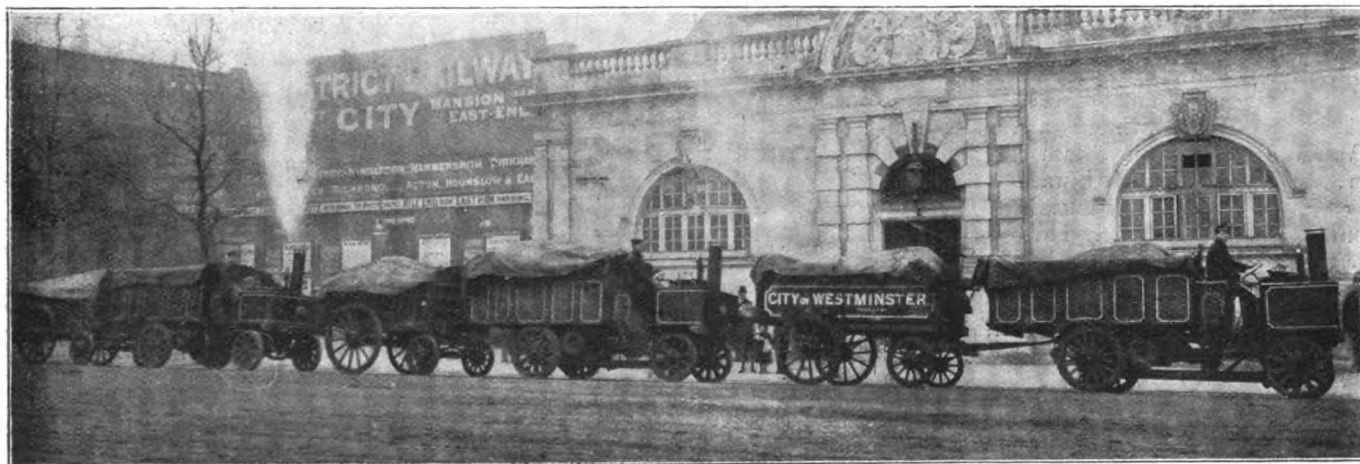
OCCASIONAL NOTES.

WHEN will automobilists be protected by law against the risks presented through the wandering of cattle on the highway? Mr. C. H. Oliverson, of Kendal, was recently riding his motor-tricycle at night near Southport when collision with a sauntering quadruped laid him insensible on the road, and his machine a wreck some yards away. The cow, doubtlessly, was somewhat damaged, and allowance must be made for the feelings of its owner, or his deputy in charge, on the sudden impact. He, however, afforded no opportunity to Mr. Oliverson to protest or explain, but left the unconscious and "iniquitous" motorist to recover as might be. And now for the moral. Does not the red light require its counterpart in the enforced carrying of a lamp, of the hurricane or other improved pattern, by every person in charge of cattle on the highway?

THEN there is the cyclist who has no legal injunction to carry a tail lamp or its equivalent, whose ordinary lamp, when he is being overtaken, shines but dimly on the ground, and who is not discernible until some lamp like the Blieriot picks out his moving form and saves a shave. For the next few months there is the dismal outlook of heavy roads, fogs, and snow, when night driving loses its charms unless that of rendering the senses more

these can be spared for a few hours and held sacred to the motor cult thereof. Mr. Leonard Williamson, and other local motorists, have inspected two of the suggested courses. The one most favoured is on the front, where a down-hill start of 800 yards can be secured before reaching the flying kilometre, and after that ample length for stopping. A decision by the Town Council will need to be arrived at soon, and, in the event of its being favourable, a representative local committee should take up the organisation in conjunction with the A.C.G.B.I., the Liverpool Self-Propelled Traffic Association, and other automobile clubs in the district.

SURREY has pleasant inns, with good fare and cheery landlords, but the powers that be, or some of them, do not like to see fresh customers flocking into the county, judging from the attitude of the police to motorists—too sleepy, too stick-in-the-mud, conservative, these Surrey magistrates. They do not concern themselves with the fact that seventy years ago stage coaches averaged fully sixteen miles an hour, point to point, for if they did such an old, genuinely crusted fact would surely appeal to their sense of reasoning. And motorists do not spend their money in Surrey now. I have myself taken special pains to go elsewhere and enjoyed myself immensely by a run through Epping, Ongar, Chelmsford, Braintree and Colchester to Wyvenhoe, calling on friends *en route*, last week-end. It is a Sunday run



THE CITY OF WESTMINSTER'S "MOTOR TRAINS." (See page 779.)

acute; and several long night runs] have brought home to me the value of white posts. Expressed in miles gained, their work has to be contemplated rather than gauged, and it is only a plunge from one county where frequency is marked to one where their absence is monumental that teaches the lesson. A sufficiency of these posts to mark all the curves and narrow ways is a scheme to be supported heartily by all who know the bad points of our otherwise beautiful country lanes with their innumerable twistings. Every waggoner on the road will testify to the service done him by these outposts of the track, how they mark the banks, the bridges, the dykes and the ponds. Be his day never so long, be his cups never so deep, these white stakes are proof against all. Let our County Councils be urged to develop and maintain a branch of road equipment sadly lacking in parts known to many of us, the same being one equally beneficial to the tired-out teamster or the speed-loving *chauffeur*.

WHICH brings me to the subject of speed trials. These are, apparently, occupying the attention of more than one watering-place in Lancashire. A brisk competition, in fact, threatens between Southport and her less fashionable *vis-a-vis* Blackpool. Whether the A.C.G.B.I. will have room for a speed trial next year, other than the Eliminating and Gordon Bennett Races, will probably decide the matter in any case. With her fine promenade and the magnificent wood pavement of Lord Street to choose between, Southport has undoubted advantages, if one or other of

to be recommended, and those who make it might do worse than have an oyster feast direct from the beds facing the house with big bow windows and yellow front, at the bottom of the hill at Wyvenhoe. Mr. Barrett is the gentleman to ask for.

By the courtesy of Mr. Shrapnell Smith, of the Road Carrying Company, Limited, I am to have an all-night trip on a motor-lorry next week. My impressions, unless too severe, shall be related. P. A. M.

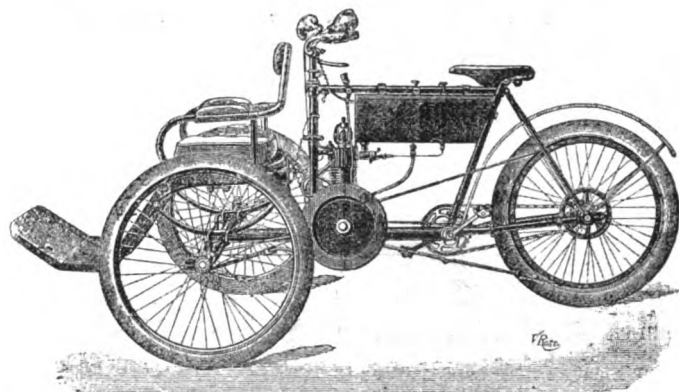
A NEW company has been formed to acquire and carry on the German Daimler Motor Works at Cannstatt and Marienfelde, Berlin, as a result of the taking over of the latter. The capital is £158,300.

MADAME LOCKERT, of our French contemporary "Le Chauffeur," has sent us a copy of "L'Agenda Buvard du Chauffeur et de l'Alcool, 1903, which she has just issued. The "Agenda Buvard" in English means a diary, four days to a page, each page being interleaved with blotting paper. A feature of the book are the pen and ink full-page caricature sketches by Galop, of well-known personages in the French motor world. A number of short useful articles are comprised in the work, including one by M. Brillié on the alcohol motor, one by M. Rutishauer, of the Gardner-Serpollet Company, on steam cars, and one by M. R. Stern on the testing of automobiles. The diary is published at the low price of 50 centimes (5d.), and if only for the caricatures is well worth the money.

MOTOR-CYCLING NEWS.

THE Motor Cycling Club run on Sunday next (the 7th inst.) is to Hatfield. The two meeting-places will be the Marble Arch at 10.30 a.m. and Barnet between 11.15 and 11.30 a.m. The Committee of the Club is now considering the programme for next season, and Mr. G. E. Roberts, the assistant hon. sec., 17, Fieldhouse Road, Hyde Farm, Balham, S.W., will be glad to hear from motor-cyclists who have suggestions to make.

OUR illustration shows a novel form of tandem motor-tricycle which has lately been put on the market by Messrs. A. Jean and Company, of Paris. As will be seen, the power is transmitted to a pulley on the rear wheel by a leather band, in the same way as is done on motor-bicycles.



The motor, which develops 2-h.p., is of the air-cooled type; the cylinder has a diameter of $2\frac{3}{4}$ inch by $2\frac{3}{4}$ inch stroke. A heavy external flywheel is adopted, while a special device is fitted to permit the engine to draw in a large amount of cool air when running free down hill. The machine complete weighs about $1\frac{1}{2}$ cwt.

"All about the Minerva and Romania Motors for Bicycles" is the name of a booklet which has just been issued by Mr. D. Citroen. It contains a minute and lucid description of the well-known engine, and gives instructions for driving, hints on the care of the motor, and other particulars of value to everyone interested in the motor-bicycle. As much attention is just now being given to the Minerva motor with mechanically-operated inlet valve, motor-cyclists would do well to procure a copy of the pamphlet.

AN Australian correspondent writes:—The progress of the motor in the Commonwealth is slow, but, it may be said, sure. Most of the interest is centred in the motor-cycle, it being the only practical type of motor suitable for our roads, and, it should be added, to the purchasing power of this community, which, in a young country, is necessarily limited. With a view to popularising this type of motor, the Dunlop Tyre Company of Australasia, intend to organise a road race for motor-cycles next year.

A NUMBER of motor-cyclists in the Brockley district have just formed a club. It is known as the Kentish Auto Club, the headquarters being at the "Brockley Jack," Crofton Park, S.E. During the winter the members will meet on Sunday mornings for short impromptu runs.

At the Crystal Palace on Wednesday evening last week a meeting of members and friends of the Cyclists' Touring Club was held in the Concert Hall, part of the time being devoted to descriptions of standard types of motor-bicycles. The attendance, however, was very meagre. Mr. Rees Jeffreys was in the chair. The machines described were the Singer, by Mr. Birt; Quadrant, by Mr. Priest; and the new chain-driven machine of the General Motor Car Company.

THE Motor-Cycle Advisory Committee of the A.C.G.B.I. is to be called to advise as to what steps should be taken to encourage motor-cycles during the forthcoming season, and also to consider the question of the inclusion of a paper and discussion on motor-cycles in the programme of the winter season.

At the Crystal Palace on Tuesday a Belgian rider named Gommers made an attempt on the ten-mile record on a $3\frac{1}{2}$ -h.p. Gamage motor-bicycle. After covering several miles at the rate of 1 min. 20 secs. per mile, the rider had a nasty fall owing to a tyre bursting. Dr. W. G. Grace, the well-known cricketer, was one of the spectators, and immediately ran to the rider's assistance. A brief examination fortunately showed that no bones had been broken.

MR. HERBERT J. CROFT, of the Victory Motor Works, Kendal, has just brought out an ingenious stand for motor-bicycles, illustrated herewith. The method of mounting the machine in the stand is as follows:—First fix the stand as shown in Fig. 1;

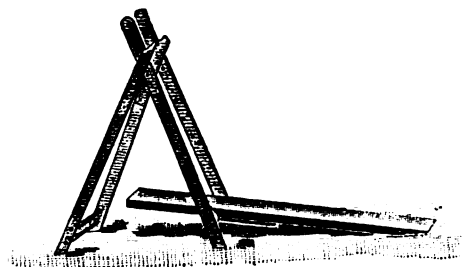


FIG. 1.—Stand ready for receiving bicycle.

then run the machine backwards up the board, keeping the foot on the end of the latter. When the steps on the machine strike the back stays of stand, the foot is removed from the board, the

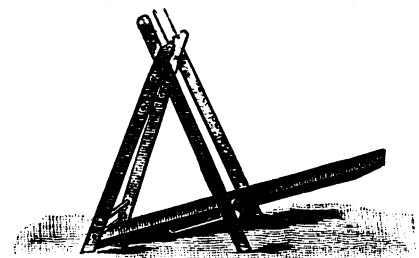


FIG. 2.—Position of board clear of tyre for running purposes.

machine dropping into position. To use the stand for trying the motor, the board is pushed back to the position shown in Fig. 2, it being then clear of the tyre. When it is desired to remove the

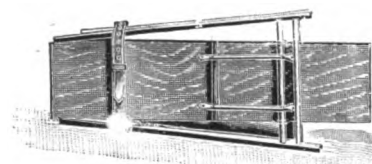


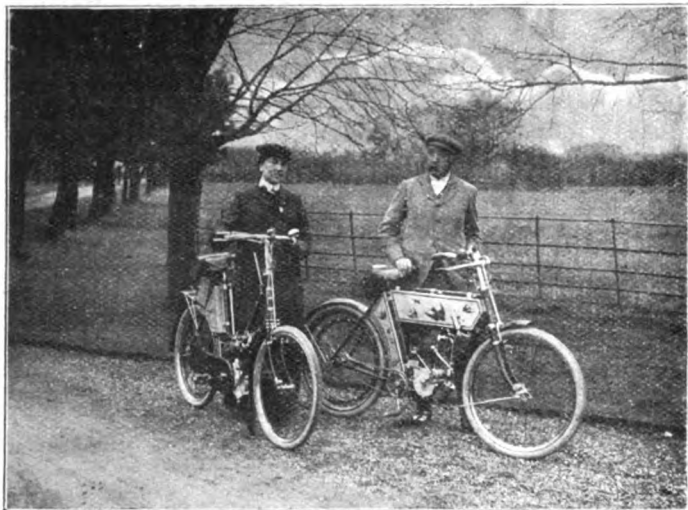
FIG. 3.—Stand folded up for fixing on luggage carrier.

machine from the stand, it is only necessary to draw the board forward, put the foot on the end, when the machine will run down the board itself. The stand is called "The Leva," and is provisionally protected. It folds up into a small space, as shown in Fig. 3, and has the advantage that no lifting is required to fix the machine in the stand.

LAST week the Duchess of Marlborough drove to Stratford in her motor-carriage to open a bazaar. It is a pity that the road connecting the City and the Eastern suburbs is so bad; otherwise it would be popular with motorists as the highway to Epping Forest.

A HUNTSMAN ON MOTOR-BICYCLES.

MAY I, through the medium of the *Motor-Car Journal*, endeavour to enlist the attention of brother automobilists towards the joys to be found in motor-cycling. As tenders to our big cars they will prove invaluable in certain disaffected districts by timely discovering sneaking police traps, set by magisterial malevolence. Our recent South African experiences have taught us the value of careful scouting. A speedy vidette preceding a 40-h.p. Mercedes might save the owner much loss of cash and complacency.



MR. AND MRS. E. KENNARD AND THEIR MOTOR-BICYCLES.

It is curious what a large amount of craven fear a motor-bike seems to engender even in the minds of would-be beginners. Having experienced in the hunting field three broken collar-bones, two dislocations of the same member, besides the fracture of numerous ribs, and a broken nose, I pronounce unhesitatingly that the pleasures of rapid locomotion far outweigh all the discomforts of temporary disablement.



THE FALLS OF THE CLYDE.

The troubles of stored electricity have caused cautious tyros to hesitate before committing themselves to an actual purchase. The magneto ignition, adapted to bicycle use by the Clyde Cycle Company, of Leicester, has rendered these former terrors to be now regarded only as nightmares of the past. Those who have never mounted "the magic wheel" can have no conception

with what extreme ease a good machine can be manipulated, and how seldom it gets out of order. A trailer behind enables you to share your joys with the wife of your bosom, provided she has a partiality for dust and ignores discomfort. My wiser better half set me a most spirited example by being first in the field as a motor-cyclist! She, too, knows what broken bones mean, having twice smashed her forearm while pursuing the fox across Leicester-shire pastures. The accompanying illustrations show the handy toys we both possess. In publishing these pictures, the *Journal* may perchance be the means of making many homes supremely happy in the future, as ours has become, by the introduction into their midst of one of these wonderful roadsters. The only drawback to motor-cycling that I know of is the difficulty experienced in getting on up hill. Active young men running beside their engines, vault into the saddle while their machines are in rapid motion. If we old men do take a little longer mounting, I for one do not grudge the time, when the great pleasure of the ride is seriously considered.

[A duplicate of my bicycle, in which I can find absolutely no fault after two months' constant use, may be seen in the windows in Regent Street of the Stereoscopic Company, who have become the London Agents of the Clyde Company. No one who has ever given magneto ignition the smallest trial would ever revert again to all the annoyances of secondary batteries.

EDW. KENNARD.

SOME USEFUL NOTES.

IF a car is fitted with tube and electric ignition, use the tube occasionally, for if it is left alone for a long time it may not be in thorough working order when called upon.

AFTER using tube ignition run some petrol through the burners after the flame is blown out, as otherwise they may get choked.

IT will be found most useful to have drain-off taps fitted to the petrol tank, water tank and gear box. Nearly all cars have one on the engine base chamber.

IN a four-cylindred engine try and keep the four cylinders running evenly. Keep all the valve springs of the same strength, and see that the tremblers on the coils are evenly adjusted.

ON any car, if oil gets up on to the sparking plugs, either the wrong oil is being employed or too much is being used; in either case the remedy is obvious.

SHOULD a chain break and it cannot be repaired, it is always possible to get home on one chain. The free countershaft sprocket must be prevented from revolving (this can usually be done by winding the broken chain round it and fixing it to the frame), and the car can then be driven, but it must be noted that holding one side of the differential nearly doubles the speed, so the car must be driven very carefully, or damage may be done to the differential.

IF the compression of the engine, with a slow speed in, is being used as a brake, take care not to switch the spark on again suddenly, as great strain will be put upon the engine and gear. Crankshafts have been broken in this way.

ALWAYS use brakes alternately going down a long hill, thus giving each one time for cooling.

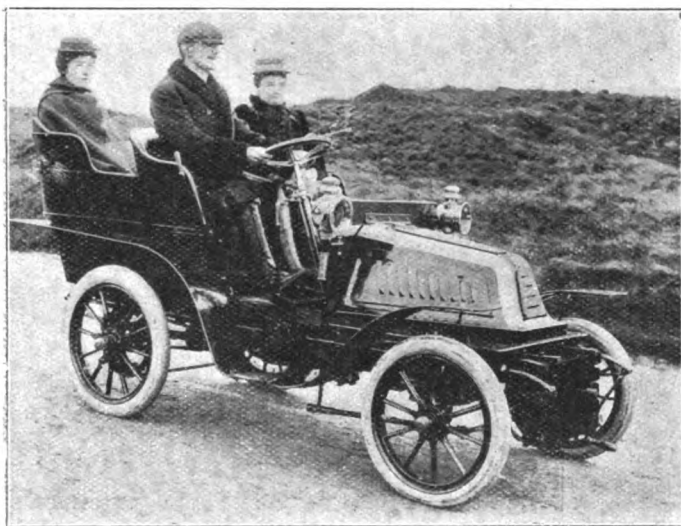
IF a sprag is fitted to a car, be sure to use it properly. Never drop it when a run back has commenced. It should always be trailed up a hill.

SHOULD an engine prove refractory in starting in cold weather, petrol squirted into the cylinders very often overcomes the difficulty; or, if the mixing chamber has a removable top with a cone, warming up the cone will nearly always effect a ready start.

HERE AND THERE.

AMONG the several municipal bodies in the London district that have adopted heavy motor-vehicles, is that of Westminster whose "motor-trains" are now a familiar sight in the Strand and the Covent Garden district. By the courtesy of Mr. J. W. Bradley, the Westminster City Engineer, we are able to reproduce a photo on page 776 of the motor-trains drawn up outside Charing Cross Underground Railway Station

THE accompanying illustration shows Mr. W. A. Entwistle, of Mirfield, Yorks, on his 9-h.p. Pitt car. This car is one of



the latest British built cars, it having been constructed by the Pitt Yorkshire Machine Company, of Liversedge. The car runs very silently, with little or no noise from the engine or the exhaust, and is easy to manage. The tonneau is roomy and comfortably upholstered. The photograph was taken on the top of Standegge, one of the highest parts (in Yorkshire), of the Pennine Range, the car ascending the heavy gradient (some miles long) with a full load of four.

WE understand that Mr. John D. Hill, motor-car expert and adviser, has joined Mr. E. W. Hart, of Luton, who has established the Parkside garage at Park Road, Regent's Park, N.W. Mr. Hart will also have a number of motor-carriages on view at the Paris Salon, which opens on Wednesday next, the 10th inst.

THE drivers of the public service cars belonging to Messrs. Pigott and Griffiths, at Brighton, recently held their annual excursion, spending the day at Portsmouth in visiting the dockyard and other places of interest. On the return, Mr. Pigott met the men at the station, and conveyed them in his 10-h.p. Cannstatt Daimler to dinner at his residence, afterwards driving each man home, the party being shown in the accompanying illustration.

MESSRS. SMITH AND DOWSE, of the Isleworth Ironworks, Isleworth, S.W., have just finished a novel vehicle in the form of a sailing car. It has been built to the designs of Col. George Winter, who terms it a "motorless motor-car," and is intended for use in Egypt. The car consists of a tubular frame 12ft. long, 10ft. wide at the front end and 7ft. wide at the rear, mounted on four wheels 4ft. in diameter, shod with 6in. iron tyres, so that the wheels will not sink into the sand. At the forward end of the frame is a bamboo mast, 14ft. high, fitted with a large sail, which can be hoisted and controlled in the same way as in a small sailing boat. By means of the wind it is expected that the car will attain such a speed over the sand as to render it a much better carrier of despatches, etc., than the primitive camel corps or native runners. The vehicle reminds us of the sailing cars which for many years were one of the features on the beach at Southport.

A NATIONAL highway from the Atlantic to the Pacific Coast is, by a recent decision, to be a leading issue with the American Automobile Association.

THE Gardner-Serpollet Company have just completed a 40-h.p. steam car for the Shah of Persia. The body takes the form of a landau finished in the Louis XVIII. style.

ON the Crystal Palace track, on Saturday last, Fred Chase rode five miles in 6 min. 36 sec., and a mile in 1 min. 17 sec., on his Bat motor-bicycle.

THE Western Section of the Scottish Automobile Club propose to hold quarterly hundred miles trials on the lines of those of the A.C.G.B.I.

THERE are now, we understand, four 40-h.p. Mercedes in Great Britain, the owners being Count Zborowski, Mr. A. Harmsworth, Mr. C. Cordingley, and Captain Milner, J.P., of Norfolk.

ON Tuesday next Mr. Henry Fowler, A.M.I.C.E., will give a lantern lecture at the Midland Railway Institute, Derby, on "Heavy Motor-Vehicles."

THE Motor Hiring Syndicate, Limited, has been registered with a capital of £2,000, and offices at Winchester House, Old Broad Street, E.C.

THE entries for the 1903 Nice week are already coming in. So far eight Panhards, seven Mercedes, six De Dietrichs, four Mors, four Gobron-Brilliés and one Rochet-Schneider have been entered.

THE London to Brighton mail coach was upset at Thornton Heath on Tuesday, but fortunately the motor-mail van which runs between London and Redhill was able to take off a small portion of the load of the coach.

MESSRS. C. H. GUEST, LIMITED, of Draycott, Derbyshire, will open a motor garage and show-room in London Road, Derby, early next month. They will keep a stock of parts and petrol and an experienced staff of repairers.

A PRELIMINARY catalogue of French Gardner-Serpollet steam carriages reaches us from the Speedwell Motor and Engineering Company, Limited, of 50, Albert Gate, S.W., and Reading. This is fully illustrated, the sketches including a diagram showing the Serpollet system, and also a view and detailed description of the motor.



ON another page we reproduce a photograph of Mr. Chas. Homewood, of Balcombe, Sussex, on his De Dion voiturette. Mr. Homewood was recently summoned at Horsham, for travelling at a speed equal to twenty-one miles per hour. The case was dismissed, as it was shown in evidence that the dog seen in the picture had followed the car and had kept up with it for over eight miles. Mr. Homewood informs us that "this dog does not belong to me, but, if possible, will follow the car. It has often run from 14 to 20 miles without a stop."

THE Milnes Daimler Company has been registered with a capital of £20,000.

THE owner of the tool case found on the Maidstone Road, as mentioned in last week's issue, has been found.

It is reported that the Furness Railway Company, is about to make a trial of motor parcel delivery vans.

ON Thursday Friswell, Limited, held their last auction sale of the present year, several steam cars being sold under steam at the new premises in Albany Street, W.

THE Road Carrying Company, Limited, of Liverpool, has now fourteen heavy lorries at work and has dealt with 4,000 tons of goods, conveying the same between Liverpool and St. Helens and Liverpool and Blackburn, and *vice versa*.

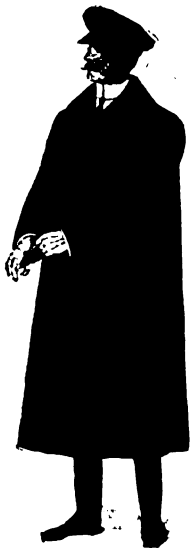
LORD WOLVERTON, Under Secretary of the Board of Trade, and Mr. William James, of West Dean Park, Chichester, have each taken out a Gobron-Brillie car for use at the Delhi Durbar. The cars are adapted to work with alcohol (methylated spirits), owing to the petrol difficulty in India, but can be used for petrol if desired.

MESSRS. E. J. COLES AND COMPANY, of Upper Holloway, have now opened a West End office at 7a, Princess Street, Oxford Circus, W., and showrooms at 37, Margaret Street, Regent Street, W., where, in addition body-building, painting and upholstering will be carried on. For the 1903 season Messrs. Coles are bringing out a new pattern 12-h.p. car with live axle and patent clutch. The vehicle will be of light construction, having a frame of H-section steel, four forward speeds and reverse.

GARAGES in all the principal towns of the country will shortly be opened by Messrs. Evatt-Hall, Limited. The Nottingham branch, centrally situated near the Theatre Royal, is already open, while within a few days extensive premises will be opened at Brighton, where it is proposed to keep a number of cars for hiring purposes. The garages will be fitted up with reading, lounge, and other rooms, and the weary motorist after his journey will be able to rest and clothe himself in his everyday attire. Evatt-Hall, Limited, are also agents in the principal towns for the Oldsmobile and other cars.

MESSRS. HOLDING AND SON seek to produce adaptations of general styles of clothing made in high-class materials to motoring uses, whilst retaining their ordinary appearance—a fact which finds illustration in their well-known "Ayrshire" motor Ulster. The firm's leather waistcoats have many points of originality. These are fitted with warm backs of wool, whilst the front is impervious, as are also the sleeves, which are not, however, made of leather, a less cumbersome material being employed. The patent motor apron has six movements or six applications, as it were, for its various uses, and is chiefly made in box cloth.

WHILE Sir Thomas Lipton was driving his motor-car slowly on the road near Winchester a horse took fright and bolted, Sir Thomas having to put on speed to get out of its way. Unfortunately the driver of the animal was thrown out of the cart and killed. At the inquest a verdict of "Accidental death" was returned. A similar verdict has also been given at the inquiry concerning the death of Mr. A. Duckett, of Liverpool, who died owing to an accident to a motor-car he was driving for the advertising purposes of a Liverpool newspaper. While driving down an incline at Norton, a nut appears to have become detached from the steering gear, with the result that control of the machine was lost, and both the deceased and the car fell into a field twenty feet below the level of the road. The car fell on the deceased, who was badly crushed, and who subsequently died from internal hemorrhage caused through the ribs penetrating the lungs.



MOTOR CYCLES FOR 1903.

CONSIDERABLE interest is being shown in the Ixion motor-bicycle made by the Primus Motor Works, of Loughborough Junction, S.W. The motor is fitted to the head of the machine, on the lines of the old Werner, and drives the front wheel by means of a small rubber-covered friction wheel, in contact with the pneumatic tyre. The novelty lies in the motor, of which a vertical section is given in Fig. 1. The bore of the cylinder is 2 in. by 2 in. stroke, and at a speed of 1,500 revolutions per minute it is stated to develop $1\frac{1}{2}$ h.p. The engine is of the "two-cycle" type giving an impulse at every revolution, and its mechanism is reduced to the fewest possible parts, viz., cylinder piston and rod, crank shaft, and fly wheel.

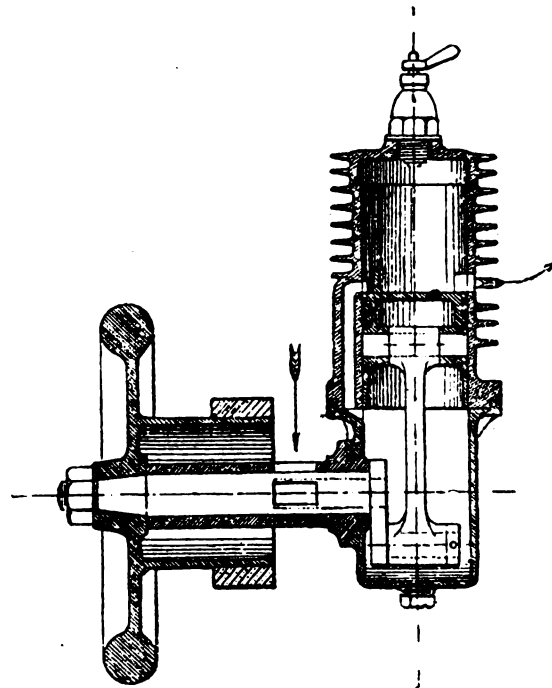


FIG. 1.—SECTION OF PRIMUS TWO-CYCLE MOTOR.

all valves and valve gears being dispensed with. The action of the motor is as follows:—On the up stroke of the piston a charge of gas is drawn into the crank chamber; on the down stroke this charge is compressed until the piston has descended to nearly its lowest point, when it opens a port in the side of the cylinder communicating with the crank chamber; the compressed charge rushes into the cylinder, where by the next up stroke it is again compressed and exploded by electric spark in the usual way. Simultaneously with the opening of the inlet port the descending piston has uncovered the exhaust port at the opposite side of the cylinder, through which the burnt gases from the previous explosion escape, driven out by their own expansion and by the intruding new charge. This process is repeated during every revolution, and thus an explosion takes place and an impulse is given at every down stroke. The gas and air are admitted into the crank chamber through an opening in the hollow crank shaft. The ignition and spark-advancing device are of the usual type, and are actuated directly from the main shaft. Lubrication is effected by means of a drop sight-feed lubricator working continuously and automatically. The Ixion is claimed to be the lightest motor on the market, its weight being only eighteen pounds.

The New Rapid Cycle Company, Limited, Birmingham, are now turning out motor-bicycles. They are using the latest Kelecom $2\frac{1}{2}$ -h.p. motor, located behind the seat tube. The left handle controls the electric switch and exhaust valve lift. In addition to their well-known 4-h.p. Traveller Voiturettes, which have already been illustrated in these columns, Messrs. Alldays and Onions, Birmingham, have a motor-bicycle fitted with the new Minerva motor, with mechanically-operated inlet valves. The new Jesmond motor-bicycle of the Jesmond Cycle Company, Limited, Newcastle-on-Tyne may also be referred to. Attention is drawn to the loop frame, which is strengthened to carry a $1\frac{1}{2}$ -h.p., $2\frac{1}{2}$ -h.p., or $2\frac{1}{2}$ -h.p. engine, in a vertical position. Inspection of the machines shows that the rider can easily get at the valves and combustion chamber without removing the crank case from the frame. The Longuemare float-feed carburettor is employed; while a new speed-regulator is to be found on the machines fitted with $2\frac{1}{2}$ -h.p. and $2\frac{1}{2}$ -h.p. engines. Only three levers are used—spark-advance, gas lever, and exhaust lifter.

Messrs. Mills and Fulford, Coventry, are making a feature of trailing cars of new and improved design, suitable for use with motor-cycles. They are also introducing a novel forecarriage, suitable for converting motor-bicycles into two-seated tri-cycles.

Calvert's Motor Company, Limited, are introducing many bicycle motor parts, etc., noticeable among them being the Seer transparent plug. This has been shown working on a running engine with remarkable accuracy. The insulator is made of a specially annealed glass. It is tubular, and enclosed at the inner end only; the leading-in wire being hermetically sealed into the glass at this end, and therefore perfectly air-tight. The outer end of wire is clamped under a small band dip, to which H.T. wire from coil is connected. This clip is removable, and allows the gland nut to be instantaneously taken off and put on another insulator if required.

In the Phoenix motor-bicycle, with which the name of Mr. J. Van Hooydonk is associated, several improvements have been introduced. The lubricating arrangements have been improved, a transparent lubricator being fitted on the top tube, so that the rider has as complete a view of the state of his oil supply as on a motor-car. The contact breaker is fitted on the extremity of the lever which actuates the exhaust lift, and is made of a springy metal, enabling the exhaust valve to be raised slightly without interrupting the current. The Bowden wire lever on the handle-bar becomes the means of regulating the speed of the machine, as well as the start and the stop. Mr. Van Hooydonk recognises that the public demand will be for machines capable of ascending any hill, and for that purpose the 2½-h.p. Phoenix will be found of ample power. The "Trimo" fore carriage, introduced by Mr. Van Hooydonk, and illustrated in our issue of October 25th, may also be mentioned in this connection. This is an ingenious method of converting a motor-bicycle into a three-wheeled machine for two persons, and has attracted considerable attention.

Messrs. A. W. Gamage, Limited, had two stands at the Stanley Show, one of which included a wide range of motor accessories,

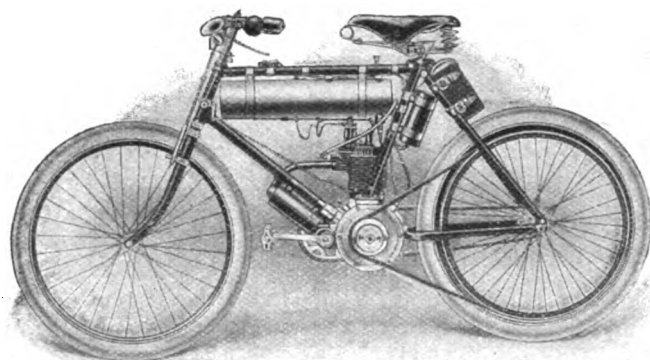


FIG. 2.—THE GAMAGE MOTOR-BICYCLE.

including Bleriot and other lamps, footgear of varied kinds, including boots in chrome-dressed leather and lined with asbestos, motor horns, etc. In the clothing department were pony and goat coats, while all the goods seemed to be lined in the most appropriate and useful styles. A novelty consisted of a coat for motorists with camel-hair lining. On the second stand the firm showed the motor-cycle once known as the "Red Star," and now designated the Gamage. The motor, which is of 2-h.p., is built into the frame, in a vertical position. The cylinder is of 68 bore and 80 stroke, and control is obtained through the handles, the right-hand one controlling the advance sparking, and the left handle the compression. A carburettor of the spray type is fitted, and for lubrication a pump is provided, which will secure efficient lubrication for about 25 miles on one charge. The transmission is by means of a V-shaped belt and a non-slipping pulley. The petrol capacity of the tank is sufficient for about 150 miles run, the compartment for lubricating oil holding enough oil to run twice that distance.

Reference has already been made in our "Motor-Cycling News" to some of the new features in the Ormonde motor-bicycle. The standard Kelecom, 2½-h.p. motor with which it is fitted, has a bore of 70 mm. by 75 mm. stroke; the 2½-h.p. a bore of 77 mm. and stroke of 80 mm.; while the 3½-h.p. motor for racing purposes will have a bore of 84 mm. and a stroke of 80 mm. The tank is now fitted with a float actuating a pointer upon a dial, which is marked off in quarts, so that the exact amount of the petrol in the reservoir can be ascertained at a glance. An outside automatic lubricator has been provided, and the carburettor, which is of the float-feed spray type is now made slightly larger than hitherto. The "Ormonde" motor tandem bicycle, and the "Ormonde" fore carriage for motor-bicycles are two other introductions of the company with which the well-known name of Ormonde is associated.

A NEW record in Massachusetts automobile runs has been made by a 6½-h.p. Weston car. With two passengers aboard, the car has ascended Mount Wachusett, near Fitchburg. The steepest grade is 19 per cent., or practically one in five, and the car took the mountain without difficulty.

THE ANNUAL CYCLE SHOWS.

BELOW we resume our report of some of the main features of the Stanley and National Shows:—

Messrs. G. T. Riches and Co. had a large collection of motor accessories and spare parts, including many novelties. Among the latter was an instrument to enable the amateur to charge his accumulator from the ordinary house or hotel electrical installation. All that is required is to take out one of the electric lamps in use and insert the bayonet holder carrying the special lamp attached to the charging board, and connect the hooks to the accumulator. M. C. M. Berthe, of Colombes, near Paris, made a big show of motor-cycles, small engines, carburettors, tanks, oilers, batteries, coils, plugs, pumps, horns, and all replacement parts for De Dion, Aster, Clement, Panhard, Darracq, Ader, and other cars. Lubricators and grease cups for motor-cycles and cars were included in the exhibit of Messrs. Rotherham and Sons, Coventry.

Motor roller chains were shown in various pitches, from ½ in. to 3 in., by Mr. Hans Renold, Manchester. These chains are made on the same principle as the Renold cycle chains, and are designed to give the greatest strength with the minimum of weight. A special ½ in. pitch roller chain is being introduced for use on chain-driven motor-bicycles. For high-speed work the Renold silent block chain is used. This is made in pitches from ½ in. to 1½ in., and in widths from ½ in. to 6 in.; the sample of the latter shown is the largest so far made, and has been designed for driving carriages on the Manchester to Liverpool Electrical Railway (Behr's Monorail system). Motor roller chains in a variety of pitches were to be found at the stand of the Coventry Chain Company, Limited, as also a special chain-band for motor-cycles, the latter consisting of a combination of wedge-shaped blocks of leather and steel side plates and rivets, and of novel and ingenious design.

The Phoenix Accumulator Company showed a new secondary battery for use on electrical cars. The positive electrode is composed of a cylindrical vessel of porous earth of a character possessing a high degree of porosity. Its resistance to the electric current is stated to be nil. In this cylindrical vessel is the positive material, the contact being assured by a leaden bar of special form. The upper end of the vessel is hermetically sealed, rendering the positive electrode indestructible. The negative electrode is composed of a leaden core of special form, around which oxide of lead (litharge) has been imparted. This work is done mechanically, and the electrode, when finished, has also a cylindrical form; when the litharge pasted round the core is dry it is covered by a case of ebonite to allow the circulation of the liquid. This case is formed of a large number of small discs. The accumulator is said to furnish 15 A.H. per kilog. of the electrode under a discharge of two hours; 18 A.H. 75 per kilog. of the electrode under a discharge of five hours; and 27 A.H. per kilog. of the electrode under a discharge of eighteen hours.

The Cologne Accumulator Works (Gottfried Hagen) of Kalk, near Cologne (Germany), had on view a series of accumulators for ignition purposes for automobiles, as used largely by the Benz Company.

Messrs. Charles Peacock and Co., Clerkenwell, E.C., are catering for the wants of motorists in the way of accumulators, charging boards, volt- and ampere meters, and had a large collection of these on view.

Mr. Charles R. Base was well to the front with a selection of motor clothing, including both fur and leather coats. Special reference may be made to the Motor Poncho, made in black and white rubber. This coat is cut like a Poncho cape, with sleeves, and a small opening at the neck for the head to pass through. The opening is cut on the round to prevent drifting rain from penetrating, and the sleeves are fitted with wind cuffs.

The Dunlop Pneumatic Tyre Company, Limited, showed a large variety of their motor tyres, from those suitable for motor-bicycles up to those for heavy motor-vehicles. Included in the exhibit was the identical set of tyres used by Mr. S. F. Edge in the Gordon-Bennett race. The Clincher pneumatic and solid rubber tyres for motor-cycles and cars were to be seen on the stand of the North British Rubber Company, Limited, Edinburgh. Tyres for motor-cycles and cars were also shown by the New Amalgamated Tyre Company, Limited, Coventry, and the Scottish Tyre Company, Limited, Glasgow, a feature of the latter being the Scottish de Luxe motor-bicycle tyres, with canvas insertion to lengthen the life of the rubber and heavy twill linings. The Self-Sealing Air Chamber Company, Limited, Birmingham, exhibited their self-sealing inner tubes for the prevention of punctures. This company is also making a speciality of the repair of motor tyres of all kinds.

Four cars were to be seen at the stand of the Star Engineering Company, one being a *fac-simile* of the identical vehicle recently supplied to the Automobile Club. It is a 7-h.p. twin-cylinder car, with tonneau body, finished in yellow and green. The motor is governed on the inlet valve, and is water-cooled by means of pump and radiators. The gear is on Panhard lines, giving three speeds forward and one reverse, all actuated by one lever; and the power is transmitted from the countershaft to the road wheels by two side chains. Two independent powerful double-acting brakes are fitted, one on the countershaft and the other on brake drums on the rear road wheels. The wheel base is very long, and wheels are 32 in. equal, by 3½ in., fitted with heavy pneumatic tyres. Another noteworthy vehicle was a 10-h.p. car, the body of which is of the Roi des Belges tonneau type, and manufactured by a new process, which the makers have protected. The body is of wood, and is said to come out considerably lighter than aluminium. The car is similar in design to the 7-h.p., but has four speeds. Aluminium is used in the tonneau body of the 20-h.p. four-cylinder car. Four speeds ahead and one reverse are available. The

body is provided with a high back, and is comfortably upholstered. Samples of the 7, 10, and 20 h.p. motors, as well as a 10-h.p. chassis, were to be seen on the stand to testify to the progress the Star Company has made in the construction of motor-cars. The 7-h.p. engine has two cylinders, $3\frac{1}{2}$ in. diameter by $4\frac{1}{2}$ in. stroke, and runs at a normal speed of 1,000 revolutions per minute. The bore of the 10 and 20 h.p. engines is $4\frac{1}{2}$ in. by $5\frac{1}{2}$ in. stroke, and the normal speed 800 revolutions.

Varied was the stand of Joseph Lucas, Limited, the "King of the Road" motor headlight being particularly prominent amid a good collection of side and rear lamps, as well as a useful lamp for voituettes. Pumps, horns, lifting jacks, luggage bags, etc., were on the stand as well as tins of the Wells-Lucas "Motoil A"—specially prepared for motor-bicycles. A new pattern of oil feed was also shown in Lucas's "forced feed" oiler, the advantage being that forcing of the oil right home is ensured.

Messrs. Sutherland and Marcuson showed a two-cell motor-cycle battery as well as batteries for cars—all fitted with elements of the "Umpire" type, in which ribbed porous separators entirely occupy the space between the plates. The latter are held together by means of acid-resisting elastic bands, thus keeping the active material constantly under pressure and preventing it from falling away or losing contact with the grid. The "Meyra" dry cells were exhibited by the Ideal-Meyra Electric Company, who had also on view many excellent electric hand lamps, etc. Induction coils, the G. and L. accumulators, volt meters, ampere meters, etc., were shown by Messrs. Gianoli and Lacoste, who also exhibited controller handles fitted to clips ready for attachment to the top tubes of motor-bicycles. Messrs. H. W. Van Raden and Co. had a stand whereon were exhibited woven glass accumulators, sparking plugs, charging boards, electric ignition apparatus, carburettors, etc.

Motor horns and lamps formed the staple part of the display made by Messrs. Steiner and Company, while at the stand of the London Autocar Company was a representative collection of launch motors, the "A.V." radiators, lamps, pumps, De Dion engines and parts, coils, oil pumps, and motor accessories of every kind. Complete sets for motor-bicycles and tri-cycles were also shown, the company demonstrating their capacity for supplying all the accessories required by the motorist. Aluminium castings, including a model crank case for motor-bicycles, were shown by Mr. Robert W. Coan, whose specialities in aluminium are well known to motor manufacturers. The Auto-Machinery Company, Limited, made a feature of their patent roller bearings, and also showed a motor-cycle frame fitted with the company's own 2-h.p. cycle motor with magneto ignition.

The Red-Grey Rubber Tyre Company, Limited, showed the speciality indicated in their title. Red rubber being necessarily "cured" with salts of antimony, is capable of resisting great heat, and presents a durability and toughness greater than the grey variety. The latter, however, being cured with sulphur only, easily combines with solution, thus being easy of repair. Combining these two advantages the red-grey rubber tyres are likely to become familiar on the wheels of motor-cars. Tyres were also shown by the Goodyear Tyre and Rubber Company, who took the opportunity of calling attention to their detachable motor-cycle tyre, which is made in three sizes.

Price's Patent Candle Company, Limited, had a good show of motor and motor-cycle lubricants, including "Motorine" for air-cooled and for water-cooled cylinders, motor piston oils, and Battersea gear oil, the latter being adapted for "bath" lubrication in change-speed gear boxes of the Panhard or Daimler type. These lubricants are absolutely neutral, and free from any oxidising or gumming tendency. A good display of lubricants was also made by Messrs. Stern Brothers, who drew particular attention to the "Fram" non-freezing lubricant for the gear cases of cars. Lubricators of various kinds were also shown by the firm.

Motorists in search of the latest things in motor clothing naturally turned to the stand whereon Mr. Alfred Dunhill exhibited his specialities in chrome-dressed leather clothing, etc. He is wisely seeking to give his motorists' clothing the appearance of ordinary raiment—a development very different to the efforts of tailors in the early automobile days. An "Umbrella" coat in cape form for motor-cyclists was also shown, together with a finely representative collection of gauntlets, gloves, caps, foot muffs, goggles, etc.

A car attracting considerable attention was the "Rigal," shown by the British Germain Motor Car Co. This is a light, two-seated car of good appearance. The tubular frame is carried upon semi-elliptical springs; a $6\frac{1}{2}$ -h.p. De Dion engine is fitted; there are three speeds forward and a reverse, the third speed driving direct through the gear box. Two brakes are fitted on the rear wheels, and the third is on the countershaft. Irreversible wheel steering has been adopted. The wheels are of the artillery style, fitted with pneumatic tyres. Although the "Rigal" car is primarily intended for use as a two-seated vehicle, there is ample room at the rear for a third small seat, or the space can be utilised for luggage. We understand that this car was run on Sunday last for the first time, and succeeded in doing between sixty and seventy miles on the main North Road through pouring rain and over bad and newly-stoned roads without giving the slightest trouble. About eighty miles were accomplished the following morning (Monday), the car returning to London in an equally satisfactory manner. At another stand the company had a 15-h.p. Germain car with a four-cylinder motor having 95 mm. bore and 130 mm. stroke. This is the car which obtained the silver medal in class G in the Reliability Trials of the A.C.G.B.I. The British Germain Motor Car Company, Limited, has opened a depot at Hanover Court, Hanover Square, W., where both cars are on exhibit.

MESSRS. HAYNES AND SONS, LIMITED, have taken up the agency for the Wartburg cars, which are of German construction. Several types are made, and a few days ago we had an opportunity of inspecting the little two-seated car, fitted with a $5\frac{1}{2}$ -h.p. two-cylinder vertical water-cooled motor, located in the rear of the tubular frame. Three speeds forward and a reverse motion are provided, the power being transmitted through a clutch and bevel gearing to the rear axle. The little car is neatly finished and can, it is stated, maintain an average speed of nineteen miles per hour.

CORRESPONDENCE.

GRADIENTS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Your correspondent "T." who is curious on the subject of gradients, may be reminded that the four or five miles of the Kirkstone Pass include no doubt an upward climb and a downward "slither." His calculation makes the Pass just twice too high. "An average gradient of 1 in 8" does not underestimate things if the portion alluded to is counted from Kirkstonefoot to Ambleside. Three-quarters of a mile from Kirkstonefoot the hill is all 1 in 10 to 1 in 8 up to the top, and then the part down to Ambleside is 1 in 6 at first, then mostly 1 in 7.

But there are main roads in the country with hideous gradients, and 1 in 5 is not at all unknown. May I draw "T.'s" attention to the following?—

Ilfracombe to Minehead.—At Parracombe, 1 in 7; descent to Lynmouth, 1 in 5, and 1 in 7 up again; descent to Porlock, 1 in 6.

Bala to Dinas Mawddwy.—Descent to the Dovey Valley, 1 in 5 and 1 in 7. This is almost the worst road in the country.

Inverness to Fort Augustus.—The descent to Fort Augustus is 1 in 7 in several places, and steeper for short pitches.

Glenelg to Shiel Inn.—The "Mam Ratachan" hill with a horrid double turn, 1 in 6. This is used for driving regularly through the summer.

Gairloch to Ullapool.—The descent to Aultnaharrie, near Ullapool, is precipitous, 1 in 6, 1 in 9, 1 in 5: however, this road is much used.

Aultnaharra (not the same place as the last mentioned) to *Eriboll*.—The descent to Eriboll is 1 in 6.

With the exception perhaps of the Bala-Dinas Mawddwy road these are all main roads, because there is no other way.

May I also mention the road from *Tornapress to Applecross*? Inside 12 miles the road rises from sea level to 2,040 feet, and returns to sea level. The gradient is not usually worse than 1 in 7.—Yours faithfully,

CATAMOUNT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to "T." re a gradient of one in five on a main road, I think I am correct in stating that parts of Porlock Hill (on main road from Ilfracombe to Minehead) are one in five. Whether it has been subjected to the tests of the clinometer or theodolite, I cannot say, but I suppose it has. Perhaps "T." will walk up this hill one day, and I am quite sure he will admit of a one-in-five gradient.—Truly yours,

FLASH.

MECHANICALLY-OPERATED INLET VALVES

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As one specially interested in the above subject, I have followed with close attention the correspondence as to the advantages or disadvantages of the mechanically-operated inlet valves, as compared with the automatic valves, but there appear to me to be one or two points that have not yet been touched upon. Many correspondents in their advocacy of the former, evidently basing their remarks entirely upon theory, lay particular stress upon the fact that the mechanical valve shall be opened exactly at dead centre, with the result, they claim, that the cylinder will necessarily be absolutely filled with a fresh charge, which would not be the case with the automatic valve. If this were always the case, then nothing else would require to be said in favour of the mechanical valve, as this advantage alone would more than compensate for the extra working parts employed. As the result, however, of experiments I have been carrying on in my own testing shop for months past, I have found that if the mechanical valve be opened exactly at dead centre as advocated, an entirely different result will, under certain conditions, be obtained to that anticipated, and which entirely destroys the very advantage which they so strongly claim.

Supposing the cylinder, from any cause whatever, is not thoroughly scoured on its exhaust stroke, what takes place if the mechanical valve be opened exactly at dead centre, as suggested? The result is that the remaining exhaust in the cylinder at once rushes out through the now opened valve, and the induction pipe (which is full of gas from the last suction stroke) is at once emptied, or partially emptied, of this fresh charge, and a considerable portion of the suction stroke has to be expended in refilling the pipe. Here seems to me something that must be seriously considered, and I have found that the longer the induction pipe, the worse the result. Hence, with the almost certain adoption of the mechanical inlet valve, my reason for fitting the carburettor in my new engine as close as possible to the engine, in order that, if from any cause whatever

the cylinder should not be thoroughly scoured, the effect would not be so detrimental as if a longer pipe were used.

Many correspondents also condemn the automatic valve on all points, whether of opening or closing, some even going so far as to state that this valve cannot close until the compression stroke has commenced. Is this so? I venture to state that, with a properly designed motor, and with a valve fitted with a spring of proper tension, the valve will be closed at the correct time for efficient working. Can this spring always be relied upon? There is no doubt in my mind that with certain given conditions the mechanical valve will score, and I am convinced that whilst these conditions can be maintained an engine fitted with this device will give greater power than one fitted with the automatic valve. Manufacturers, however, must bear in mind that in all probability after the motor has left their works these conditions may be materially changed, even to such an extent that any advantage which might be derived from the mechanical valve will be reduced so considerably that it may not be worth the extra cost and the additional number of working parts. I take it that we all are only too anxious to get all the possible power from our motors, and I shall be glad to see this matter thoroughly discussed.—Yours faithfully,

FRANK MORRISS.

GOGGLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The question of goggles, on which you invite the opinion of your readers, has occupied my attention as an ophthalmic surgeon for some time, and my own feeling is that it is better to do without them. Personally, I never wear goggles at any time of the year, and my wife, who has driven with me long distances in all weathers, neither uses them nor a veil of any sort, and our eyes have never been the worse for the want of them. Some people seem to trap flies in their eyes with greater facility than others, and, of course, a fly in the eye of the driver may lead to an accident; then again, when dust is excessive, for instance when following another car, goggles, nay, even a respirator, become a necessity. Weak eyes which are easily inflamed need protection from cold wind and dust. For fast speeds no doubt some covering is advisable, but I am speaking of about twenty miles an hour.

A large transparent shield of talc covering the whole face is far better than any close-fitting glasses which keep the eyes hot whilst the rest of the face is cold. The goggles usually sold are not fitted with good glasses, for unless expensive, the glasses are moulded to shape, not ground optically true, and in consequence usually have the effect of slightly concave lenses. They also cause a certain amount of distortion of objects, and both of these defects are injurious to the eyes. Again, they are generally tinted to a greater or less extent, so that the effect of bright light after taking them off is more trying; their effect is weakening, and it becomes difficult to do without them. Driving in ordinary spectacles makes the eyes water unless the glasses are very large, for although protecting the eyes from the direct wind, there is a draught produced round the rims which is worse than if none were worn. The field of view with spectacles is dangerously limited, and this would be the case with a transparent mask (not too close fitting) of talc, or something similar to, but safer than, celluloid; on which, too, no deposit of moisture would be so likely to occur and obscure the sight as is usual with glass.—Yours faithfully,

M.A., M.D.

A GRUMBLE RE MOTOR REPAIRERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to Mr. Darlington's letter in your issue of the 22nd ult., I have for a long time wished that a list of motor repairers could be drawn up and issued to users of motors; a book at a small cost ought to sell. It would be interesting to know what trouble Mr. Darlington had that was not properly done by the would-be motor repairer. I myself was in trouble with motor tyres near Ashford last year, and left the car at a repairer's (who had four motor-vehicles in the works) for three hours; it was then getting dark, and two men were still at work on the tyre. They certainly made the tube worse than before, they had not properly put the cover on, and blown a large hole in the tube. I decided to stop all night in Ashford, and went to the works about ten next morning. You ought to have seen the tube. "We cannot possibly do anything with this tube, sir, it is worn out!" They had not got a new one, so I asked permission to repair it. I cut two bad places right out and rejoined it in the two places. This occupied 1½ hour, after which away we went, and drove home, a distance of nearly 50 miles, the only one trouble experienced being that a patch put on by the repairers leaked. We mended this, and the tube afterwards ran about 300 miles without pumping up.

I wrote the repairers the same evening giving the result. I never go out now without my own repair outfit.—Yours truly,

Cox.

HOW TO DRIVE MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Almost every different make of car requires different driving to obtain the best results.

If "Gear Box" will say the particular make of car he is requiring the information about, there is no doubt those most directly connected with that particular manufacture will probably at once offer assistance.—Yours,

te.,

MANUFACTURER.

THE AUTOMOBILE CLUB BILL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am glad to see you have declared against the reduction of owners of motor-cars to the level of cab-drivers, as will be the case if the proposed numbering legislation should ever pass through a panic-stricken House of Commons. There are two sides to the question, and, so far, practically only the official view has been published to the world. Although some well-known motorists have associated themselves with the numbering idea, there are hundreds of steady-going owners up and down the country who would object to the labelling policy, and who must be grateful to the *Journal* for having taken such a decided stand in the matter. May I appeal to your readers who have influence in the constituencies to inform their M.P.s that Mr. Scott Montagu does not voice the unanimous view of motorists—in fact, that his proposals have their keen opposition.—Yours truly,

W. H.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I read in the *Journal* the text of Mr. Scott Montagu's Bill for the registration of motor-vehicles, and am greatly surprised to find that it is compiled in a great measure by the Automobile Club. I notice that it seeks to confer greater power upon local authorities, such as County Councils and other local bodies, than at present exists. If such a Bill passes through Parliament, then these County Councils, etc., would immediately make such tyrannical rules and regulations as would completely upset and prevent all further use of motor-cars throughout England and Wales. I have had considerable experience in connection with traction engines, and can truthfully say that under one Act of Parliament the tyranny of the various local bodies and voluntary magistrates has been something terrible in many districts. Local law is the most cruel and unjust of any that we can have. Mr. Scott Montagu's Bill is practically a Bill to suppress the use of all motor-vehicles on public roads. It would have no other effect!

I hope the Automobile Club will at once withdraw from the Bill and frame another one, altogether more consistent. The giving of any further power to local bodies should be most rigidly opposed before Parliament. The registration and numbering of motor vehicles should also be opposed, and the power to take away a man's license, or to prevent him getting a license, should also be resisted. A new Bill should be one which cannot be tampered with by any local body of men. It is local tyranny under which motorists are now suffering. Local bodies have already got too much power. I thought the Automobile Club would have seen this long ago. I hope the interests of motorists will be faithfully and rigidly defended in Parliament, in case of any legislation.—Yours faithfully,

MECHANICAL ENGINEER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I think with you that Mr. Scott Montagu's Bill would do more harm than good. As regards numbering of cars (and I suppose motor-cycles), I fancy it will take a man with very sharp sight to read the number of a car travelling at say forty miles an hour on a dusty road, i.e., if the number is at the back. I also see that apparently there are no special clauses referring to motor-cyclists, and as I belong to that class I am naturally interested in the same.

If motorists in general could exert all their power in either bringing the fines down to that imposed for leaving horses unattended, etc., or else bring those fines up to the £5 and costs of the motorist, more good would be done than by numbering. In a few years the police will have to give their attention to flying machines; the only thing will be that there are no hedges or pigstyes for them to hide in up above.—Yours truly,

MOTOR CYCLIST.

ANTI-FREEZING SOLUTIONS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice in the *Journal* that an anti-freezing mixture has been asked for. It is an important subject, and I believe the remedy for preventing water-cooled cylinders being cracked by frost to be three-quarters of a pound or thereabouts of ordinary salt well dissolved in each gallon of water carried by the car. Salt only costs about ½d. per pound, so the expense is little. In support of this I may mention that Fahrenheit, when making his thermometer, obtained his "0 degrees of heat (or rather cold)" by a mixture of salt and water, which he froze: 32° is the "freezing point of water."—Yours truly,

C. F. HAMMOND.

MEASURED DISTANCES.

NEAR Hailsham is a measured furlong which has just proved disastrous to a quartette of motorists.

BETWEEN Fishergate and Southgate, on the Lower Shoreham road, is a measured quarter of a mile.

THERE is a measured quarter of a mile on the road from Southbourne to Emsworth (Hants.).

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Hailsham ...	W. Josling	25 m. p. h.	£1.
" ...	G. Richardson, Peckham	25 m. p. h.	"
" ...	J. M. Gorham, Westminster	28 m. p. h.	"
" ...	E. Miller, Patcham	—	"
Steyning	H. Crossland, Pulborough	21 m. p. h.	£5, etc.
" ...	F. W. Norman, Burgess Hill	26 m. p. h.	"
Dublin	Dr. R. Lane-Joynt, Dublin	—	Dismissed.
Guildford ...	G. Robson, London, W.	21 m. p. h.	£3.
" ...	H. Von Laer, London, S.W.	25 m. p. h.	"
" ...	H. Strakosch, Chelsea	33 m. p. h.	£5, etc.
Doncaster ...	T. Scaife, Bradford	—	"
Chichester ...	H. Holland, Southsea	20 m. p. h.	£3, etc.
Stevenage ...	H. Good, Hampstead	—	Dismissed.

Where no alleged speed is given it is understood to be above the legal limit.

DR. LANE-JOYNT was summoned by Sergeant Rohan for furiously driving a motor-car to the danger of the Dublin public. The sergeant said cars were only allowed to travel at six miles an hour, while the doctor was travelling at twelve miles per hour. Inspector Connor said the police regarded the case as one coming under the Carriage Act, but upon Mr. Lane-Joynt, the defendant's solicitor, showing that the Light Locomotive Act allowed a greater pace the case was dismissed.

In the cases at Guildford Sergeant Jarrett was the prosecutor, and produced a plan of the road at Boxgrove, where the offences were committed. This was used for reference by the magistrates. Perhaps now he will go further, and obtain plans and drawings of the offending cars for the education of the Bench.

T. SCAIFE, a motor-car driver in the employ of the Bradford Motor Company, was charged at Doncaster on Saturday with driving at more than 12 miles an hour, and with failing to stop when signalled to do so by the driver of a restive horse. He was fined £5 for furious driving, but the charge of neglecting to stop was dismissed.

MISDEMEANOURS.

At Sparkhill, Birmingham, on Monday, Robert Colgate was charged with being drunk whilst in charge of a motor-car. According to the evidence of a constable, the defendant was driving the car at the rate of twenty-five miles an hour. Then he pulled up and backed the car in an eccentric manner, and threatened to "down" the constable who interposed. He was fined £1 and costs. The defendant denied the charge, and gave notice of appeal.

THE first conviction in Surrey for being drunk while in charge of a motor-car has just taken place, John Bowyer, driver of the motor-car belonging to General Sir John French, commanding the First Army Corps, being fined £1 and costs for being drunk in charge of the car at Camberley on the 15th ult. Constable Crowhurst had a suspicion that defendant was not in a fit state to control the car, and asked him to alight. Instead of complying, Bowyer put on full speed, and went off in the direction of Aldershot, being shortly afterwards found by a corporal of the Military Mounted Police with the car in a ditch which divides the road from the Empress Eugenie's estate at Farnborough.

CLAIMS FOR DAMAGES.

As the Clerkenwell County Court G. H. Armit, cab proprietor, 20, Aatey's Road, Canonbury, sued Mr. Lehnair, 51, South Street, Park Lane, for £5 19s. 6d. in respect of damage done to a cab. The counsel for defendant said his client was the owner of a motor-car, and his servant, without any authority and whilst not engaged on any business for his master, took the motor-car out between five and six in the morning and got into the Strand, where it ran into plaintiff's cab near the Hotel Cecil, and did the damage which was now claimed for. The Judge: If you can prove that was so, then there is no liability on the part of defendant. Mr. Lehnair said that not only did his driver take the motor-car out without his authority early in the morning of the day in question, but he did not get it back again for two days. Then he found it had been damaged by the driver to the extent of £40. Frederick Downs said he found the motor-car on July 18th in a livery stable in Earl's Court Road, but he saw nothing of the driver, and defendant, recalled, said there were £3 wages due to the driver, which he had never called for. He wanted to prosecute him for his conduct. The Judge said it was quite clear that no case stood against defendant, and a verdict was given in his favour with costs.

JUDGE REGINALD BROWN, at the Hyde County Court, has had before him a case in which Mr. B. C. Sellars, of Mossbrook House, Fairfield, Manchester, sued the Denton Urban District Council for £17 13s. 6d. damages sustained to plaintiff's motor-car through a collision with a fire engine on the 26th July. The case turned on questions of negligence and liability, and His Honour gave judgment for plaintiff for £12 17s. 6d., including 37s. 6d. for a new lamp. Leave to appeal was granted.

At Greenock Sheriff Court evidence has been heard in an action by Mr. Alexander McCulloch against Mr. James Cramb, Star Hotel, Port Glasgow, for £12 damages said to have been caused to pursuer's horse by being frightened by defender's motor-car. Sheriff Glegg said he had no reason to doubt that it was the motor-car coming round the corner that frightened the horse, and from the evidence negligence had been proved against defender. He gave decree for the sum sued for, with expenses.

At the Marylebone County Court (London) on Monday, before Judge Stonor and a jury, C. B. Butwright, 5, Connaught Place, Bayswater, W., sought to recover £10 from Mr. Frederick Hemsley, 16, Park Parade, Harlesden, N.W., the claim being in respect of personal injuries and damage to a bicycle, said to have been caused through the defendant's negligent driving of a motor-car. Mr. Staples Firth defended. The plaintiff stated that on June 27th last he was going on his bicycle to Burnham Beeches. At about four o'clock he was at the corner where the Slough and Windsor roads meet. As he approached the corner he saw the defendant's motor-car some twenty-five yards away, "swinging round the corner." Such a wide sweep did the defendant take that he came right over on his wrong side, and "bashed" into witness. His hand and leg were badly injured, and the machine also fared very badly. The driver of the motor-car was afterwards summoned at the Police Court for driving "to the common danger of the public," and convicted. Corroborative evidence having been given, the defendant stated that he was driving a voiturette. When within a few yards of the corner in question he sounded the horn and continued to do so as he turned. The jury returned a verdict in favour of plaintiff. Defendant's solicitor asked for a stay of execution with a view to an application being made for a new trial. His Honour said that such application must be made in the ordinary way, after proper notice. In the meantime judgment would be entered in accordance with the jury's finding.

A SCOTTISH CASE.

PROOF has been ordered by Lord Killyachy, in the Court of Sessions, in an action by Richard Sneddon, mining engineer, Hillhousebridge, Shotts, against Stirling's Motor-Car Carriages, Limited, Glasgow, for payment of £465, the price paid by the pursuer to the defenders for a motor-car. The pursuer avers that the defenders' secretary represented that the car had been built for the Earl of Aberdeen, that it had been in use by his lordship for two months, that it was in first-class order, that Lord Aberdeen had paid £620 for it, but that the defenders were taking it back as the Countess did not like it, and wished to have a car of the pattern used by the King. He says the defenders agreed to deliver the car two days later, but that it did not reach Shotts until 8th September, a month after the order, when he ascertained that it had broken down several times between Hamilton and Shotts, and had taken five hours to accomplish the journey—a distance of twelve miles. In the end, the pursuer says the engineer had to get the assistance of members of the public to push it up to Hillhousebridge. Subsequently, he avers, it frequently broke down, it was not built for Lord Aberdeen, who did not pay £620, it was in use for a much longer period than two months, and it was not in first-class order. The defenders refused to take it back or repay the price. They deny that the car broke down several times on its way to Shotts, that it did not answer to the description of the vehicle sold to the pursuer, or that any representations were made by them.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

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COMMENTS.



THE great event of the motor-car industry—the annual Paris “Salon”—was opened on Wednesday last, in the Grand Palais, Champs Elysees. Considerable interest is shown in the exhibition, not only by motor-traders in this country, but by automobilists generally, and on Wednesday morning a large party of members of the A.C.G.B.I. and friends left Charing Cross en route for Paris, *via* Boulogne, to visit the “Salon,” which is by far the largest ever held in the French capital. The show this year has an added interest to English motorists, as for the first time British-built motor-cars are being exhibited in France, Messrs. S. F. Edge, Limited, showing the Napier cars, and the Wolseley Company half-a-dozen Wolseley cars. In our next and subsequent issues we shall give a description of the principal improvements that the leading concerns are introducing for the 1903 season, and also a report of the novelties that are on view.

Toll at Maidenhead.

THERE was an interesting scene at Maidenhead Bridge at noon on Monday. Upwards of 500 persons assembled in the vicinity of the toll-gate, including a large number of members of the corporation and some local magistrates. In due course Mr. Taylor, accompanied by Mr. Cecil Howlett and Mr. Fullbrook, rode over the bridge in the latter's motor-car, and the toll-gate was closed and locked. The collector demanded the toll, and Mr. Taylor paid the 2d. but demanded a receipt. This was given to him, and he then rose and said:—“You must clearly understand that this toll is paid under protest, and the court of King's Bench will avenge the King's highway.” The gate was opened with considerable difficulty, owing to the crowd, and amid cheers and groans Mr. Taylor and his friends rode through. The party then alighted, entered a cab, and returned, again paying the toll under protest. Considerable excitement prevailed at one time, but there was no breach of the peace.

Motor-Car Imports and Exports.

THE returns now available relating to the British imports and exports of motor-cars and cycles during November last show a decrease as regards the imports, and, on the other hand, an increase in the case of the exports. To deal first with the imports, 289 cars and cycles were imported into this country last month, the value of the same being returned at £78,679. The value of the “parts thereof” is given as £12,783, so that we get a combined total of £91,462, as compared with £102,817 in October last. Some of these imports were only of a temporary character, being re-shipped to foreign destinations. Thus last month the re-shipments comprised thirteen vehicles, amounting in value to £2,755, and £157 of parts, bringing down the net imports in November to £88,550. During the first eleven months of the current year imports of foreign automobiles and parts into Great Britain have reached a net total of £989,664, representing over 3,500 cars and cycles. As regards the exports of automobiles of home

manufacture, the shipments during the past month amounted to forty-nine vehicles of a value of £13,301. Of parts, the exports attained a value of £2,334, making a combined total for November of £15,635, as compared with £15,619 in October last. It is satisfactory to find that, so far as the year has gone—that is to say, during the eleven months ending with November—331 British-built motor-cars and cycles have been exported, their value being roundly £148,000.

The Portsmouth Automobile Club.

THE Portsmouth Automobile Club recently resolved, as already announced in the *Journal*, to inaugurate a series of monthly meetings at their historic headquarters, the George Hotel, Portsmouth, for the purpose of discussing automobilism. If the success of the initial meeting, which took place on Thursday week, can be regarded as any criterion, the innovation promises to be exceedingly interesting. The Mayor of Portsmouth (Sir William T. Dupree) presided over a fairly large gathering, who listened with the deepest interest to a lecture on the history of automobiles by Mr. J. H. Knight, of Farnham. A series of lantern slides illustrating the rapid developments in cars from the earliest period made the lecture both interesting and instructive, while the lecturer's easy flow of anecdote kept the audience in good humour. At the conclusion of the lecture Sir William Dupree, on behalf of the Club, expressed the thanks of the members for the lecture.

Pennington and Millions.

NEWS from the United States is frequently interesting, and many readers will regard the following item from the “Motor Age” with a certain amount of curiosity. “It is announced that the plant of the Racine Boat Manufacturing Company, of Racine, has been sold for 300,000 dol. to the American Automobile Company, which was recently incorporated for 500,000 dol. According to newspaper reports this capital is to be increased to 5,000,000 dol. and the concern is to endeavour to build 100 automobiles per week. Then comes the information that among the directors is the long lost E. J. Pennington, who has scalped clouds and small investors with flying machines, jumped material and financial ditches with motor-bicycles, and planned numerous wonderful automobile enterprises. It is to be sincerely hoped, if the report is true, that the other directors are as well posted in company organization as Mr. Pennington.”

A Busy Time.

So rapidly do events crowd upon each other in the automobile world that it is very difficult to arrange representative meetings of the trade. On Thursday of last week a meeting was held at the Automobile Club to consider the organisation of trials of light motor-vans for delivery purposes; on Tuesday there was a meeting of manufacturers interested in the Big Trial of 1903; at the present time many members of the trade are in Paris. In the second week of January the makers of motor-cycles will hold a meeting to consider a trial of motor-cycles, apart from cars, next year, and then, with the London exhibitions and Club discussion in progress, there will hardly be a

opportunity for the arrangement of additional meetings of the trade.

Another 1,000 Miles Trial.

ALTHOUGH some firms thought the notice convening the meeting of manufacturers on Tuesday was somewhat short, it was evidently unavoidable under the circumstances, and those who were absent will have confidence in the Committee that was elected to arrange the details of the organisation. It was decided at the meeting that next year's trial should be on similar lines to that of this year, with the Crystal Palace as the starting-point of daily runs aggregating 1,000 miles. The trial will take place in September, and the conditions to be imposed should convince the public that the cars that go through the test are really reliable vehicles—capable of doing all that is required in this country.

Stringent Rules.

NOT the least satisfactory feature of Tuesday's meeting was the evident desire of makers to make stringent rules so as to ensure the trial being a reliable guide to buyers. After the day's run the cars will be immediately placed under lock and key, and the time occupied in washing, adjusting, replenishing, repairing, etc., will result in the loss of marks. There

the benefit of themselves and of their two sisters, Marjorie Gwynne Gould and Helen Vivian Gould. In the centre is the Panhard imported from Paris, which is used by Mr. Gould and other members of his family. Of course the children are delighted with their motor-cars, but none more so than Master Gould, who, while still less than six years old, has developed ability to fully take care of the miniature vehicle seen in the photograph.

"Steam Tactics."

UNDER cover of this severe title, Mr. Rudyard Kipling contributes a lively story of adventure with a steam motor-car to the Christmas number of the "Windsor Magazine." A nautical officer in the yarn described the car as a "blighted land-crabbing steam pinnace on springs." His views of automobiles were somewhat hazy at the outset, the mirror to the right of the dashboard for the reflection of the water gauge being mistaken for a shaving glass. After a series of misadventures the party were stopped by "a person in pepper-and-salt raiment with a brown telegraph envelope in his hands." Having told the motorists they were driving at twenty-three miles per hour, the latter were good enough to take the constable in plain clothes aboard. And then they rushed along—the run being described in Kiplingesque fashion as follows:—



THE GOULD FAMILY AND ITS MOTOR-CAR "STABLE."

will be no refilling of fuel and lubricating tanks during the luncheon hour, as on the last occasion, and these regulations should be useful in encouraging manufacturers to take advantage of all improvements likely to bring their cars into the front rank.

Motor Delivery Vans.

USERS of light motor-vans for delivery purposes seemed agreed at the meeting on the 4th inst.—reported on another page—as to the economy and convenience of such vehicles as compared with horse-drawn carts and vans. A Committee is now in course of formation by the Automobile Club which should be able to draw up a satisfactory set of regulations for the proposed trial. It is clear that such an event will give a great impetus to the movement, and that its value to the motor-car trade should be as great as was that of the 1,000-miles Trial of 1900.

A Motoring Family.

THE above illustration shows the motor-car stud of the Gould family at Georgian Court, Lakewood, N.J., U.S.A. On the left and right of the picture are shown respectively a motor-quad and a Victoria Combination that Mr. and Mrs. Gould presented to Kingdon and Jay Gould, for

A Terrible Ride.

"SHE turned her broad black bows to the westering sun, and lifted us high upon hills that we might see and rejoice with her. She whooped into still hollows of elm and Sussex weed; she devoured infinite perspectives of grey split-oak park palings; she surged through forgotten hamlets, whose one street gave back, reduplicated, the clatter of her exhaust, and, tireless, she repeated the motions. Over naked uplands she droned like a homing bee, her shadow lengthening in the sun that she chased to his lair. She nosed up unparochial byways and accommodation-roads of the least accommodation, and put old scarred turf or new-raised mole hills under her most marvellous springs with never a jar. And since the King's highway is used for every purpose save traffic, in mid-career she stepped aside for or flung amazing loops about, the brainless driver, the driverless horse, the drunken carrier, the engaged couple, the female student of the bicycle and her staggering instructor, the pig, the perambulator, and the infant school (where that disembodied on cross roads), with the grace of Lottie Venne and the lithe abandon of all the Vokes family." And then the motorists deposited the poor policeman in a lonely spot miles from anywhere. But why does the artist introduce the picture of a petrol car into "steam tactics."

Dinner of the Yorkshire Club.

THAT the Yorkshire Automobile Club is annually growing in membership and in influence was shown by the large and interesting gathering at the annual dinner on the 5th inst. Mr. A. W. M. Bosville (Bridlington) was in the chair, and with him at the Northern Hotel, Leeds, were the Lord Mayor of York (Mr. E. Gray), Dr. Cragg (Lincoln), Messrs. Samson Fox, S. F. Edge, A. Grime, Charles Jarrott, B. Bagshaw, F. Kilner, A. W. Dougill, and Hey. Mr. N. R. Hepworth proposed the toast of the evening, "The Yorkshire Automobile Club and Automobilmism."

The Attitude to the Public.

MR. BOSVILLE replied. During the past year, he said, the motor-car had gradually settled down in this country. At one time the automobilist felt like a pocket edition of Napoleon if his car travelled fifty miles without a stoppage. Now-a-days, so much did he know of the car's ways and habits that he looked upon it as a sort of tame cat, and was quite unreasonably angry if it did not properly fulfil all its duties. Taking a retrospective glance at mechanical advances made of late, Mr. Bosville said it seemed to him that the seating accommodation of a car was in inverse ratio to its horse-power. A 10-h.p. car had five seats, a 20-h.p. car accommodated four people; a 40-h.p. car carried only two people, and an 80-h.p. car only one person. If horse-power further increased he presumed the car would have to be driven by wireless telegraphy from a central tower! As regards automobilists and the public, it was for automobilists to propitiate the public, not denounce them. The laws of this country were made by the majority of the people, and the number of persons who owned motor-cars were very few compared with those who had nothing to do with them. "Behave like gentlemen on the road," he concluded amid applause, "and the public will treat you like gentlemen."

The Gordon Bennett Race.

To the toast of the Yorkshire Automobile Club Mr. A. W. Dougill (hon. sec.) responded, stating that the membership of the Club was now 105, and that the finances were in a satisfactory state. Mr. E. H. Hepper proposed "The Visitors," eulogising the endurance and the far-seeing intelligence of Mr. Edge and Mr. Jarrott. Mr. Edge prophesied, in reply, that the motor-car interest would one day excel in its scope either the railway or the steamship interests. He looked for a great advance when such difficulties as tyre troubles were surmounted. Speaking of the next Gordon Bennett race, he said that if they could find a ninety-mile course in Ireland he was assured on good authority that they would be given permission to run it off there; failing this, it would take place on the Calais-Bordeaux course. As a manufacturer he was determined to do all he could to retain the cup for England, and he was glad to say that Mr. Jarrott would for the first time drive an English car. Mr. Jarrott also responded, remarking that if the race were run in this country it would give a great advantage to English competitors.

Sense from Salop.

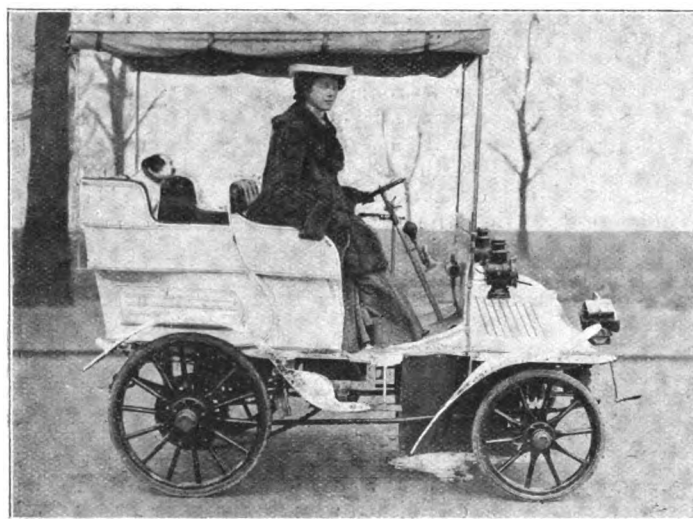
THE cautious attitude of the Wellington District Council in adjourning for a month a discussion on the Yeovil proposals may be accounted unto them for wisdom. During the course of the first debate Mr. France-Hayhurst said if the proposed amendments were intended to apply to motor-cars he was afraid they would never get them to restrict the speed to ten miles an hour; nor did he think the police would be able to keep them to twelve. He himself was inclined to support the recommendation of the Salop County Council that the regulations applied to motor-cars be exactly the same as those applied to horses and carriages; and that nobody should be allowed to drive at such a rate as would be a danger to the public. Such, we may add, is all that motorists desire.

The Exhibition Question.

THE correspondence which has passed between the Secretary of the Automobile Club and the Secretary of the Automobile Mutual Protection Association, and which is published on another page, marks another step in what has become known as "the Exhibition Question." Having in April last decided to cease its interest in exhibitions—an interest which had resulted only in financial losses until Mr. C. Cordingley came to the rescue—the Club is apparently striving to reconsider the matter and to assume a position of impartial judgment between the two associations of the trade. To ask Mr. Helmore for the names of firms not exhibiting at a show with which he has not the least concern seems a most peculiar request—in fact, it would appear that the Club is going somewhat out of its way in seeking to adopt the position of arbitrator.

"The Best Interests of the Trade."

MUCH has been heard of "the best interests of the trade"; but they have not always been fully considered in Piccadilly. It may be that in other countries clubs have held trade displays; but it must be remembered that in such cases private enterprise has been entirely absent. Here, however, motor-car exhibitions were being held long before motorists became an organised body—even before the popular use of automobiles had been made possible by legislation. The exhibition to take place at the Agricultural Hall in March will be the eighth annual motor-car exhibition organised by Mr. Cordingley, and supported by the trade. Had these displays proved weaklings, the Club's anxiety might not have appeared so misplaced; but each has been more representative than the last, and that of 1903 will be no exception to the rule.



MISS RUBY RAY ON HER 7-H.P. BELLE CAR.

The Trade Difference.

AS is pointed out by the Automobile Mutual Protection Association, the difference in the trade is concerned with the date and the location of the exhibition—one section favouring January and the Crystal Palace; another a rather later month and the Agricultural Hall. But many who will be represented at the former recognise the importance of the latter, and have accordingly booked space thereat. Under these circumstances surely it would be more dignified on the part of the Club to cease from its efforts to interfere with purely trade matters and develop its social and propaganda work, where

there ought to be sufficient scope for all the activities of its persistent and energetic officials.

In the Spring.

the year is not so unsuitable as some advocates of the January show would believe.

Motor Racing Track.

WE have been much amused at the dialogue in two of our contemporaries with regard to the authorship of the idea of a racing track for automobiles. Our editorial friends apparently forget "there is nothing new under the sun," and that, after all, it matters little who suggests things. While on this point we would join in advocating the early acquisition of land suitable for the purpose of automobile races, and may be pardoned for reviving a suggestion published in our columns as long ago as June, 1900.

Automobile Racing.

"WE regard the provision of an automobile track as a matter of great importance to automobilism, and also as meeting the need for the organisation of sports and pastimes on a thoroughly representative scale. Firstly, such an institution would provide a centre for automobilism as a sport, and destroy the necessity for any suggestion for road racing—a form of motoring that is never likely to be acceptable to the great majority of the British public. In view of the rapid growth of the automobile industry and the favour with which the sport is being regarded, any scheme of the kind we have indicated should be conceived on broad lines, and carried out with a liberal policy.

Suggested Details.

"THERE should be varying gradients as well as straight runs, and a track five miles round would present an opportunity that all automobilists would enjoy. With a width of fifty or sixty feet, and with well-marked lines so that the motor-vehicles should not cross each other's paths, there should be every chance of getting up good speeds without the dangers and accidents that have proved inimical to the sport on the Continent. Such a track, with a good macadam road never traversed by horses, would give manufacturers as well as owners a means of adequately testing their vehicles, and so establishing a standard criterion which would be useful to buyers and serviceable to makers."

The Locality.

PROCEEDING to discuss the locality of the proposed track, we went on to say, "Such a venture would have to be established within easy access of London, say, at a distance of thirty or forty miles. There are plenty of estates within such a radius unprofitable as farm land, only poorly productive as market gardens, and not yet ripe for building, where such a track could be laid without any great road-making difficulties being encountered." Although nothing practical has yet resulted, motorists are not without hope of an automobile track being established ere long.

Paper Chase on Boxing Day.

ON Boxing Day the Sheffield and District Automobile Club will hold a paper chase on motor-vehicles. The hares will start from Rustlings Road at 11.30 a.m., and the pack—consisting of all members of the Club who choose to follow—half an hour later. It is requested that all cars and motor-cycles engaged in the chase should keep within the legal

limit, as well as on the proper side of the road. The hare will be expected to stop when called upon, but, if temporarily disabled within thirty minutes from the start, the second hare may take the bag and continue the chase. Tea will be taken at the Maynard Arms, Grindleford, and Messrs. J. Barber, F. B. Cawood, B. Hind, B. H. Foster, and J. R. Wade are the organising committee for the chase.

The Automobile Mutual Protection Association.

A STATEMENT of the objects of the Automobile Mutual Protection Association, Ltd., has been issued. These include the advising and defence of members of the Association in cases involving trade questions. It is hoped that every person interested in the welfare of the motor industry will join and support the Association, and thus enable it to persevere in the great and useful work it has already accomplished, notably in connection with the celebrated Maybach "Monopoly" pretensions, which at one time threatened very seriously to strangle the progress of the motor industry. Matters of vital importance alike to members of the trade and private users of motor-vehicles are constantly arising which it would be impossible for any private individual to deal or cope with, and the only possible method of successfully resisting unjust claims, and of supporting those that are valid, is by the combined and mutual efforts and support of all those whose interests lie together. This Association has decided to support the Exhibition to be held at the Agricultural Hall, in March, 1903, under the management of Mr. Cordingley. It has adopted this course because it believes in following an established success rather than in experimenting elsewhere. The Committee is strongly representative of automobilism.

Discussion on the Bill.

ON Wednesday of last week a conference took place between the Legislative Committee and the Club Committee of the Automobile Club with reference to the Bill which the Hon. J. Scott Montagu, M.P., has drafted in conformity with the recommendations of the former body. After discussion, it was unanimously resolved: "That this meeting hereby confirms the action of the Legislative Committee in accepting the principle of the identification of motor-cars, coupled with the abolition of the speed limit, but considers that, before the formal assent or approval of the Club is expressed, some assurance should be obtained that such regulations will be made as will, as far as possible, minimise the risks to automobilists which might arise from abuses of identification."

Restrictions Suggested.

EVIDENTLY it is dawning upon those who have fostered this suggestion of numbering that the risks attendant upon such a plan will be greater than were originally suspected. Hence the last clause in the foregoing resolution. It was also suggested during the discussion that the Bill ought to provide that this method of identification should not be made use of unless the driver could be charged with having driven to the danger of other passengers then on the highway, or with having failed to stop when called upon to do so by a police-constable or the driver of a restive horse. If every driver of a motor-car is to be at the mercy of every other passenger on the highway who may see fit to charge him with furious driving, the life of a careful driver of a motor-car may be unendurable, as it is at present under the twelve-mile-an-hour limit. We are afraid that, having adopted the numbering plan, it will be impossible to minimise its risks and absurdities with any such restrictions. The better way—in fact, the only satisfactory solution of the present position—is to advocate that motorists be liable to be summoned if they drive to the danger of the public, and that all talk of numbering and mileages be dropped.

Numbering Again.

WRITING on the question of labelling motor-cars with numbers the "Edinburgh Evening Despatch" says:—"Perthshire County Councils, like some other bodies of the same class, are still harping on the necessity of the registration of motor-cars and the affixing of large figures for purposes of identification. It happens that in the current number of THE MOTOR-CAR JOURNAL attention is called by its Continental correspondent to the utter failure of that method abroad, and he regrets that people at home do not profit from the experience of their neighbours. Unfortunately in this matter the Automobile Club in London is acquiescing in this hopeless scheme of the County Councils—reluctantly it may be, but still acquiescing. This strange conduct of the Club is, however, easily enough understood. Although it professes to be virtuously indignant with the doings of 'road-hogs,' as it styles motor scorches, it is notorious that some of the worst scorches are members of the Automobile Club. These men care only for one thing—limitless speed; and disfigurement by figures, which, however large, would either become obliterated with dust or be otherwise indistinguishable, is a matter of indifference to them. Scorching is their aim, and to secure the right to scorch they will yield on the subject of numbering. The great majority of motorists, however, are not of this class. They only seek reasonable speeds, and it is sincerely to be hoped that whatever legislation may take place on the subject will not be based upon prejudices."

A French View.

ELSEWHERE in the present issue we have pleasure in publishing the views of M. Georges Prade, the editor of the "Auto Velo," on the numbering question, and after reading his article our readers will assuredly reply "No" to the question with which he concludes. Now that the Bill is being reconsidered—and we are glad to hear that opportunity for general discussion is to be given at a meeting of the Automobile Club—we would urge our readers to do what they can to convince M.P.'s and others who are likely to have influence in the settlement of the question as to their dislike to the numbering proposal.

Numbering must Go.

THE contributor of "Motor Notes" to the "Lincolnshire Echo" describes the outcry fostered by some motorists for numbering as "lamentable shortsightedness," and goes on to add "that the organ of the Club is not wise in commenting so bitterly on the motor papers that hold a different opinion. Many of us see the folly of the numbering proposals, and object strongly to having to carry a big number like a convict or a cab-driver. A sample of the better way exists in Lincolnshire, where the authorities realise the utility of motor-cars, and where, so long as we drive carefully and with every regard for the other users of the road, we are not troubled with the legal limit, and can pass policemen without feeling that we are likely to be run in and heavily fined. As the numbering proposals in regard to cyclists have disappeared, so will they in respect to motor-cars, but once place ourselves under numbering and we shall never again be allowed to go out without a ticket. Let the Club invite some of the old brigade to its conferences, and not conclude, because the M.P. introducing the Numbering Bill is the editor of a motor paper, that therefore every other motor paper is prejudiced. Such an opinion is childish."

FRISWELL'S held their first evening sale on Tuesday at 6 p.m. Only steam cars were put up for auction, and amongst those sold were a 10-h.p. touring Locomobile, one of style 3, and a few of style 2.

WE learn by telegraph that on Wednesday the Automobile Club of America despatched a challenge to the A.C.G.B.I. for the Gordon Bennett cup. It is stated that Mr. Alexander Winton will be one of America's representatives.

THE PARIS MOTOR-CAR EXHIBITION.

BY AUTOMAN.

ON Wednesday morning M. Loubet, the President of the French Republic, surrounded by his general staff and accompanied by the Minister of Agriculture, opened the Fifth Annual Paris Automobile Show. To say that the immense building in which the show is held was crowded does not adequately describe the scene. The President was met by the Baron von Zuylen, the Marquis de Dion, and a large number of prominent members of the A.C.F., and of the automobile industry, who accompanied him on his tour of inspection round the principal stands.

The Exhibition, it is hardly necessary to add, is being held in the Grand Palais, which is situated at the corner of the Champs Elysees and the Pont Alexandre III. It is one of two permanent buildings which remain to mark the spot on which the great exhibition of 1900 was held.

Notwithstanding its many advantages it is clearly to be seen that it is now too small for the important automobile industry. Every available inch of space has been competed for, and the largest exhibitors have had to be satisfied with much less than they desired.

There is no doubt about it, 1903 is to be a Mercedes year, the Paris Exhibition shows it at every turn, and on nearly every stand. I may as well, therefore, commence my account of the show by describing the Daimler Motoren Gesellschaft's exhibit, which is one of the most important and interesting. I may also, perhaps, be permitted to remark on the singular development of the modern motor-car industry, which is so peculiarly connected with the famous Cannstatt firm. Daimler and Maybach, with motor and carburettor, certainly inspired the now great firm of Panhard and Levassor, and it is to them and their inventions that this great success is due; but Daimler and Maybach stopped at this point, and little progress would have been made in the heavy, unwieldy, unsightly, and under-powered vehicles which they had turned out, had not Panhard-Levassor taken up the matter and brought improvement after improvement into existence, until the Cannstatt firm were completely left behind and forgotten. But now they have taken their revenge, and the Daimler car of to-day, known by the name of "Mercedes" has not only borrowed all that was good in the latest French cars, but has gone one better and again produced improvements which nearly all the important makers are adopting as quickly as they can.

The Daimler Gesellschaft's exhibit six Mercedes cars with motors varying from 20 to 40-h.p. One of the most powerful has a very long specially-constructed frame which allows the fitting of a special body comfortably seating from six to eight people. The back seat is covered by a top like a hansom cab, which can be removed at will.

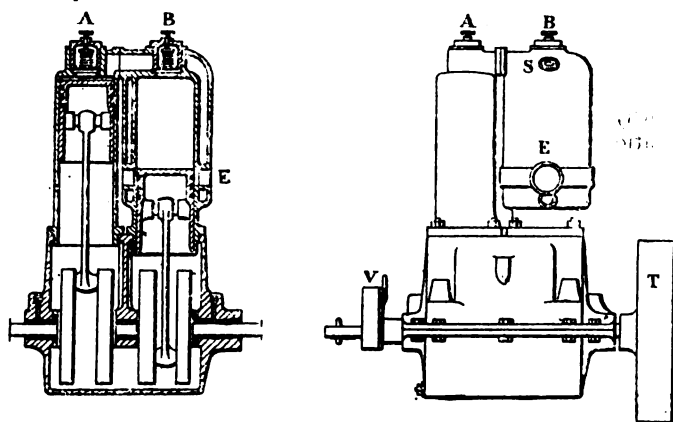
A petrol launch is also on view, said to be capable of making twenty-one miles per hour. Reference may be made to the new radiator which weighs 30 per cent. less than the old one and gives 40 per cent. more cooling surface. It is, of course, of the well-known honeycomb type.

As I have begun my account with foreign exhibitors—foreign from a French point of view—I may as well mention at once the Napier exhibit, which does credit to this firm. On the Napier stand are shown, in addition to the 16-h.p. model, a chassis and a complete car of the new 12-h.p. light model, which has a four-cylinder engine. This car has produced in France a very good impression, and the Napier Company are to be congratulated on their enterprise and skill. The Wolseley Company have an important and well-appointed stand with various handsomely finished cars. The Wolseley vehicles being already well known in England, no lengthy description is necessary. It is, however, a sign of the times to see another "foreign" firm exhibiting in France, and I may add that their stand is being closely inspected by French motorists.

(To be continued.)

THE LEPAPE TWO-CYCLE PETROL MOTOR.

M. LEPAPE, of Rue des Pavillons, Puteaux, near Paris, who has been responsible for many novelties connected with motor-cars, notably, an air-cooled motor with cylinder walls some three inches in thickness, has struck



FIGS. 1 AND 2.—SECTIONAL AND GENERAL ELEVATION.

out again this year with a single-cylinder 12-h.p. two-cycle engine, that is to say, an engine in which an explosion takes place upon every downward stroke of the piston. The illustrations herewith show respectively a section and elevation of the new motor. B is the water-jacketed cylinder proper, which has no mechanically-actuated exhaust valve as usually found in petrol motors, its

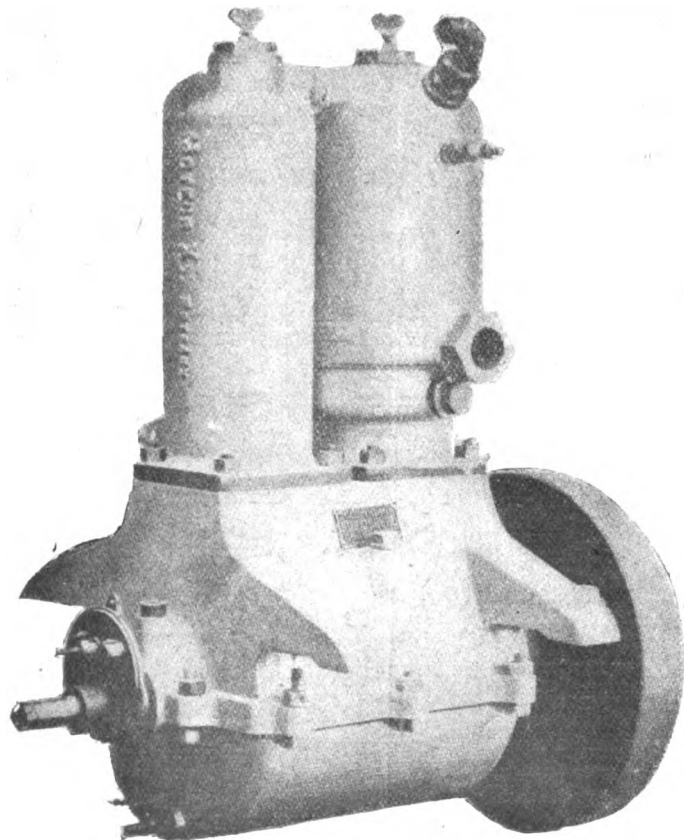


FIG. 3.—GENERAL VIEW.

place being taken by a series of ports in the lower end of the cylinder. Side by side with this is another cylinder A, provided with piston and connecting rod, it being driven by a crank set at an angle of about 180° with the engine crank. This auxiliary cylinder acts as a mixture pump. As the crank shaft rotates and the piston of the cylinder A moves downward a charge is

drawn in; on the return stroke of this piston its inlet valve is closed and the gas is slightly compressed and forced into the cylinder B through the valve at the top. This takes place when the piston of cylinder B uncovers the port E and during part of its upward stroke. The charge is then fired and the cycle recommences. The cranks are so set in relation to one another that when piston of cylinder A is at the end of its upward stroke that of cylinder B is not quite at the end of its downward stroke, so that the inrush of the slightly compressed charge into cylinder B aids in clearing out the burnt gases through the ports E. M. Lepape claims that by his arrangement he gets not only a better balanced motor, but, by the suppression of all exhaust valve gear, one of simple and cheap construction. We have seen one of the new motors in operation, and can report that it appeared to work very satisfactorily at speeds ranging from 100 to 1,000 revolutions per minute.

WALKING AND MOTORING.

CIRCUMSCRIBED are the pleasures that come to the tourist who sees a landscape from the narrow and confined outlook of the railway train. He rushes from town to town, speeding by the hamlets that constitute the peaceful charm of most European countries and never comes into contact with the actual life of the places he scans. How little does the average tourist know of the countries he travels, while how slight is his acquaintance with the customs and habit of the people through whose country he scampers as fast as the train will take him? Dr. Johnson it was who said some men learned more from a coach ride from Hampstead to London than others did from the Grand Tour of the Continent—a trip regarded as absolutely essential to the enjoyment of life half a century ago.

Lovers of nature have really deplored the splendid facilities that exist for travel because of the superficiality that they engender. "In the olden days of travelling toil was rewarded partly by the power of deliberate survey of the countries through which the journey lay, and partly by the happiness of the evening hours." So wrote Ruskin in the "Stones of Venice," and we would claim the automobile as something that will assist the "deliberate survey" that enhances the value of a tour and increases the permanent joys of life. Of course, no reference is made to the motorist whose ideal of pleasure is the utmost rapidity of motion, but rather the ordinary individual who will accept the view of Colonel Chichester, the Chief-Constable of Huntingdonshire, that "for a comfortable ride twenty miles per hour was the best speed." These reflections have been made while glancing through the introductory pages of a book just published by the Walter Scott Publishing Company, Limited, entitled "The Tramps of the Walking Parson," the Rev. A. N. Cooper, M.A., Vicar of Filey. Mr. Cooper has walked through life—avoiding the hurry of railway travel, scorning the "stampede to the buffet" which characterises every stop at a large station, he has seen most of the sights of Europe, and knows his England as well as the touring motorist. Hence the interest that his "Tramps" possess for those who have combined the convenience of the train with the steadier progress of Shanks' Pony.

The first great walk undertaken by the reverend gentleman was from Filey to London, and "the road that leads from Brigg to Lincoln is the best road to walk on that I know." In 1887 he walked to Rome from Rotterdam, a distance, as the crow flies, of 800 miles; then across Ireland and finally to Venice, the latter being a trot of 653 miles, the average daily walk being twenty-four miles, and the reverend walker, who seems to have never wearied of the exercise, confesses that during the journey he "slept in twenty-seven different beds, in as many different hotels, and I did not put a black mark against anyone of them," a tribute to the character of modern hotels that is comforting to the motorist who finds enjoyment in long tours. With a good car and the companionship of Mr. Cooper's book we feel we could enjoy any of the roads he describes so pleasantly and chatily.

NUMBERING IN FRANCE.

By GEORGES PRADE.

NUMBERING in France has already produced evil results during the short time it has been in operation. If, on the one hand, which is undeniable, they have had no good effect, it is equally certain that they have considerably injured the trade. First of all there is the annoyance of the formalities to be gone through.

When a car is bought, not only has the owner to pass a driving examination and obtain a certificate, but he must also register his carriage and obtain from the maker a certificate showing that the particular type of car has been authorised by the department. Then he is required to write to the police, on official paper, couched in certain fixed terms, making an application. When all these operations have been successfully completed he is given a number and a letter which must be placed on the front and in the rear of the car. The back number must be visible at night, and the owner has the constant worry lest his lamp should have gone out, and he is running the risk of a fine.

If all these troubles which fall to the lot of the owner of a

view of the annoyance and risk brought about by the adoption of numbering, prefer to stick to horse-drawn vehicles.

There is, however, another great difficulty, and that is with reference to second-hand cars, the sale of which is an absolute necessity to the trade, for unless one can easily dispose of one's old car it is often not possible to purchase a new one.

Here the numbering constitutes a new difficulty, for the number belongs to the car and not to the owner—that is to say, the number represents the system, power, speed, brakes, etc., of a particular car, and is therefore to be sold with the car. Of course the new owner has to register himself as such; but, as motor-cars frequently change hands several times, and the formalities of re-registration are not always promptly executed, it becomes difficult to prove, in case there is a police prosecution, who was the owner at the time, and again the reasonable, law-abiding driver runs the risk of being the victim of the scorcher to whom he may have sold his car. It is true that he may be able to win his case, but still he has all the expense and worry of fighting it, and all this on account of the numbering, which identifies the car and not the driver.

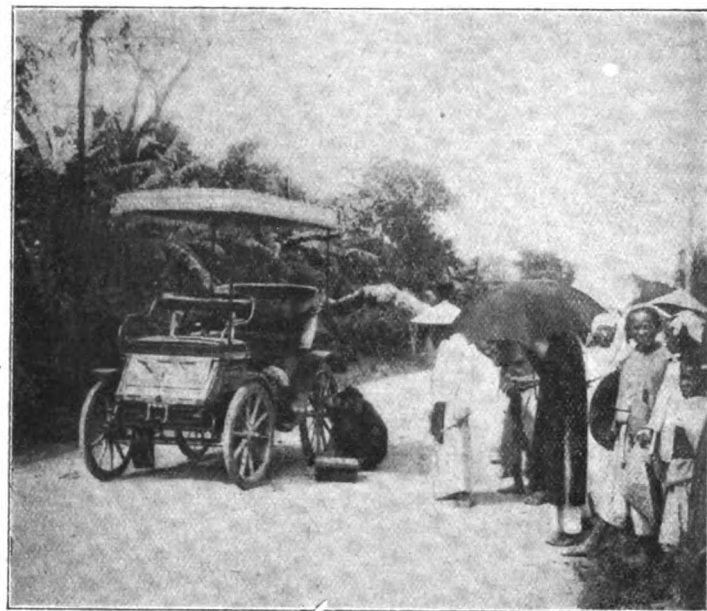
Then comes the question, is it legal? A recent judgment i



Dr. Versin of Nhatrang, crossing a stream in his Clement-Panhard Petrol Car.

Photos by]

MOTORING IN INDO-CHINA.



The Natives are Interested in Dr. Versin's Serpollet Steam Car.

[Spido-Gaumont.]

car brought any advantage to the State there might be some excuse. But they do not.

The chauffeur travels neither slower nor faster on this account. He has the annoyance, and that is all the gain. Should the police take his number as he is passing by, there is most generally a mistake, and though the policeman will swear that the speed was so great that he could hardly see the car pass, he will, nevertheless, swear to seeing the number correctly.

Again, it is very simple for the real scorcher, who is the only person whom the law wants to get hold of, to escape, for he has only to allow the dust and mud to obscure his number, or have a poor lamp, which insufficiently lights it up at night. Thus it is that numbering in France has had the result of making reasonable law-abiding drivers suffer and scorchers go scot free, with the result that numbers of the former have decided to give up motoring rather than subject themselves to such trouble, risk, and annoyance.

The real sufferers are, therefore, the automobile manufacturers; for, seeing that horse-drawn vehicles are free from all these difficulties, a considerable number of customers who, above all, desire peace and quietness, are lost to the motor-car trade, and, in

the Court of Appeal has declared that the fact of taking down the number of a passing car does not constitute a legal proof sufficient to condemn an individual; for, even should the owner of the car admit that the number has been correctly noted, that is no proof that he was driving the car himself on that particular occasion, and, therefore, he cannot possibly be responsible, except for any damage the car might do. This judgment was given in the case of Monsieur Archdeacon. Numbering in France has, therefore, proved harmful to the industry and useless to the police. It has run its course and its disappearance is only a question of time. In view of all this, is this the time for England to adopt a system of numbering?

Two very artistic 1903 calendars are to hand from the Birmingham Aluminium Casting Company, of the Cambridge Street Works, Birmingham.

MESSRS. BROUHOT AND COMPANY, of Vierzon (Cher) have decided to take part in all the big motor-car races in France next year. They are building a special 40-h.p. racer, which will be driven by M. Tourand.

MOTOR-CYCLING NEWS.

ON Sunday, the 14th inst., the Motor Cycling Club will have a run to Rickmansworth, starting from the Marble Arch at 10.30 a.m. and calling at the Salisbury Arms, Barnet, about a quarter past eleven o'clock. The annual dinner of the Club



MR. J. VAN HOOYDONK ON HIS "TRIMO" SOCIABLE.

will be held at the Frascati Restaurant on the 13th or 14th of January.

MR. MERVYN O'GORMAN has promised to read a paper on "Motor-Cycles" before the Automobile Club during the winter session.

At the Alexandra Palace Velodrome F. W. Chase has just made a successful attack on the one mile (flying start) motor-cycle track record, his time of 1 min. 54 2-5 secs. beating the record by a second.

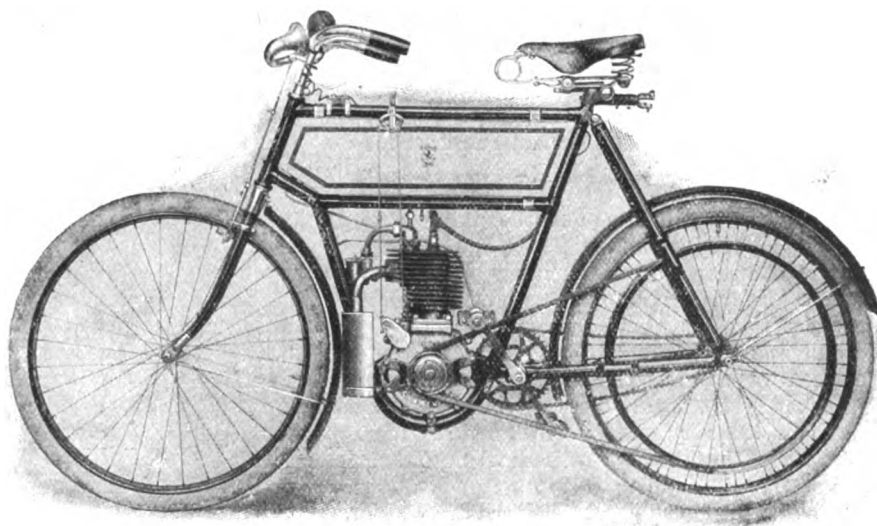
At the meeting at the Automobile Club on Tuesday, it was decided, on the suggestion of Mr. S. F. Edge, that the trials of motor-cycles should, next year, be held apart from those for motor-cars. A meeting of firms interested in this matter is to be held during the second week in January to suggest the lines upon which the Trials should be arranged and to appoint an organising committee. It is satisfactory to find the A.C.G.B.I. thus encouraging motor-cycling.

MR. C. JACKSON writes:—"I am sorry to find that all the motor-cycle clubs only seem to have Sunday runs. This policy must, I think, prevent many motor-cyclists, who do not wish to ride on Sundays, from becoming members. Why not have the club runs on Saturdays, leaving those members who wish to ride on Sundays the option of arranging a tour on their own account? I also wish that the clubs would agitate for the repeal of the motor-cycle tax.

THE "Clarendon" is the latest motor-bicycle to appeal for public favour. It is made by the Clarendon Motor and Cycle Company, Limited, of Earlsdon, Coventry, and is illustrated herewith. As will be seen, the frame is of special design, the motor being attached thereto in a vertical position. This, it is

claimed, resulting in great freedom from vibration. The engine has a cylinder 71 mm. diameter by 73 mm., and at a speed of 1,500 revolutions per minute develops 2½ h.p. The cylinder and head are cast in one piece, and the radiating flanges are elongated in the front and rear, and brought to an egg-shape finish, thereby combining neatness of appearance with about 36 square inches of extra cooling surface. The bearings are of phosphor bronze 1½ in. wide. Electrical ignition is adopted, while the specially-designed spray carburettor which furnishes the mixture is stated to ensure easy starting under the worst possible conditions. The power is transmitted by a belt from the pulley on the motor shaft to a rim attached to the back wheel. This rim is built into the driving wheel, and suspended by a separate set of spokes. This system allows the rim to be trued up independently of the driving spokes, and also relieves the latter of the side strain from the belt drive. The belt is of V section, ¾ in. wide and copper clamped. A feature of the machine is a ball race carried in a specially-designed bridge attached horizontally to the left side of the crank case; this bearing takes the full driving strain of the belt, the latter actually running between two bearings, an arrangement which is claimed to prevent any possibility of the flywheel running out of truth owing to uneven wear on the bushes, while it admits of the belt being tightened without detriment to the running of the motor. The makers state that the machine can attain any speed from three to forty miles per hour, and draw a trailer and passenger weighing twelve stones over any give-and-take road without the use of the pedals.

MESSRS. OSMOND, LTD., Birmingham, have sent us a copy of the motor-cycle catalogue they have just issued. Two machines are being made, both fitted with the Clement-Garrard motor, one being belt-driven, the other being a two-speed chain-driven machine. A feature of the catalogue is that a dozen pages are devoted to small pen-and-ink illustrations of the various parts, to each of which is given a number and their name in English and French. The parts being all made on the interchangeable system, it is only necessary, when requiring replacements, to quote the number.



THE CLARENDON MOTOR-BICYCLE.

MESSRS. G. T. RICHES AND COMPANY, of Gray's Inn Road, W.C., have sent us a copy of their 1903 catalogue. It shows a considerable growth in bulk over its predecessor, and comprises about sixty pages, in which will be found illustrations and prices of the various accessories and spare parts motorists are likely to require.

BALLOON HUNTING.

THE original intention of those holding the balloon chase on Saturday last was for the aeronaut to "rise" about nine o'clock in the morning and keep aloft till the late afternoon, so that a fair test of the capability of both the balloon and the motor could be made. The rate of progression of the motor-car is well known, and, given roads of fair condition, decent speed can be easily maintained; but the balloon—depending upon the wind—is always an uncertain quantity, for, when a stiff wind is available, a speed of 40 miles per hour can be exceeded,

The muster of motorists was scarcely as good as expected; but the distance from town may have militated against a larger attendance. Reading, with an east wind blowing, is an ideal place for an ascent, good roads radiating in all directions, with Salisbury Plain on the one hand, the Marlborough Downs on the other, and miles of open spaces nearly everywhere.

off for the Bath road in hot pursuit, the Mercedes being the last to leave. The air in the terrestrial firmament was several degrees below freezing point, and the roads were as hard as iron, but there was a considerable quantity of white dust about—this not necessarily always being raised by the motor-cars. The vehicles soon "tailed" off; a short stoppage by Mr. Mayhew, to permit of one of his passengers retrieving his hat, enabled our car to take premier position. Continuing our progress along the deserted and wind-swept roads, a village with an open space was reached, and here a halt was called to search for the missing balloon. The passengers of the Pascal assisted in the operation, but nothing except the lowering clouds could be seen, and so a restart was made after the phantom game, until the top of Marlborough Hill was reached. Within a few minutes of each other five cars were assembled in the following order: Mercedes, Pascal, 12-h.p. Panhard, 16-h.p. Darracq, and 10-h.p. Panhard. After waiting some time an informal meeting was held, the general opinion being that the cars were ahead of the aeronauts, and tha



MR. AND MRS. CHARLES CORDINGLEY ON THEIR 40-H.P. "MERCEDES."

We, in our "little red cottage"—yept the Mercedes—reached Prospect Park, Reading, punctually at twelve o'clock, and then learned, on our arrival, that the balloon would not ascend till an hour later. This was aggravating, to say the least of it, especially as no stoppage had been made in Reading for sandwiches. Repairing this omission as well as the limited time at our disposal allowed, a hasty return was made to the Park, and there we met Messrs. Bucknall, Butler, and Rolls, with M. Gaudron, the aeronaut. There were about a dozen motorists present, including Mr. Mayhew, on a 24-h.p. Pascal; Mr. Clift, on a 16-h.p. Darracq; Mr. W. Bersey, on a 12-h.p. Panhard; Mr. A. H. East and Mr. A. Dew, on a 9-h.p. Speedwell; a 10-h.p. blue Panhard, etc.

A minute or two after one o'clock the balloon Vivienne II., with its four passengers, was cast off, and quickly rose above the heavy snow-laden clouds, and the waiting motorists started

these latter had drifted in the direction of Salisbury Plain. As a result of the discussion Mr. Bersey made up his mind to turn towards Aylesbury, and Messrs. Mayhew and Clift along the Salisbury road. Messrs. East and Dew ran with the other cars as far as Newbury, but afterwards made for Amesbury. Arriving there before 3.30 p.m., they reconnoitred the district, hoping to see something of the quarry, but to no purpose, although it eventually transpired that the balloon settled five miles away. We ourselves proceeded westwards, and at Silbury another halt was made, and an attempt made at climbing the Mound, but the frozen grass was too slippery, so there was nothing for it but to continue the journey to Bath, which was duly reached without lighting up.

Good luck attended Messrs. Mayhew and Clift in the direction they followed, for after passing through miles of densely-wooded country over rough flint roads, they suddenly espied the aeronauts

half a mile away. The Pascal car was leading, and with skilled driving was steered in and out of narrow lanes, over deep frozen ruts, until they got close to the balloon. Then suddenly the chance of capture seemed to fade, for the quarry threw out most of its ballast and, rising again some 200 feet, caught a breeze. What made matters worse was that Mr. Mayhew went down a long narrow lane which was found to lead only to a farmyard.

The balloon was sailing along half a mile ahead, but immediately it was realised that further pursuit by the car was impossible. Mr. Mayhew jumped out and sprinted over frozen furrows and fences, finally jumping a ditch and capturing the balloon, thus winning the prize we had offered.

The descent was made, as had been anticipated, near Pewsey, a little place about midway between Savernake Forest and Amesbury. Unfortunately the descent was not without incident, for, owing to it being pulled up sharply by the anchor, the balloon burst from top to bottom. It is very hard luck to entirely wreck one's balloon on its maiden trip. Mr. Bucknall's enthusiasm for ballooning has, however, not thereby been lessened, for we hear that he has already given orders for another one to be made as soon as possible.

After a pleasant evening spent at the Empire Hotel, Bath, we started next morning for the return journey. Although the sun was shining brilliantly, riding in the teeth of the bitter cold east wind was rather trying at first; but this, after riding a few miles, we got used to, and the ride was one of the pleasantest yet experienced on the Mercedes. The roads were almost entirely deserted, and there were long stretches of straight roads, which could be taken advantage of without annoyance or inconvenience to other users. Only two other cars, coming in the opposite direction, were met as far as Maidenhead, where a stoppage was made for luncheon, town being reached comfortably without incident before dusk.

Mr. Butler has since kindly furnished us with a few notes on the trip of the balloon. He describes the journey "above the clouds" as a sort of cheap and quick trip of two hours to the Riviera and back.

"After leaving ground we soon got through the cold, freezing clouds to bright, hot sunshine, with a magnificent dark blue Mediterranean sky. What with the heat of the sun and no wind, one could have basked in it for hours, although the thermometer was 14 degrees below freezing point. The reflection of the balloon, car, and ourselves on the clouds, with a frame of red and other rainbow colours round, was a very pretty effect. The balloon made its first drop over Savernake House, and we trailed through the magnificent park, deer, rabbits, peacocks, and pheasants running about as if we were some huge hawk coming down on them. The descent was made at 3 p.m. at Pewsey. The "captured" were treated with a splendid repast, and taken in the capturers' motor-cars back to London."

ON Monday evening next a meeting of the members of the Western Section of the Scottish Automobile Club will be held in Glasgow, when Mr. John Adam will introduce a discussion on "Speed, Numbering, and Registration Questions."

WE understand that a new light car is shortly to be put on the market by Messrs. J. W. Brooke and Company, of Lowestoft. It will have a three-cylinder engine, which, on trial has developed 14 b.h.p. The change gear is adapted to give three forward speeds and a reverse. The car, which it is anticipated will not exceed 10 cwt. in weight, has a long wheel base.

As briefly stated in our last issue, a company has been registered with the title Milnes-Daimler, Limited, and a capital of £20,000, to deal in motors, motor-cars, air-ships, etc., to acquire all or part of the property comprised in an agreement made November 10th, 1902, between George F. Milnes and Company, Limited, of the one part, and the Daimler Motoren Gesellschaft of the other part, and to carry on the business as electricians, electrical and general engineers and contractors, etc.

CONTINENTAL NOTES.

BY "AUTOMAN."

To solve the problem of aerial navigation there have been continued efforts ever since the days of Montgolfier, but the spherical balloon has made little progress, and proves to be absolutely servile to the air currents which it encounters, making it both hazardous and unreliable. All attempts to steer it either by sails or propellers have been unsuccessful. Even the attempts by Count de la Vaulx to steer a spherical balloon over the sea, and to make it tack against the wind, by means of a sort of rope ladder or Venetian blind trailing behind on the surface of the water, have only accomplished a very limited result.

AVIATORS, although very attractive in theory, have never yet passed out of the stage of the crudest experiment, strictly limited as far as the carrying of a human being is concerned, to some most interesting experiments in soaring downward from a higher level in the air. The many attempts to lift an aviator with a human cargo from off the ground by means of its self-contained means of propulsion have hitherto produced an entirely negative result. The first serious advance in the science of air navigation was made by the French Government, who commissioned the Renard Brothers to make experiments with a cigar-shaped balloon, from which was suspended a long wicker-work car which contained a set of electrical storage batteries, an electric motor, and a long shaft at the end of which was placed a two-bladed propeller. This air-ship made a few short voyages and marked a distinct step in the progress of the science. It was, however, handicapped by the excessive weight of the accumulators, and it became evident to the engineers in charge of this work that the weight and conditions of charging and discharging of secondary cells would prevent experiments in this direction from producing practical results until a more efficient accumulator was produced. Some years later Santos Dumont came into the field with the enthusiasm of youth to prompt his efforts and the force of wealth to back him up. Inspiring himself from two different sources—namely the experiments of the Renards on the one hand and the progress made in reducing the weight per horse-power of petrol engines. On the other hand, Dumont constructed his world-famed air-ships, and made experimental voyages which astonished the whole world and set people a-thinking. Many people have reproached M. Dumont for allowing his experiments to become the centre of much advertisement. I am not, however, one of those who feel that way towards him, for that very advertisement has reached the ears and stirred up the unimaginative brains of hundreds of inventive minds all over the globe and brought aeronautics down into the field of practical politics. But the experiments of M. Dumont have had other and far more important results; they have been the immediate cause of setting in motion powerful means of grappling with the interesting problem of discovering the secrets of the air, and if progress in this direction is possible, we may look forward in the near, very near future, to startling developments.

IN addition to private inventors like Severo and Bradsky, who sacrificed their lives to a too hasty desire to test their untried air-ships in the ocean of the air, instead of first being content with short trips near the ground, and like the Lebaudys, who with all their millions behind them are making systematic and careful experiments, in the course of which no needless risk is run and no new improvement left untried, the French Government has taken up the matter again. The other day I had the good fortune to meet Colonel and Commandant Renard, and I had a long conversation with them on the subject of aerial navigation, from which I gathered that in their opinion the problem, which is the subject of this note, is on the point of being solved, and the solution is to reside in a combination of the cigar-shaped balloon type of air-ship and the aeroplane. The Government has accepted the plans of the Renard Brothers, and sanctioned the immediate construction of an air-ship, the gas envelope of which will contain 3,000 cubic metres of hydrogen, and which will be four

times as long as it is wide at the widest part. This envelope will be made of two layers of cotton cloths with a sheet of rubber between them, and will weigh just over 14 ounces per square metre, and have a resistance to rupture of nearly three tons per square metre. The means of propulsion will be electrical, for the Renard Brothers do not approve of the petrol motor for two reasons, first on account of the danger of fire, should the exhaust of the motor, from any cause come in contact with the escaped hydrogen from the balloon. It will be remembered that Severo's fatal accident was due to an explosion of the hydrogen escaping from the balloon and mixing with the outside air and becoming ignited by the exhaust from the motor. The Renards' second objection to the petrol motor is on account of the fact that as the petrol tank empties the equilibrium of the air-ship will constantly change and endanger its stability. The new Government air-ship will be ready in the spring time, when it may be confidently anticipated that substantial progress in aerial science will be achieved.

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In a full meeting of the Committee of the A.C.F. the question of whether there should be a speed or a reliability test was brought to the vote. The Executive Committee had decided, after a stiff fight, to adopt the Marquis de Dion's proposal to combine speed and reliability in the results, and to run in series of five cars of each make. The full Committee have reversed this decision and decreed that the winner of the Paris-Madrid race shall be the car that accomplishes the distance in the shortest time, but in order to propitiate the partisans of reliability it has been decided that there shall be a reliability section. The organisation of the Paris-Madrid motor-car race is now being actively studied on both sides of the frontier, and it is reported that the young King of Spain takes a great interest in the event, and will do all he can to facilitate matters. With regard to the roads, as far as St. Sebastian it is all plain sailing, but from thence to Madrid there are several difficulties to be overcome, and the choice lies between four different roads, viz.: *via Burgos* and Valladolid, 347 miles; *via Burgos* and Lerma, 292 miles; *via Vittoria* and Logrono, 322 miles; and *via Pampeluna* and Soria, 298 miles. "La France Automobile," in its issue of last Saturday, says that the Spanish authorities report that all these four roads are first-rate, with exception of some twenty-five miles between Tolosa and Pampeluna on the most easterly route; but, on the other hand, automobilists who have made the journey declare that certain other parts of all the routes are indescribably bad, so that one begins to wonder in what condition must be the twenty-five miles which the authorities admit to be in bad repair. The most westerly route, namely, the one which passes through Burgos and Valladolid, is the old coach road, passing through important localities where it would be possible to obtain fresh supplies of petrol, etc., but this is the longest route of all. The other three roads pass through very thinly populated districts, where it would be difficult to obtain even water, and where, in case of a breakdown, it would be next to impossible to obtain food and lodging.

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In connection with the Paris-Madrid race there is sure to be an excursion to the enchanting southern Spain, and this will perhaps be one of the greatest attractions in connection with the event. There are certainly a great many automobilists who will take part in the race in order to have the opportunity of visiting Andalusia under such favourable conditions, for there is no doubt that the excursion will meet with a good reception everywhere. The Spanish people are particularly hospitable in that sense of the word, and as they are highly excitable and demonstrative there will be scenes of unparalleled enthusiasm—official receptions, gala bull fights, and Andalusian dances at every important stopping place. The A.C.F. has already accepted the idea of organising such an excursion in connection with the Paris-Madrid race, should it be found possible to organise and hold the latter.

MONSIEUR JOUSSELIN, the Paris municipal councillor, who has taken up the cudgels for the motorist, has gained an important victory, and has got, therefore, the assurance of a good hearing and a careful study of the question of speed. The special commission appointed to hear him and consider his proposition, which I spoke of last week, has agreed to assist at a public demonstration of the safety of motor-cars. The commission will be taken to the Bois de Boulogne in automobiles and accompanied by official time-keepers, members of the police force, and even the chief of the police himself; constables will also be posted along the roads. The cars will be run at varying speeds, which the official time-keepers will note. The police both in the cars and on the roads will make notes of their opinion as to the speed being indulged in from time to time, and then the police notes and the actual times will be compared. It will also be demonstrated that the speed allowed for motor-cars is less than the ordinary speed of the horse-driven vehicles, and that, on the other hand, the former can pull up in a much shorter distance when going at the same speed. This public demonstration of the greater relative safety of the new mode of locomotion will, no doubt, be the greatest step in the direction of the education of the public which has yet been made in any country. That it is needed even in France is evident from the fact that ever since M. Joussetin took up this question he has been bombarded with insulting letters, written, he says, by members of all classes of society, calling him "l'avocat des ecraseurs," which means "the advocate of those who run over people."



A ROADSIDE LUNCH.

◆ ◆ ◆
AN automatic time recorder, invented by Mors, has just received the official sanction of the A.C.F., and will now be put into operation for registering the time on the mile and kilometre trials. The apparatus consists of three switch-boards, one of which is placed at the starting point, the second at a point 609 metres from the starting point, and the third at a point 1,609 metres or one mile from the starting point. Each switch board is supplied with a hook to which is attached a thin wire, which is stretched across the road. As the car comes by it strikes this wire, which before breaking pulls the hook, which in its turn presses an india-rubber ball and forces the air into a rubber finger, thus bringing two metal contact springs together and close an electrical circuit. A single wire with an earth return unites electrically the three switch-boards, the second and third of which have chronometers attached to them which are started and stopped by electro magnets, operated in each case by a battery and relay. This, then, is what happens when a car passes over the track. When it has got up its speed and reaches the first switch-board it breaks the wire and, as I have already described, closes an electrical circuit which sends a current along to the other two switch-boards and starts up the two chrono-

HERE AND THERE.



meters. On reaching the second switch-board a second wire stretched across the road is broken, and in closing an electrical circuit stops the chronometer which is affixed to the second switch-board; on arriving at the third switch-board the same operation takes place, and the chronometer placed on this board is stopped. The number of seconds marked by the last chronometer gives the time occupied in covering the mile, and if the number of seconds marked by the other chronometer be subtracted from this the time occupied in covering 1,000 metres or one kilometre is also arrived at. To describe the operations in detail may possibly give the idea that some fraction of a second may be eaten up in the operations of the various instruments, but in point of fact experiments have proved that the action is for all practical purposes instantaneous.

It is reported that Captain Laycock has purchased two Mercedes Simplex cars—a 20-h.p. and a 60 h.p.—and that the latter will compete in next year's Nice races.

THE Coblenz Automobile Club has just been formed at Coblenz, Germany, with Herr W. Wilson as first president.

THE Committee of the A.C.F. has awarded the sum of £12 to M. Baras, to M. Marcellin £8, and to M. Collin £4, voted by the Club to the three first winners of the vehicles driven by alcohol in the Paris-Vienna race.

THE Belgian Automobile Club has decided to hold a "Circuit Belge" next year. It will be of the nature of a reliability trial, lasting an entire week, during which the principal towns of the country will be visited. In addition to the circuit itself, the programme will include exhibitions in each town, of races, hill-climbing tests, etc.

THE authorities have again allowed the Dourdan Road to be used for record trials, and on Monday quite a number of attempts were made. Lamberjack, Demester and Maurice Farman made a number of runs on motor-cycles, but without approaching record times, Henri Loste, on a direct-driven Bucket motor-tricycle, meeting with no better result. Fournier next went along on his Mors car, but the valve gear of his engine becoming disarranged, he was forced to retire. Le Blon afterwards came up to the starting point on a Serpollet steamer, but engine troubles prevented him making any change in the record times. Altogether Monday was an unfortunate day for the would-be record breakers.

MR. WM. M. LETTS, of the Locomobile Company, sails to-day (Saturday) for New York. He hopes to return about the second week in January.

COLONEL CROMPTON, Sir John Thornycroft and Mr. Paris Singer have been invited to act as judges in the forthcoming side-slip competition to be organised by the Automobile Club. The prize fund has nearly reached £300.

THE Hon. J. Scott Montagu, M.P., is preparing a paper for the Automobile Club on "Motor-cars as Feeders for Railways," and we would suggest that an effort should be made to secure the attendance of railway directors and managers on that occasion.

AN inquest was held at Reigate on Monday on F. R. Stevens, who was killed by being thrown off his horse in Redhill. Deceased was returning from a professional visit, and when in the Brighton road his horse shied at a motor-car and he was thrown on to his head. The driver of the vehicle helped to carry deceased into a house, but he then rushed out, declined to give his name, and drove away.

IN the course of a brief conversation with Mr. Albert Farnell, of Bradford, the other day, we learned that quite a brisk business is being done in motor-cars in Yorkshire. Mr. Farnell, who, during the Reliability Trials, was much struck with the quiet running of the Oldsmobile, purchased one of these vehicles, and has since made various little alterations in it, notably a new valve-actuating cam, by means of which the horse-power developed by the motor has been considerably increased.

A MOTOR-CAR exhibition is to be held in Berlin from the 8th to the 22nd March next.

MR. C. JARROTT has sold the Napier car which he proposes to drive in the Gordon Bennett race to Mr. G. Kirk, of Leeds.

THE Austrian Automobile Club is organising a heavy-vehicle competition for March next.

SIR REDVERS AND LADY AUDREY BULLER have been motoring in Devonshire during the last few days.

COLONEL H. MCCALMONT, M.P., whose sudden death was announced on Monday, was an enthusiastic motorist.

THE Committee of the A.C.F. have decided to hold an international automobile congress in June, 1903.

ON the conclusion of the Lincolnshire Assizes the Lord Chief Justice, Lord Alverstone, journeyed to Woodhill Spa *via* Horncastle, by motor-car.

FOR driving a motor-car on the wrong side of the road, Mr. A. E. George, a local motorist, has been fined 40s. and costs at Newcastle.

"MOTORS for Men of Moderate Means" is the alliterative title of a chapter to be included in the new edition of the Badminton book on motor-cars.

AT last week's motor-car auction in Bradford (Mr. Albert House) the lots sold included three 11-h.p. Clement cars and a 8-h.p. Darracq.

IT is reported that M. Santos Dumont has decided to build a steam-driven airship, and that he has placed an order with the Serpollet Company for a 40-h.p. engine.

OPENING a bazaar at Coventry last week, Mr. Choate, the United States Ambassador, suggested that if Lady Godiva were now to ride through the city she would use an electric automobile.

IN the Christmas issue of the "Royal Magazine" is an article on "The Performing Motor," in which the trick-driving of Mr. J. Worth, an American chauffeur, is described.

PRINCE FREDERICK LEOPOLD of Prussia, who has recently become a member of the Mid-European Motor-Car Club, recently paid a visit to the Marienfelde Works of the German Daimler Company.

FROM the British Consul at Buenos Ayres the Commercial Department of the Board of Trade has received the following telegram:—"Enquiry being made here as to electric automobiles for all purposes. I have no price lists."

ON the proposal of the Marquis of Dion the A.C.F. is considering the question of establishing consulates abroad, to furnish information which may be of service in the development of the export trade in French-built motor-cars.

THE value of the exports of motor-cars and parts from the United States during the month of September last amounted to £12,369, bringing up the total value for the first nine months of this year to £169,597, as compared with only £41,360 for the same period of 1901.

REAL estate agents in North Dakota are making use of motor-cars for the purpose of taking prospective farm purchasers over the prairie acres which are for sale. The roads in North Dakota are smooth, level and hard, and an automobile is extremely useful in covering the great distances which separate the towns.

THE Roots Oil Motor and Motor-Car, Limited, is the title of a company formed with a capital of £50,000 in £1 shares, 26,000 of which are offered to the public. It will acquire the business of Messrs. Roots and Venables and also the benefit of the agreement recently entered into with Messrs. Sir W. G. Armstrong, Whitworth and Company, Limited. Mr. Roots has undertaken to remain in the service of the company as managing director for five years.

THE Automobile Club of Portugal has been definitely formed, with headquarters in Lisbon.

THE Hotchkiss Gun Works at St. Denis, France, are reported to be taking up the construction of motor-cars.

THE Duke and Duchess of Manchester have been motoring with a party of friends in their car through the west of Ireland.

ON the occasion of the wedding of Mr. Rowland Winn, of Leeds, last week, no fewer than fifteen automobiles were engaged in the conveyance of guests.

THE Secretary for Scotland has promised the Perth County Council that their petition in favour of numbering motor-cars shall receive due consideration.

THE Portuguese Ministry of War is reported to have placed an order for five motor-cars with an Italian firm of builders. The first vehicles are to be delivered in Lisbon in March next.

THE Belgian Automobile "caravan" to Algeria will start on January 5th next, the route being *via* Namur, Charleville, Reims, Chalons, Dijon, Lyons, and Marseilles. At Algiers and Biskra races and fetes are to be held.

THE Duke Victor de Ratibor has been elected President of the German Automobile Club, with Prince Christian of Hohenlohe-Oehringen and General von Rabe vice-presidents. A Committee has been appointed to revise the racing rules.

AT the annual meeting of the New Centaur Cycle Company Mr. S. G. Wootton congratulated the directors on dropping the motor business, and hoped to see the item in the balance-sheet for motor stock and experiments (£1,321) rapidly wiped out.

A SUB-COMMITTEE of the A.C.G.B.I. has been appointed to report as to the methods to be adopted with reference to the granting of driving certificates by the Club, and also as to the certificates acceptable by the French Government.

THREE firms have been suspended from participation in competitions organised by the A.C.G.B.I. in consequence of non-observance of the rules on the occasion of the Anniversary Run to Oxford. In one case the suspension is for six, and in the other two for twelve months.

APPLICATION has been made for permission to work, for a period of twenty years, a service of motor-wagons for the public conveyance of goods at Liege. The vehicles, which will be of 24-h.p., and driven by petrol or alcohol, will run at a speed of 10 kilometres an hour, and carry a load of six tons.

THE Chameroy Tyre Tread Company is introducing a "renforce" type of tread for 90 mm. section tyres. It is intended to fit this new type of treads to tyres for heavy cars, while retaining the use of the ordinary 90 mm. treads for "voitures legeres." The company have just issued a new price list of their metallic non-slipping tyre treads.

MR. HARRY HARKNESS, a well-known American motorist, who is looked upon as a probable driver of a car for the United States in next year's Gordon Bennett cup race, has recently been doing some fast road work on his big Mercedes. A few days ago he made a record trip from New York to Stamford, Conn., the time being an hour for the forty miles.

THE Indian Government has placed an order for a 10-h.p. Miesse steam-car for use in connection with the Rohilkund and Kumaon Railway, in India. Hitherto passengers have been conveyed from the terminus of the railway up to the hills in bullock wagons, but this is being changed, the bullock wagons giving place to motor-cars.

THE FIREFLY MOTOR AND ENGINEERING COMPANY, of Croydon, claim to be the first to adopt the idea of a free *garage*, as they commenced storing cars free when they opened their premises in March last. They have found the experiment so successful, and also sufficiently remunerative to themselves, that it has been decided to considerably enlarge the premises during the winter, so as to be able to store an additional fifty cars.

THE Daimler Company have just completed a 12-h.p. car for Lord Windsor.

RIGAL, the well-known motor-cycle record breaker, will, it is announced, drive a Mors car in next year's races.

A PROJECT is on foot at Nice for the creation of a special automobile cement track from Nice to Cannes.

THE Lambeth Borough Council is experimenting with motor-wagons in connection with its street-cleansing work.

THE Motor Power Company, Limited, has been registered with a capital of £100 and without articles of association.

A COMPANY has been formed at Amiens, France, to establish a public service of motor-cars between a number of small towns in the district.

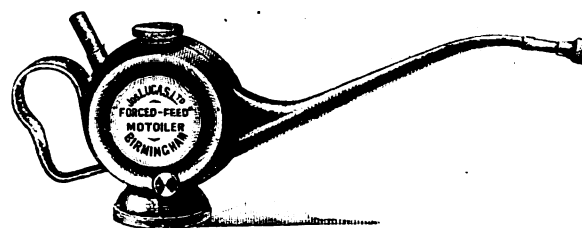
THE Philadelphia postal authorities are experimenting with a motor-car on the route between the main office and Darby, a suburb about six miles out.

TWO large Serpollet steam omnibuses are being built for the day school of the Dominicans at Arcueil, France. They will be used to convey the scholars to and from Paris.

FREDERICK AND CHARLES INGHAM have been sentenced to two and one month's imprisonment respectively for stealing a motor-car, the property of the Manchester Motor-Car Corporation.

MOTOR-CAR mechanics in Chicago are reported to be about to form a union, with a view of securing shorter hours and less work. They will refuse to wash cars, but will consent to drive them and generally supervise all necessary repairs.

HEREWITH we illustrate a new oil can which has lately been brought out by Messrs. J. Lucas, Ltd. It is known as the "Forced Feed Motoiler," the oil, as the name implies, being



forced to the desired bearing or part requiring lubricant. The oiler, which is made of brass, has a capacity of half a pint.

THE Oldsmobile cars are, we learn, now being fitted with the improved carburettor used on the vehicles which competed in the recent New York-Boston reliability run.

THE Bishop of Bath and Wells finds his motor-car of great service in his visitations to distant parts of his diocese. The other day he was able to conduct two confirmation services at distant places owing to the assistance of his automobile.

THE Coventry Motor Fittings Company have just issued a new catalogue, in which particulars are given of the lubricators, silencers, motor bonnets, etc., for motor-cars, of which they are making a speciality.

UNDER the auspices of the Automobile Club of America, Mr. A. Ward Chamberlain, Chairman of the Sign Post Committee, has erected along the Hudson County boulevard a large number of enamelled iron signs directing automobilists to the various ferries and adjacent towns.

UNDER the name "Bijou" the Protector Co., Ltd., of Eccles, near Manchester, are bringing out a little car to seat two passengers side by side. It is fitted with a water-cooled engine of adequate power to take any hill with its full load, and to attain a maximum speed of twenty miles an hour on the level.

JAPAN would seem to be the "happy land" of the motorist, for, according to the Japanese agent of the Locomobile Company, there are no speed limits in either Yokohama or Tokio. Recently he drove his car between the two cities, a distance of 22 miles, in 25 min.

A NUMBER of students in Delft, Holland, have formed the Delft Students' Auto Club.

THE Automobile Club of America has now 324 active members and 68 associate members.

THE New York Society for the Prevention of Cruelty to Animals has ordered a second Daimler motor-wagon.

THE Spalding Rural Council has resolved to petition for the reduction of the speed of motor-cars from 12 to 10 miles an hour.

AN apparatus for accurately ascertaining the effective horsepower on the road-wheels of motor-vehicles will probably be included in the equipment of the motor storehouse recently acquired by the A.C.G.B.I.

NOW that most of the streets of Bournemouth are "up" while being prepared for the electric tramways the public motor-cars seem to be doing good business, especially as all the local horse-drawn 'buses have been disposed of.

THE "Prunel" light delivery vans, which obtained first place and the silver medal in their class in the trials held recently by the French Automobile Club, will shortly be seen in London. Messrs. Brun and Robert are about to open a depot for their sale in the West End of London.

M. CORMIER, who started on October 13th last to put one of the new De Dion-Bouton light cars to a heavy test by a journey round Europe, returned to Paris on November 20th. He was absent about five weeks, covering in all a distance of about 4,200 kilometres. The ride was exceedingly satisfactory, as M. Cormier went through without the slightest trouble to either car or tyres. He met with very bad weather and all sorts of roads, especially in the mountainous districts in Switzerland and Italy, where the snow was several feet deep. On his arrival home the car was at once dismantled, and the gear and working parts examined; no apparent wear was found, all the working parts being simply burnished. Owing to its comparative cheapness the demand for this little car is already very great.

THE governing gear on a four-cylindered engine, particularly the throttle governor, when once correctly set, is unlikely to give trouble; so, if a car appears to be governing badly, look to the cylinders and see that they are all firing, and in all probability one will be found to be missing occasionally.

BE very careful about tightening up chains in wet weather, for, when running in dirty weather, the chains pick up a lot of wet and mud and run very tight. If the chains are found to be loose, take them up about one quarter the amount they would be taken up in dry weather.

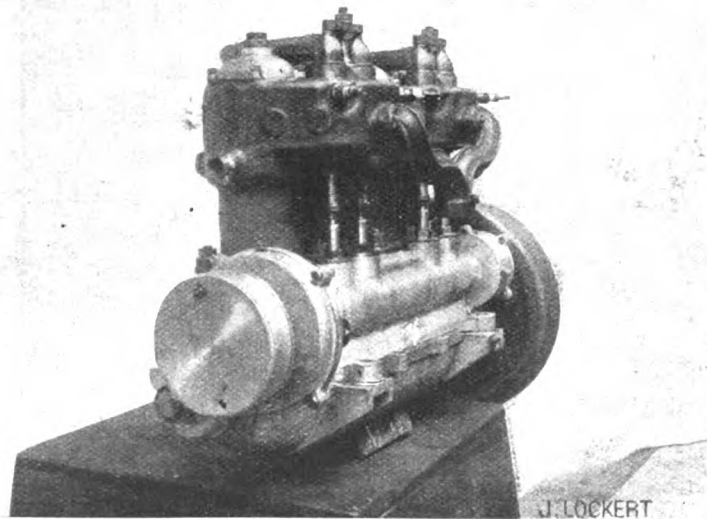
WHEN repairing a cut through the tyre from the inside, do not spare canvas for the repair. A little piece stuck on is no good at all. Suppose there is a gash three-quarters of an inch long: first place one piece projecting a good three inches each way beyond the gash, and then place another piece projecting an inch each way beyond the first, and, finally, a third piece an inch each way beyond the second. It will be found that this repair (which can easily be done by the roadside) will be a very effective one and will not blow through.

THE RENAULT PETROL MOTOR.

UNTIL the present year Messrs. Renault Freres used the De Dion motors in their voitures, but the vehicle which won the Paris-Vienna race was equipped with a four-cylinder motor of their own construction, and of which an illustration is given herewith. Nominally rated at 20-h.p., the engine develops 25-h.p. at a speed of 1,500 revolutions per minute, and weighs only 286 lbs., fly-wheel included. The cam gear is entirely enclosed, while a governor is fitted acting on the inlet.

For next year Messrs. Renault are bringing out a 12-h.p. double-cylinder engine of their own make. Each cylinder is cast separately, but integral with its head. The cranks are set at 180 degrees, while the valves of each cylinder are in line with each other. The admission valves are not operated mechanically, but are automatically controlled by the suction stroke, and closed by coiled springs at the moment that the pistons begin to compress the charge in the usual way. The sparking plugs are located between the valves, as in the De Dion motors. To remove the admission valves it is only necessary to loosen two nuts, one to each valve, then turn the yoke 90 degrees and lift out the cage. The cam shaft is parallel to the crank shaft. It

is driven by a counter-shaft fitted with a helical gear at each end and which is in turn driven by the crank shaft. The contact breaker is mounted on the extension of the counter-shaft, and its cam, therefore, revolves in a plane at right angles to the plane in which all the other cams and the flywheel revolve. The cylinders and heads are water jacketed and the pistons, connecting rods and the journals are lubricated by splash. The crank case is a dust and oil-proof aluminoid casting. Each admission valve has its individual inlet pipe and carburettor. The exhaust pipes are not united and terminate in separate silencers. The speed of



THE RENAULT FOUR-CYLINDER MOTOR.

(Le Chauffeur)

the engine is normally about 1,500 revolutions per minute.

FOR cleaning a tyre for repair purposes petrol may be used. It is far quicker than sand-paper.

A BAD burst in a tyre, say three inches long, cannot as a rule be satisfactorily patched, and the only thing to be done is to cut the burst section out and insert another piece. Now this is not such a difficult operation as generally supposed. Remove the burst piece and take a piece of old tube (the same cross section) and measure off a piece the same length plus three and a half inches each way for the join. Clean off the two ends thoroughly, and coat with solution in the usual way; the ends of the cut tube must be turned back for three and a half inches and cleaned and coated with solution. Leave everything to dry well (a good join cannot be made unless the solution has dried well), then turn back the ends, and previous to inserting the extra piece dip it (as far as the solution goes) into benzoline or petrol. Then insert and press the joint well, commencing from the inner end. A joint made in this way should be perfectly sound.

CORRESPONDENCE.

THE GORDON BENNETT CUP RACE.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to your criticism of the fact that the Automobile Club has decided that, at least two Napier cars will defend England's title to the Gordon Bennett Cup for 1903, why should you find fault with this decision? What car has a public record behind it that more fully justifies it in defending the cup than the Napier? Do not forget we raced unsuccessfully in the year 1900; then again in 1901 we spent some thousands of pounds on racing cars, had luck again attending us; but experience was being built up. In 1902, however, we were successful against the pick of Continental firms—in fact, the Napier was the only car good enough in the Gordon Bennett race under the new racing rules in regard to weight to get through to the finish.

Surely this record is good enough for the Napier to have at least two cars running next year. Personally, I have sent in my £500 entry, so that I am running cars in the Eliminating Race also, and I hope then to produce cars better than others running. A third Napier may thus be chosen to defend the cup, not merely because it has past successful records, but by merit on the day of the Automobile Club's Eliminating Race.

I cannot point out too clearly that I am going to try and prove by merit that three Napier cars shall defend the cup for England! Naturally, as an English manufacturer, I shall only be too pleased to see other successful cars; but so far, up to date, English racing efforts—with the sole exception of 1902 racing Napier—have merely caused smiles of derision from foreign manufacturers.

I trust that this explanation will go in some measure towards making it clear why the English Automobile Club has chosen Napier cars to uphold England's honour in the Gordon Bennett race of 1903.—Yours truly,

S. F. EDGE.

THE EXHIBITION QUESTION.

[The following letters have been sent to us for publication.—Ed. M.C.J.]

The Automobile Club,
119, Piccadilly, W.,
3rd December, 1902.

DEAR SIR,—The Society of Motor Manufacturers and Traders have requested the Committee of the Automobile Club to receive a deputation to discuss the Show question. The Committee, in reply, called the attention of the Society to the following resolution made on Tuesday, April 29th, last: "The Committee of the Club have been very anxious to assist the trade and the movement generally in this important matter of Exhibitions, but they feel that they cannot with dignity continue to negotiate with a trade which is divided against itself."

The Society of Motor Manufacturers and Traders claim that they do represent the views and wishes of the trade as a whole, and that the trade cannot now be said to be in any way "divided against itself."

They claim that the Society's Exhibition at the Crystal Palace is supported by the entire trade.

Before further considering these representations, the Committee would be glad if you would kindly favour them with your Society's remarks on this statement, and with the names of any companies or firms which are not associated with the Society of Motor Manufacturers and Traders and which are not exhibiting at the Society's Exhibition at the Crystal Palace.—Yours faithfully,

G. R. Helmore, Esq., Secretary,
Automobile Mutual Protection Association, Ltd.,
88, Chancery Lane, London.

(Signed) C. JOHNSON,

Secretary.

88, Chancery Lane,
London, W.C.,
December 6th, 1902.

DEAR SIR,—I am in receipt of your letter of the 3rd instant, which I placed before the Committee of this Association at a meeting held here last evening. The Committee desire me to say in reply that they regret that in the matter of exhibitions the trade is still in the same position as it was on the 29th April last, when the Committee of the Automobile Club passed the resolution quoted by you in your letter. The position referred to consists of a difference of opinion as to the date when and the place at which the Automobile Exhibition should be held. One section of the trade chose the month of January and the Crystal Palace, whilst the other section of the trade which this Association represents chose the Spring of the year and the Agricultural Hall. It has, therefore, come about that two principal exhibitions will be held. The Committee of this Association have no information with regard to the number of persons who will exhibit at the Crystal Palace Exhibition, but what they do know is that over 200 representative trade firms have taken space and will exhibit at the Motor Show to be held under the auspices of this Association at the Agricultural Hall during the week from the 21st to the 28th of March next.—Yours faithfully,

(Signed) GEO. R. HELMORE, Secretary,

The Automobile Mutual Protection Association, Ltd.
C. Johnson, Esq.,
Secretary of the Automobile Club,
119, Piccadilly, W.

SOLID v. PNEUMATIC TYRES.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have for the past three years driven cars with solid tyres, but am shortly to receive a car fitted with pneumatic tyres. A mishap which has recently occurred to a friend seems to give cause for some apprehension as to what may be to me the result of the change. My friend was driving his Serpollet steam car, fitted with Clipper-Michelin tyres, and had run down a hill and was ascending a slight incline when one of the front tyres burst with a considerable report. As the road was greasy he feared to apply his brakes lest the car should skid, but he shut off the steam, trusting that the incline would steady and stop the car. However, the car becoming unmanageable, ran into a telegraph post, upsetting the occupants on to the road siding, luckily without causing them serious injury. Now, an accident of this kind may, it would seem, happen to any one, for the tyres referred to are, I take it, not more liable to burst than those of other makes. The tyre which burst had been transferred from a hind wheel to a front wheel. Possibly it had lived its life. But the idea of such an accident occurring to one is unpleasant, and I would ask if any of your readers can suggest any means by which one could avert a catastrophe, or could say what, if any, way there is of knowing when a pneumatic tyre has arrived at that state when a burst is possible. I have ordered Collier tyres for my new car. Do they diminish the risk?—Yours faithfully,

ANXIOUS ENQUIRER.

CAPRICES!

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—Can any of your readers explain the causes of the following two freaks of behaviour in a M.M.C. voiturette engine? If, through want of judgment, the engine is stopped in trying to pick up on the third speed after slowing down, in traffic say, why are several turns of the starting handle required before it can be got to go again, when one turn is generally sufficient?

In the second case, when backing the car up an incline (when leaving the stable, which is at a lower level than the road, for instance), sometimes the engine cannot quite manage it, and the effort stops it, but the stoppage is with a jerk, dead, as if the sprag had caught; this, however, I have satisfied myself is not the case; nor is the gear defective. It is not a matter of an abrupt rise at the top of the incline, or an obstruction, such as a stone.—Yours faithfully,

THETA PHI.

MECHANICALLY-OPENED INLET VALVES.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have observed some of the arguments put forth for and against the mechanically-opened induction valve. It is, of course, no new invention, though many I have met seem to think otherwise. Having due regard for the conditions under which a light, high-speed explosive motor works, it would appear that its general efficiency is best served by the ordinary type of spring-valve. The wear and tear on the extra valve-gear upon such an engine is considerable, and it is very doubtful whether the advantages claimed are gained when taking into consideration the rapid revolutions of the piston.

Turning to the motor running up to 700 to 800 revolutions per minute, here the conditions are different, and if the valve-gear be of suitably stout construction, with, perhaps, roller or similar bearings, I am inclined to think that increased power and regularity in working is the result. Especially is this the case with multiple-cylinders, for it can be readily imagined that to procure two light springs of identically the same "temper" is of itself a difficult achievement. It is an interesting theme, and one which is well worth the close attention of motor manufacturers. I trust that others engaged in the industry will let your readers have their views upon the subject.—Yours faithfully,

G. HUGH OWEN.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to your always interesting "Continental Notes" re mechanical or automatic inlet valves, your correspondent suggests that I have fallen into a peculiar error in referring to the superiority of suction induction valves, and that no one has remarked this mistake. Now in the first place I have never set myself up as an apostle or an advocate of suction induction valves, or any others! I have merely stated facts as they appeared to me at the moment, and with present experience before me.

If your correspondent will carefully read my letter over again he will see that I never suggested that we made the crank-throw of the "Napier" one-sixteenth longer. I merely pointed out that to do this would have a certain effect. I, of course, quite appreciate the effect of this same increase on a mechanically-operated inlet-valve engine; but, supposing this was done, the extra increase of efficiency would be slight.—Yours truly,

S. F. EDGE.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—The above subject seems to be causing a great deal of theorising. When your correspondent of last week mentioned the advisability of a short pipe he forgot that it does not give all the advantages he claims.

For instance, take the case of a 1½-h.p. engine of 66 mm. bore and 72 mm. stroke, running at twenty miles per hour, and geared to eight to one, and the inlet pipe equals 20 mm. diameter, the gas will travel through this pipe at the rate of seventeen miles per hour when the engine is taking its full charge. Now, when one considers this speed has to be stopped and started again some 385 times per minute, it must not be overlooked that when the gas enters the cylinder (when the piston gains the bottom of its stroke) the valve does not shut immediately, but lets the gas in motion in the pipe still pass in owing to its kinetic energy, and the longer the inlet pipe the greater must be the energy to stop the velocity of the gas in it, owing to the greater bulk of gas therein.

Now, the effect of this kinetic energy of the gas will vary according to the speed, so that at a very low speed it is almost a negligible quantity, but owing to the high speed of most motors it must be taken into account. With the automatic inlet valve I have seen it stated that the puff back has nothing to do with the valve; but I know as a fact it is purely dependent on the amount of life given to the valve. For the compression in the cylinder nearly always takes place before the inlet valve closes, and the amount of time that elapses between the starting and shutting of the valve on its seat is sufficient to allow this small portion of gas to pass back. The greater the valve lift, the greater the puff back. Having made an automatically adjustable inlet valve, I am able to state this as a fact.

For engines used on motor-cars with water-jackets and running at a constant speed, probably a mechanically-worked inlet valve may be a

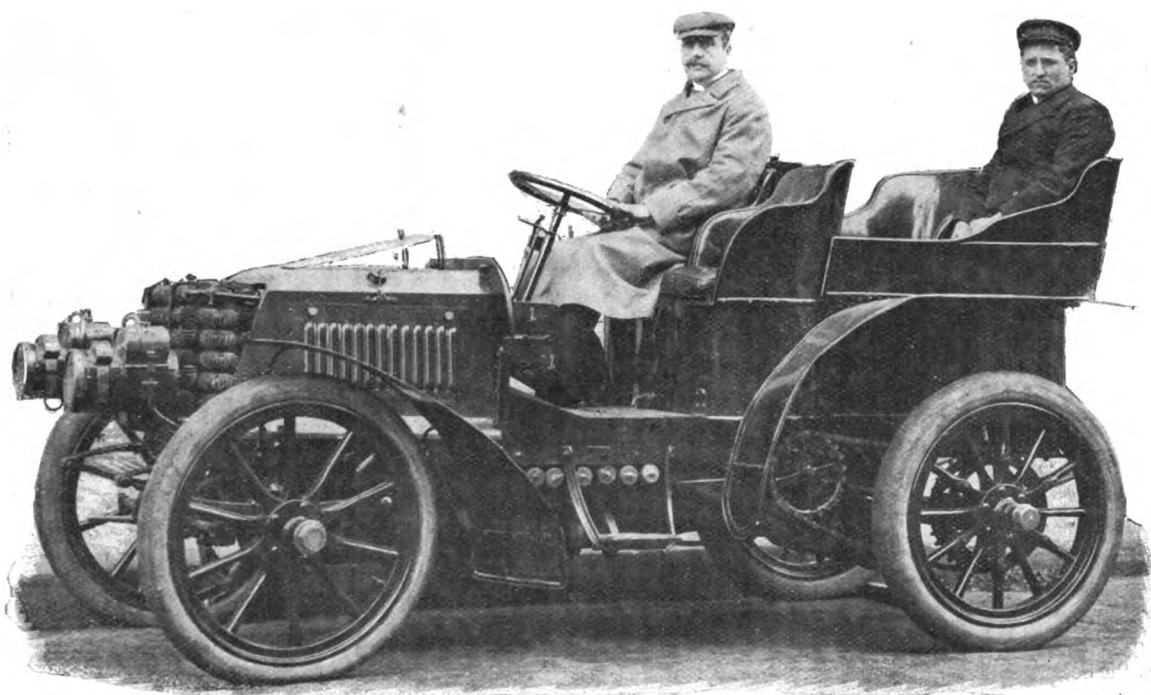
THE PURCHASE OF MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR.—Motor-cars are not all the fancy of either the seller or the buyer paints them, and I think it is time that some relaxation should be made in the terms of payment. Let me give my experience, and no doubt other interesting disclosures will follow.

Recently I bought a car for a friend and paid the usual one-third with the order. On the car being ready for delivery I paid £100 on account and said I should like to try it myself before it was delivered to my customer. Accordingly a driver, provided by the makers, drove me through London, colliding with a cab on the way, smashing the front lamp and putting one of the steering wheels out of truth; otherwise the car ran extremely well. He then proceeded alone to meet my friend, and took two and a half hours for a journey of about twenty miles (it was a 10-h.p. car). Owing to the petrol not flowing properly my customer was not able to proceed on his journey with the car, but had to go home by rail, and he could not show the car to another intending purchaser *en route* for the same reason.

The makers' driver went home, leaving the car in the above condition, and the next day I had a letter from the makers stating that they would not send a driver down to instruct my friend in the working of the car until I had paid the whole of the purchase money. I then telephoned them that I was sending that day all but £10 (I may add that some small



THE EARL OF SHREWSBURY AND TALBOT, PRESIDENT OF THE AUTOMOBILE MUTUAL PROTECTION ASSOCIATION, ON ONE OF HIS PANHARD CARS.

success; but for the air-cooled engine of varying speeds, which already is inclined to get too hot, it is a mistake.—Yours truly,

LEONARD JONES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As the pros and cons of the above are still being aired by your readers, we take this opportunity of forwarding you the results of a workshop test carried out in our works. The motor was cooled by a blast from fan, and by a number of tests by the same engine we got the following results:—

INCREASE ON THE SUCTION-OPERATED INLET VALVE.			
300 revolutions,	an increase of	8 per cent.	
800	"	"	10 "
1,250	"	"	14 "
1,640	"	"	17 "
2,120	"	"	21 "
2,600	"	"	28 "

The engine was the same in both cases, but the lever that worked the inlet valve was taken away and another spring put on the valve; the carburettor was a spray, and was not altered all through test, which took four days. We have fitted motors with mechanically-operated inlet valves to our cycles since the beginning of this year. They have given every satisfaction.—Yours truly,

THE ENDURANCE MOTOR AND CYCLE COMPANY.

parts included in the purchase money have not been sent to this day), and they replied they had "sent a man down who would put matters right." Nearly a week after, to my surprise and disgust, I heard from my friend that they had not sent anyone, and up to the time of writing no one has been sent. Is this business, is it honourable, and is it likely to be beneficial to the motor-car industry?—Yours truly,

HENRY J. ROGERS.

A DOCTOR'S SUGGESTION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—At the recent cycle shows I was very much impressed by the Singer arrangement of a 2½-h.p. motor within the front wheel of a Governess tricycle, designed to carry three persons. Also with its great possibilities for supplying the requirements of a very large portion of the community longing for a handy little "gadabout" for visiting, shopping, or running short distances from home, amongst whom are ladies, elderly and lame people, also others of limited walking powers, incapable of mounting a cycle saddle, and perhaps some lazy folk.

Instead of the Governess car body, I would suggest a roomy cane chair to hold two adults side by side, hung upon easy C springs behind, with suitable front spring. The floor to be as near the ground as possible for convenient ingress and egress. Two independent pedal brakes acting both ways. The motor in the front wheel should be manipulated from the seat by means of levers on the tiller steering handle, as adapted to the

little Eureka. The hind wheels should be so placed as to secure good wheel base stability, and also afford a platform behind for tank, etc., and small parcels. Large solid tyres would eliminate tyre troubles, and a light canvas hood afford protection against wind. Many old fossils (like myself) would gladly welcome such a motor-tricycle Bath chair, in preference to the cumbrous cars now prevailing, which cater only for tourists and active young people. The Bath chair need not be very expensive (say, within £150), and would, I believe, be used by medical men as a supplementary makeshift whenever their larger cars were suddenly stranded.

Having successfully driven my own little car, I have some knowledge of the subject, and of the practicability of my suggestions, which I hope will appeal to the desire of manufacturers to provide for all sections of the public, especially when, as in this case, it can be accomplished profitably to themselves.—Yours faithfully,

HENRY HARLAND, M.D.

THE AUTOMOBILE CLUB BILL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As a reader of your valuable journal, I have been greatly interested in the letters appearing therein with reference to the labelling of motor-cars. It seems to me that the Automobile Club should do everything possible to prevent the proposed numbering legislation, which would not only prove a severe check to a rising industry, but which would prevent numbers of people moving about the country, spending money, who would otherwise remain at home.

I consider the Automobile Club should take the lead in this matter, as it appears to me the Club is practically responsible for the suggestion, by adopting the numbering system at all their runs and trials. Why was it necessary to have a big ticket on every competing car, when a list of members is available with details of each member's car?

I notice one of the clauses in the proposed Bill is to give greater power to local authorities. This would certainly be a great mistake, especially in an agricultural district, where the County Council is composed of farmers and landowners, who derive a large portion of their incomes from horse-breeding. It would simply mean that no motor-car would be allowed on the road in such a district. I have a small car (not a racer), and I use it entirely for pleasure, and therefore strongly object to the hackney cab system of numbering, and hope you will do your utmost to prevent the objectionable proposal becoming law.—Yours faithfully,

TONNEAU.

EXHAUST TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Will you allow me to ask if any of your readers can enlighten me on the following point? I have a voiturette with 4½ h.p. De Dion engine which runs admirably in every way since I took the advice of one of your correspondents and installed a 6-volt accumulator. I was, therefore, much surprised, a few days since, when driving at night, to observe that, almost immediately after starting the engine, the exhaust tube becomes absolutely red hot from the cylinder to the silencer. Ought this to be the case, and if not, can any of your readers tell me how to remedy it, as it seems to me to point to a great waste of unexpended gas, and therefore power somewhere?—Yours faithfully,

PERPLEXED.

THE conclusion of the letter on "Goggles" last week should have read, "The field of view with spectacles is dangerously limited, and this would not be the case with a transparent mask."

VALVES writes:—"Can any of your readers give me the reason why my exhaust valves burn away so quickly? My engine is 6 h.p., water-cooled, and a new valve was burnt away in two hours."

MR. C. JACKSON writes:—"I am pleased to see that there is an outcry against numbering cars. As the owner of a motor-cycle which cannot travel fast, being geared low for hill-climbing, I would rather accept the speed limit than be numbered, and only be numbered if necessary, if I had a fast car or cycle."

DANGEROUS DRIVING OF A HORSE.

A REVERSAL of the ordinary state of things was made at Richmond last week when Captain Lowcock summoned George May, a contractor, for driving a horse and trap to the common danger of passengers. Mr. T. Staplee Firth appeared in support of the summons. Captain Lowcock said he was used to driving motor-cars, and drove slowly all the way from the Star and Garter, and reduced his pace to three or four miles an hour when near the Fire Station. He had a clear road to pass an omnibus which was stopping to discharge passengers, and he had the choice of going on to meet the trap which defendant drove, or to stand still. He pulled up and blew his horn when he was standing alongside the omnibus, but the trap dashed into him. Defendant was coming at from fourteen to seventeen miles an hour, and witness held up his hand and shouted. He suggested that defendant was driving so negligently that he could not pull up. The motor-car was absolutely at rest. Mrs. Florence Rose, who was in the motor-car, corroborated, as did Frederick Meyer, engineer to Captain Lowcock. After hearing the defence, the Bench decided to dismiss the summons, but made no order as to costs.

THE TRIALS FOR 1903.

MOTOR DELIVERY VANS.

ON Thursday, the 4th inst., a meeting of users and makers of light motor-vans for delivery purposes was held at the Automobile Club under the chairmanship of Mr. Roger W. Wallace. The object of the meeting was briefly stated by the chairman as being to elicit the views of users with regard to the proposed trial. He invited representatives of firms who were present to give their experiences.

On behalf of Messrs. Bullers, Ltd., of Tipton, it was said that they had had a motor-van in use for eighteen months for delivery purposes in Birmingham. Previously two horses and a covered van had been employed, leaving home at 9 a.m. and finishing about 7 p.m. But the motor-van started at 10 a.m. and was home again by 2 p.m. His firm were willing to place their delivery business at the disposal of the Club for the purposes of the trial.

Mr. Houston, of the General Post Office, said his department would be willing to try any suitable vehicle submitted to them; but it must not be forgotten that their business was done by contractors. Reliability was absolutely essential in connection with their work.

A director of Messrs. Bryant and May, Ltd., referred to the success of the Daimler delivery van used by the Diamond Match Company in Liverpool.

Messrs. Debenham and Co.'s representative stated that their traveller had been able to work the suburbs more effectually since they adopted a motor-car, and urged that attention should be given to motor-tricycles for delivery purposes.

The chairman said the Westminster Electric Supply Company had found a motor-vehicle of advantage in connection with "breakdown" work, and representatives of Messrs. Bass and Co., W. H. Smith and Sons, Colman and Sons, and the Hyams Clothing Company, having expressed favourable views with regard to the proposed trial,

Mr. Shrapnell Smith proposed a resolution asking the Club to organise the trial, adopting four classifications, from 5 cwt. to 2 tons, and also taking cubic capacity into consideration.

This having been adopted, it was decided, on the motion of Mr. Edge, that the trial should extend over a period of three months, and that it be held as near the month of January, 1904, as possible.

A vote of thanks to the chairman concluded the proceedings, and in reply Mr. Wallace invited probable users of light motor-vans for delivery purposes willing to serve on the Organisation Committee to send their names to the Club.

THE BIG TRIAL.

ON Tuesday afternoon, at the Automobile Club, a meeting of manufacturers of automobiles was held to consider the Big Trial for 1903. The attendance included Messrs. Paris Singer (who presided in the early stage of the proceedings), S. F. Edge, E. M. Instone, W. M. Letts, J. D. Siddeley, F. F. Wellington, Basil Joy, C. Friswell, W. Astell, H. G. Burford, W. Gutmann, Wilson, E. H. Arnott, H. Sturmeay, J. W. Stocks, J. S. Critchley, T. B. Browne, and C. Johnson (secretary).

Letters of apology from Mr. H. Austin (Wolseley Company) and Mr. M. H. Buckea (Motor Manufacturing Company), both of whom regretted the shortness of notice, were read by the secretary.

Mr. S. F. Edge briefly introduced the proposals of the special committee which had been appointed to deal with the question. The committee having agreed that it was desirable to have a 1,000 miles Trial, had to select a centre. London was chosen as against Harrogate, and the Crystal Palace in preference to the Alexandra Palace. It was thought well to have hill-climbing competitions every day, and the month of September was selected as the least busy month for the trade.

A general discussion then took place on the proposals, which were ultimately amended and adopted as set forth below. On Clause 3, Mr. Instone raised the question of giving marks for durability as well as for hill-climbing. A long discussion took place with regard to the appearance of cars. Mr. Sturmeay argued that it was unfair to makers of new cars to insist too closely on the upholstery of the vehicles. On the motion of Mr. Edge, a suggestion that an hour should be allowed each day for washing the cars was rejected. Some amusement was caused by the proposal for making the silent running of vehicles an object of commendation, being met by a further suggestion to deduct marks from cars emitting visible vapour. The original proposal to allow time for the replenishment of tanks, etc., was thrown out, it being recognised that if marks were deducted for the time thus occupied, makers would be encouraged to give attention to those parts.

Mr. Basil Joy introduced a brief discussion on Observers, and the matter was referred to the consideration of the Committee, as was also a proposal by Mr. H. G. Burford that the judges should, as far as possible, be chosen from outside the trade.

The trade section of the Trials Organisation Committee was then appointed as follows:—Messrs. W. Astell, H. G. Burford, J. S. Critchley, S. F. Edge, C. Jarrott, W. M. Letts, J. D. Siddeley, Basil Joy, H. Sturmeay, E. M. C. Instone, F. Lanchester, with one of two other gentlemen who received an equal number of votes.

Recommendations to the Committee:—

- (1) That the Automobile Club shall hold a trial (generally on the same lines as the 650 miles Reliability Trial of 1902) in the year 1903.
- (2) That the Crystal Palace shall be the centre, and runs be made to seaside places.

- (3) That the Trial shall include hill-climbing records, but efforts be made to include marks for durability, and not too much importance placed on the hill climbs.
- (4) That the Trial shall take place early in September.
- (5) That the total distance shall be 1,000 miles, comprised of eight runs of about 125 miles per day.
- (6) That the cars shall be required to be within the gates of the Crystal Palace by twelve noon on a Wednesday, entry being also permitted the night previously, the first run to take place on the Friday, and the Trial to terminate on the following Saturday week.
- (7) No manufacturer or seller to enter more than one car of a type in a class. No duplicates.
- (8) That the public should be given to understand that the Trial is a trial of trustworthiness, and that only cars that have been painted and upholstered shall be entered.
- (9) a. That at the end of the day's run the car shall be immediately on arrival placed in the storage building from which the public, the owners, drivers, mechanics, and everyone except the Club's Stewards shall be rigorously excluded.
- b. In the morning, when the Observer has taken charge of his seat on a car, the driver and mechanic may be admitted to the storage building, and the word will be given to start. Adjustments, washing and repairs may then be made, but one mark will be deducted in respect of every minute during which the car is stopped, or during which the driver or mechanic leave their seats for the purpose of adjustment, washing, or repairs.
- (10) Marks will be deducted from vehicles which emit visible vapour, and the absence of noise when running will also be taken into account.
- (11) As the exclusion of the public from the storage building might interfere with opportunities of doing business, arrangements should, if possible, be made by which one exact duplicate of each car entered and running may be shown in the upper part of the Palace.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Shoreham ...	Capt. M. Buller	22 m. p. h.	£5, etc.
" ...	H. Reynolds	25 m. p. h.	£5.
" ...	L. Strode	—	Adjourned.
*Braintree ...	G. Bishop, Sible, Hedingham	28 m. p. h.	10s., etc.
Daventry ...	H. S. Jones	—	40s. "
Portsmouth ...	C. P. Rose, Southsea	12½ m. p. h.	10s. "
" ...	J. A. Koosens, Southsea	15 m. p. h.	Dismissed.
*Epsom ...	C. D. Ingram, Sutton	18 m. p. h.	£1, etc.
Abergele ...	A. Paganini, Stalybridge	28 m. p. h.	£1, "
Haywards	W. A. Spriggs, Birmingham	22 m. p. h.	£1, etc.
Heath ...	P. Joseph, London. W.	26 m. p. h.	"
" ...	L. Krapt, Chelsea	—	Warrant issued.
" ...	W. Astell, Twickenham	25 m. p. h.	£1, etc.
" ...	E. Ruben, London, W.	20 m. p. h.	"

Where no alleged speed is given it is understood to be above the legal limit.

* Motor-cycle cases.

IN the five cases heard at Hayward's Heath all the defendants—except Lueling Krapt—wrote regretting inability to attend before the magistrates. A warrant for the apprehension of L. Krapt was issued.

H. S. JONES, who was summoned at Daventry, is motor-car driver to Mr. D. C. Guthrie, of East Haddon. On the occasion of the alleged offence he had taken Lord Annaly and Mr. Stewart, who were going hunting, to Daventry, and it was while waiting for their return that he attained a speed said to be above the legal limit.

IN the prosecution of Mr. Herbert Goode mentioned in our list of cases last week, a police-constable said he was in plain clothes when he saw defendant; he was not concealed in any way; his bicycle stood beside him. When he had covered a mile on his bicycle the motor-car was out of sight. He measured the mile by his cyclometer and he had also paced the distance. The witness was cross-examined by Mr. Staplee Firth as to the exact time; it appeared that his measurement of the time was, he believed, correct within a second or two. A passenger on the car having given evidence that the pace was not more than twelve miles an hour, the magistrate dismissed the case.

SEVERAL motorists have lately been summoned at Portsmouth, and in one case, although the speed was but three-quarters of a mile an hour in excess of the twelve miles, a conviction was recorded, and a nominal fine inflicted. The defendant in the other case was Mr. J. A. Koosens, of Southsea, but this information (although the fact that he was travelling at fifteen miles an hour was undisputed) met with the same fate as a similar summons

against him some time ago being dismissed on the ground that common danger had not been made out. Mr. Koosens has a unique record. Some time before the passing of the Light Locomotives Bill Mr. Koosens purchased a Lutzmann car, which he has driven to the present day, and has travelled a distance of over 80,000 miles without an accident.

IN the case against A. Paganini, at Abergele, police-constable Rowlands said that he saw defendant driving a motor-car through Llanddulas at a rate of between twenty-eight and thirty miles an hour, but in cross-examination informed the Bench that he had no chance to time the car

ALLEGED BREACH OF WARRANTY.

IN the Probate Court (Dublin), before Mr. Justice Andrews, the case of Sykes v. Langrishe, reported in our issue of the 29th ult., has again been mentioned. The plaintiff, Major Sykes, sought to recover £210, the price paid by him to the defendant for a motor-car, on the ground that he warranty given with the machine was not fulfilled. At the trial of the action before Mr. Justice Johnson, after four days' hearing, the jury disagreed. Mr. Gibson (instructed by Mr. Lane Joynt) has since applied to have a consent entered into between the parties made a rule of Court. The consent was that the defendant should pay the plaintiff the sum of £210 and the plaintiff's costs on the action when taxed and ascertained, the plaintiff agreeing to accept the payment of that sum in four instalments, all imputations on either side to be withdrawn. The defendant was to get back the motor-car, and the plaintiff to pay the expense of storing and repairing the machine at Messrs. Hutton's. Mr. Justice Andrews has made the consent a rule of Court.

CLAIMS FOR DAMAGES.

AT the Bristol County Court Judge Austin has heard an action in which Alexander Robb claimed £30 from Frederick Burris, as damages alleged to have resulted from his being knocked down by a motor-bicycle. Plaintiff was in the Queen's Road, and was crossing the roadway when a motor-bicycle came suddenly upon him, knocked him down, went over him, and then passed on some little distance before it could be stopped. The injury was so bad that plaintiff was not able to do any work for sixteen weeks. For the defence, a policeman said a great noise was made as the motor-bicycle approached, and the plaintiff seemed to make a false step. The judge expressed the opinion that the plaintiff did not look about sufficiently, and gave judgment for the defendant, with costs.

AT the Isle of Wight County Court at Newport, before the Registrar, Henry Pearce sued Mr. H. Aubrey Hoffmeister, of Ryde, for £38. Plaintiff alleged that on August 1st last, while in charge of his horse and carriage on the Esplanade, Ryde, the defendant came on the Esplanade in his motor-car, and that in consequence of his failing to stop in accordance with plaintiff's request, his horse became unmanageable, fell, and sustained serious injury. For the defence it was alleged that the plaintiff waved the owner of the motor-car to go on, and that he did so, proceeding cautiously at the rate of about six miles an hour. Corroborative evidence having been given, judgment for the defendant, with costs, was given.

MEASURED DISTANCE.

THE police of the Braintree district are using the distance between telegraph posts for the purpose of timing unfortunate motorists going that way.

NO LIGHT.

AT the Winchester County Bench, on Saturday, Bernard Humphreys, motor-car driver for Sir Thomas Lipton, was summoned for driving a motor-car on the highway at King's Worthy, Hants, without having affixed to the rear of such motor-car a red light as required by the Statute, on November 21st. A fine of 10s., with 9s. costs, was imposed.

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THE Motor-Car Journal.

VOL. IV.]

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COMMENTS.

Notice.

IN consequence of Christmas the *Journal* will go to press earlier than usual next week. To ensure the insertion of advertisements in that issue instructions should reach the Publisher not later than the first post on the morning of Monday next, the 22nd inst. We shall be obliged if our editorial correspondents will also be equally prompt with their communications.

Scotch Opposition to Numbering.

FROM the discussion of the Western Section of the Scottish Automobile Club on Monday, which is reported on another page, it will be seen that our northern friends are as fully opposed to the numbering proposals as are southern motorists. In fact, the advocates of friends of the Bill were in a hopeless minority, despite the earnest and thoughtful speech of Mr. Adam, who was more inclined to favour numbering than any of the other speakers. The truth is that in advocating the labelling, numbering or ticketing of private motor-cars, the supporters of what many of our correspondents call the Automobile Club Bill are merely seeking to inflict upon this country a system that has failed altogether elsewhere in Europe.

French Antipathy.

LAST week the editor of the *Auto Velo* proved that fact in our columns, and confirmation of his view now comes from his confrere of *La France Automobile*, who, in commenting upon a letter from M. J. Pernod, president of the Automobile Club of Avignon, reminds his readers that he prophesied the failure of the numbering plan from the day of its inception. It appears that M. Pernod has been summoned for running over a dog while alleged to have been motoring at Pontoise, the identification having been made through the system of numbering. How reliable this plan has proved may be seen from the fact that on the day in question M. Pernod was at home, and has been able to provide all the evidence for an *alibi*. Had the dog been a man, what an outcry would have been raised? M. Pernod would probably have had a wearying time waiting for trial ere he could have proved his innocence. The frequency of such incidents is alarming French motorists, and no wonder that M. Georges Prade asked, in our last issue, "Is this the time for England to adopt a system of numbering?"

The Lincolnshire Club declares against Numbering.

ON Saturday, Sir Hickman Bacon, Bart., presided over the annual meeting of the Lincolnshire Automobile Club, and Mr. C. Nelson, hon. solicitor, opened a discussion on Mr. Scott Montagu's Bill. The general trend of the speeches made was in favour of the line we have taken on the proposals made. Mr. Nelson argued as to the numbering proposals that the supposed advantages would be far outweighed by the disabilities, which, instead of being removed, would be increased, and make it possible for any prejudiced person to institute pro-

ceedings, where the motorist would have extreme difficulty in defending himself. Capt. J. A. Cole (Roxholme) also spoke against the Bill, and appealed to the members to stand together in this important matter. They in Lincolnshire did not feel the question so much as in other districts, thanks to a sensible tolerance, but they knew that numbering was not of the slightest use. Scorchers would drive as recklessly as ever, and carrying numbers would have no effect, for, with oil on the plates and dust, they would remain un-identified. To carry a number would, he urged, spoil the privacy of automobilists, while drivers of other vehicles would go free. Mr. Rasdall spoke for the other side, but he was the only one, and it was evident that his views were not shared by the members present. Mr. Wilkinson suggested that if horse drivers were as comparatively skilful in driving as motorists were, there would be less complaint. Mr. C. W. Pennell, the Chairman of the Club, argued against numbering, and declared that if the speed limit was raised to eighteen or even twenty-four miles an hour, there would still be the same prejudice and therefore the same persecution. Sir H. B. Bacon explained how unpleasant it was for magistrates to have to adjudicate in other cases when they knew that every time they ventured out on their cars they were breaking a stupid law. Ultimately a resolution against the Bill in its present form was adopted.

A Year's Record.

IN presenting the report of the year's work, Mr. C. W. Pennell referred to the services rendered by Dr. Cragg, the hon. secretary. Mr. Rasdall raised the question of the charges for the stabling of cars at hotels, and it was agreed to give further attention to the matter. Mr. Pennell, in answer to a question, said the Committee had come to the decision that it was useless trying further to reduce the charges at certain bridges, for the lessees had it pretty much in their own hands. But it was hoped that in the course of time these would realise that they were losing much by charging such excessive tolls to those driving motors, whether cars or motor-cycles. The question of re-affiliation with the A.C.G.B.I. was left in the hands of the Committee, many of the members being of opinion that the present affiliation fee is more than the Club can afford. Sir H. B. Bacon was re-elected president; Dr. Cragg, hon. secretary; Mr. C. W. Pennell, chairman; and among the vice-presidents are the Marquis of Exeter, Lord Willoughby de Eresby, M.P., Capt. J. A. Cole, J.P., J. D. Sandars (High Sheriff of the County), and Mr. W. Garfit, M.P.

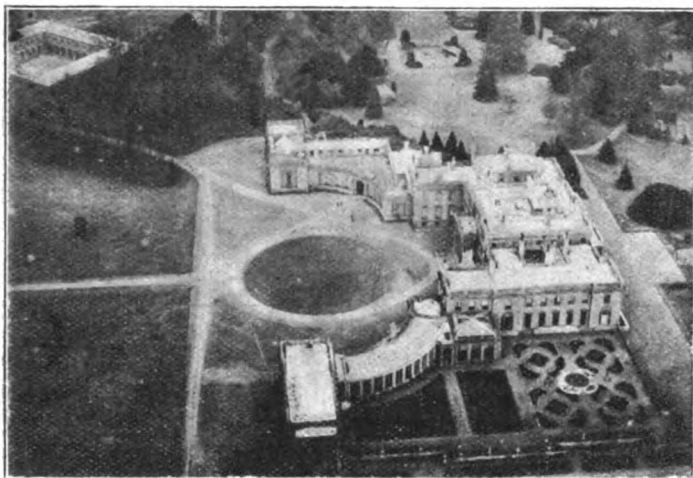
What Worcester Wants.

CONSIDERING the subject of motor-car speeds more closely than many local authorities, the Worcester County Council has adopted a series of suggestions which, in their view, should find embodiment in legislation. They are as follows:—
(1) That provision should be made by which each motor-car could be easily identified both by night and by day; (2) that in addition to power to cancel the certificate of the driver of a motor-car, justices should be empowered to suspend it upon a first conviction; (3) that motor-cars should be chargeable with higher rates of duties than at present; (4) that "indication boards"

should be placed on main roads at the termini of towns and villages and also at any places where it was advisable that motor-cars should slow down. The outlay for these boards would be recouped to the Council out of the fees to be charged for registration of the cars; (5) that Section 7 of the Act of 1896 should be amended so as to provide that £100 should be the maximum penalty for an offence instead of £10 as therein provided.

Motorists to Bear all the Expense.

POSSIBLY on a reconsideration of the matter these Worcester worthies would be willing to go further and maintain the roads, pay the police, and look after the poor—all out of the fees charged to motorists. Surely those who drive motor-cars ought to be made to bear all the expenses of local administration! That, at least, seems the logical sequence of many of the mutterings now made against those who claim equal rights on the highway with the owners of horses and other quadrupeds.



A VIEW OF SAVERNAKE HOUSE, WILTSHIRE, AS SEEN FROM MR. BUCKNALL'S BALLOON.
Photo by] (Mr. Frank H. Butler.)

Unattended Horses.

IF motorists would inform the police and induce them to prosecute, much would be done to lessen the number of unattended horses to be found on our highways. At Chichester recently a carman has been fined 10s. and costs for leaving his horse and cart on the roadway, the principal witness in the case being Mr. M. F. Mieville, of Chichester, who explained that he bore no malice, but as drivers of motor-cars were constantly getting into trouble he thought someone else might also have that experience. The horse was grazing on the bank, and the cart was broadside to the road. He pulled up and blew his horn several times, but no one appeared. By taking the car round at the back of the cart over some rough and stony road he got past, and afterwards the defendant came from a cottage. They argued the point as to whether the defendant should have left his cart unattended in the way he did. As defendant declined to admit that he was wrong, witness informed the police; hence the prosecution. A few such cases in every country town would soon prove to the advantage of automobilism, in removing one of the dangers of the highway.

The Hozier Engineering Company, Limited.

THE second annual meeting of shareholders of the Hozier Engineering Company, Limited, was held in Glasgow a few days ago, Mr. Wm. Alex. Smith, chairman, presiding. The figures laid before the meeting were of a very satisfactory character; after debiting revenue with all proper charges, including advertising, etc., the balance at the credit of profit and loss account amounted to £4,966 11s. 9d. Of this amount

£924 0s. 9d. was absorbed in payment of debenture and other interest. In view of the growth in the business of the company it was resolved to apply the greater portion of the balance in writing off and depreciation, and to pay a dividend of 5 per cent. It was reported that a large number of orders for the 1903 model had already been booked, and the prospects of the company were exceedingly bright. A number of those present then inspected the works, and were highly satisfied with the general efficiency and with the new automatic machinery recently installed by Mr. Govan, the managing director.

Up Porlock Hill.

LITTLE has lately been heard of Porlock Hill, but now and again news comes of some venturesome motorist making the ascent. The latest to do so is Mr. A. J. Millership on Mr. J. C. S. Rashleigh's Lanchester car. There has been a new road cut from Porlock up to Oarpost, about a mile to a mile and a half longer, and not quite so steep a gradient as the old one. This is the road that the ordinary coaches use, and which takes eight horses to get up. The car left Minehead at eleven o'clock on a recent Friday, carrying 1 cwt. 3 qrs. 24 lbs. of sand in a sack, a large bag, overcoats and rugs, the whole totalling 20 stones, also a man, making a full complement of four passengers. On arriving at Porlock village and enquiring the way to Ilfracombe, they were informed they had missed the road, and that it was impossible for the car to go up the hill. However, they drove the car on, and the climb of three miles was accomplished in twenty-eight minutes, or slightly over six miles an hour. There were two "V" corners on the hill, and the surface was more like a river-bed than a high road. Mr. Millership then ran down into Lynmouth, and enquired the way, and was told "straight on, up the hill." The gradient of this hill is, if anything, worse than Porlock, rising 400 ft. in half a mile. After one fearful turn at the start, this hill was surmounted easily, doing the half-mile in five minutes exact. Running on to Parracombe, the hill out of there was climbed easily, although this is a gradient of about 1 in 5.

The Maidenhead Toll.

THE Maidenhead Bridge agitation is being prosecuted with vigour, and the Corporation is being forced to come to some definite decision at once. Maidenhead has enjoyed some £120,000 out of building a bridge costing only £19,000. For over fifty years at least they have been exacting tolls, when the bridge should have been freed, and what was unjust before would become scandalously so now to the general public if the continuance of the tolls is allowed. The investigations re the illegality of the tolls upon Maidenhead Bridge have been proceeding nearly two years, most valuable and important information has been obtained, and the motor tolls reduced from 6d. to 2d., which was effected the day previous to the challenging the toll on December 8th of the present year. But the question of the tolls can only be decided in a court of law. The cost of proceeding has been and will be considerable. Counsel have to be retained, etc., and it is absolutely necessary that the gentlemen who have led the agitation should have pecuniary assistance if the matter is to be brought to a successful result. A fund has been started to this end, and subscriptions may be sent to Mr. J. Taylor, Eton, Mr. Joseph Fullbrook, Slough, or Mr. Cecil Howlett, Eton.

The Latest Phase.

THE Maidenhead Town Council on Monday evening adopted several important recommendations of the Bridge Committee with reference to the Maidenhead Bridge tolls. They were that steps be taken to obtain an Act of Parliament which shall (a) Repeal the Maidenhead Bridge Act of 1772; (b) Abolish the bridge tolls as from November, 1903, when the present letting expires; (c) Vest the bridge and bridge property in mayor, aldermen, and burgesses of the borough of Maidenhead for ever. The lessee of the tolls has applied to

the Corporation for recompense owing to tolls for motor-cars having been reduced from 6d. to 2d.

The Scottish Club.

THE Eastern Section of the Scottish Automobile Club held its first social evening on Monday week at the Royal Hotel, Edinburgh, at which Mr. John Macdonald, Chairman of the section, presided. The Right Hon. Sir J. H. A. Macdonald, president of the Club, related, in characteristic style, some of his motoring experiences during the past summer. He also took the opportunity of urging the advisability of motorists showing gentlemanly and courteous consideration for other users of the King's highway. Dr. Dawson Turner (vice-president) also gave some of his experiences, which date as far back as 1896. Sir John Murray (vice-president) said his car had been so reliable that he had practically no experiences to relate—quite a novel experience in itself for a motorist. Sir John has been engaged throughout the summer in superintending

Their hardness and solidity minimise the production of mud or dust—an important consideration to that portion of the public that goes a-motoring. In developing the ideas expressed in the pamphlet the Irish Roads Improvement Association will be doing useful work deserving encouragement by all motorists.

Carriage of Motor Spirit on the Thames.

WITH regard to the carriage of motor spirit by water, it may be of interest to Metropolitan readers to know that there are four London firms owning duly-licensed barges for the purpose. These are the Anglo-American Oil Company, Ltd., Messrs. S. Bowley and Son, Battersea Bridge, S.W., Messrs. Stone Brothers, Erith, and the Union Lighterage Company, Ltd. The Conservators of the River Thames are alive to the increasing importance of the trade in petroleum spirit, and they have just passed a resolution that tank barges of suitable construction shall in future be allowed to convey the spirit on the river. This should greatly facilitate transit, and probably reduce its cost. The Conservators are now taking expert advice as to the specifications for



MR. H. E. MOSS, J.P., ON HIS NEW 24-H.P. DAIMLER.

the sounding of the Lochs of Scotland, and he said that he got through his work much faster and more expeditiously by the help of his motor-car than he could have possibly done by any other means. Besides the above named-gentlemen and a good turn-out of members, there were also present Mr. N. D. Macdonald, and Mr. J. C. Smith, the newly-elected General Secretary. The Chairman took this opportunity of introducing the new General Secretary to the members of the Eastern Section in proposing his health, to which Mr. Smith replied.

Good Roads.

FOR the Irish Roads Improvement Association Mr. Thomas Aitken, the author of the well-known treatise on "Road Making and Maintenance," has written a practical pamphlet on the subject, in which he points out that the gradients for fast traffic should not exceed one in thirty-three; one in forty is, however, preferable. According to Mr. Aitken, roads properly constructed can be maintained with little cleaning.

the tank barges, as well as for those for carrying spirit in barrels or other packages.

"In the Multitude of Trials," etc.

THE compiler of the usually interesting motor notes in the "Daily News" fell into an amusing error in Saturday's issue, leading us to the conclusion that he is a diligent, if not over-careful, student of the automobile journals appearing on the Friday. After giving some idea of the conference held between users and makers of motor-delivery vans, he went on to say that "the trial will be held on the same lines as the reliability trials, and will take place probably in August, 1903. The Crystal Palace will be the starting place for the daily runs. The total distance will be 1,000 miles, divided into about 125 miles a day for eight runs. There will be four classes of vehicles, viz., those designed to carry 5 cwt. or under; those designed to carry half a ton or under; those designed to carry a ton or under; and those designed to carry two tons or under." Had the writer been present at the conference he could not have fallen into

such confusion; nor would it have been the case had he read his authorities more carefully.

Paper Chases on Boxing Day.

LAST week we announced that the Sheffield and District Automobile Club intended to hold a paper chase on Boxing Day. Now we learn that a similar enterprise is also to be held under the auspices of the Yorkshire Club, starting from Pool Bridge, near Leeds. Tea will be taken at the Prince of Wales Hotel, Harrogate, at 5 p.m., where motorists who do not participate in the chase will be welcomed. The hares have offered a prize to the member of the pack who catches one of them.

The Tyre Trials.

THE awards in the tyre trials organised by the A.C.G.B.I. may shortly be expected—in fact, as soon as the resiliency tests by the British Association dynamometer are completed. Sections of the tyres submitted for trial are to be suitably exhibited in the Club-house, in order that members who have purchased tyres of similar manufacture may satisfy themselves as to whether their purchases are as heavy and substantial, and generally of the same quality as those entered for the competition.

Increased Speed of Racing Cars.

AN interesting table of speeds has been drawn up by a French contemporary, which shows how rapidly the average pace of motor-cars has increased in the few years since they have become practical vehicles. In the Paris-Bordeaux-Paris race of 1895, the late M. Levassor accomplished an average of 13.4 miles an hour on a 4-h.p. Panhard, a feat which was regarded at the time as astonishing. In 1896, in the Paris-Marseilles-Paris race, M. Mayade on a 6-h.p. Panhard achieved 15.78 miles an hour. These two races extended over a distance of more than 750 miles, so that the test was severe. Owing to the varying length of the contests from which the subsequent figures are gathered, it is not easy to make a true comparison. M. Jamin, on a 4-h.p. Bollee, accomplished twenty-nine miles an hour from Paris to Trouville in 1897. The next year showed no breaking of the record, but in 1899 Lemaitre, driving a 20-h.p. Peugeot, achieved thirty-two miles an hour in the Pau-Bayonne-Pau race. Later in the same year, Levegh, in the Bordeaux-Biarritz race, made a notable advance, scoring an average of forty-one miles an hour on a 20-h.p. Mors. The next year raised the figures several times. At Pau Rene de Knyff, on a 16-h.p. Panhard, averaged forty-four miles an hour; Jenatzy, in a 100-kilometre race, did forty-eight and a half miles in the sixty minutes, and Levegh, on a Mors, in the Bordeaux-Perigueux contest, was the first to average fifty miles an hour. In 1901 Fournier's pace in the Paris-Bordeaux race was fifty-two and a half miles an hour, on a 60-h.p. Mors, and on the second day of the Paris-Berlin race of last year Antony, on a Mors, reached fifty-four miles an hour. Coming to the present year, Rene de Knyff accomplished fifty-five and a quarter miles an hour on a 70-h.p. Panhard on the first day of Paris-Vienna; while in the first 100 kilometres of the Circuit des Ardennes, Baron de Crawhez, on a 70-h.p. Panhard, covered sixty and a quarter miles in sixty minutes. Thus, in eight years the average speed of motor-cars over a long distance has increased from 13.4 to over sixty miles an hour.

The Gordon Bennett Contest.

THE Automobile Club de Belgique has invited the A.C.G.B.I. to hold the race for the Gordon Bennett cup over the Ardennes course. According to the rules of the competition, however, if the race cannot be held in this country it must take place in France. With reference to the entry of the Star Motor Company, it is understood that the deposit of £500 has been made conditionally on the receipt of satisfactory answers to certain questions. Should they withdraw—and the Executive Com-

mittee has agreed to allow them to do so if they desire—Messrs. S. F. Edge, Limited, will also be at liberty to withdraw their £500, and the Committee may then make fresh proposals. On the other hand Messrs. Edge, Limited, may reserve the place by allowing things to remain as they are. In that case there will be no Eliminating Test, the Club having the right to retain the £500 unless they produce a suitable car by the date fixed.

Some Motor Troubles.

NOWADAYS, when a really serviceable and reliable motor-vehicle is procurable, most failures can be put down to the inexperience of the owners. That a large number of people drive cars who know practically nothing about their working is very evident. The owner tinkers unsuccessfully for hours and hours and then sends for a competent man to rectify the trouble, which he does in a few moments. The owner with only a smattering of knowledge is sometimes worse off than those who know nothing at all. We all know this man well; a nut drops out from the bottom of the base-chamber and he discovers the fact, and thinks his compression gone. It is quite true that De Dion tremblers are rather difficult to adjust, but it is a much better plan to see that the cells are fully charged, first, than to screw and unscrew the platinum-tipped screw for an indefinite period of time, and then to discover the cells are low. Yet this is quite a common occurrence. Then, perhaps, we know the other man with a smattering of knowledge who in an evil hour takes his engine down when there is nothing wrong with it, and puts it together and finds it absolutely refuses to start. Result, expert arrives and explains that all four-cycle engines usually work better with the exhaust valve correctly set, and not by chance! High-tension wires, too, have their correct places, and if not in their correct places the engine will exhibit rooted objections to starting, much to the alarm of the "man with the smattering," who in the end will seek the inevitable expert. This list could doubtless be prolonged, but it is sufficient to show how some of the motor failures we hear of, and with good cars too, can be accounted for.

SIR EDWARD JENKINSON, K.C.B., has resigned his membership of the Automobile Club.

THE Bristol and District Motor Club has been formed, with Mr. Charles Franklin as secretary.

WE are authorised to announce the resignation of Mr. Claude Johnson, the secretary of the A.C.G.B.I.

MR. ALFRED HARMSWORTH's latest acquisition is a Lohner-Porsche-Mercedes combination petrol electric car.

MR. F. GARRATT has been elected captain of the Nottingham Motor Cycle Club and Mr. E. G. Young hon. secretary. The inaugural run will be held early in the New Year.

THE Great Northern, Piccadilly and Brompton Railway proposes to acquire the garage in Down Street Mews, W. The Automobile Club will oppose the scheme of the company.

BARON HENRI DE ROTHSCILD's paper on "Seven Years of Automobilmism" will be read at the A.C.G.B.I. on the 9th prox. During next month the Baron de Zuylen will also be entertained by the Automobile Club.

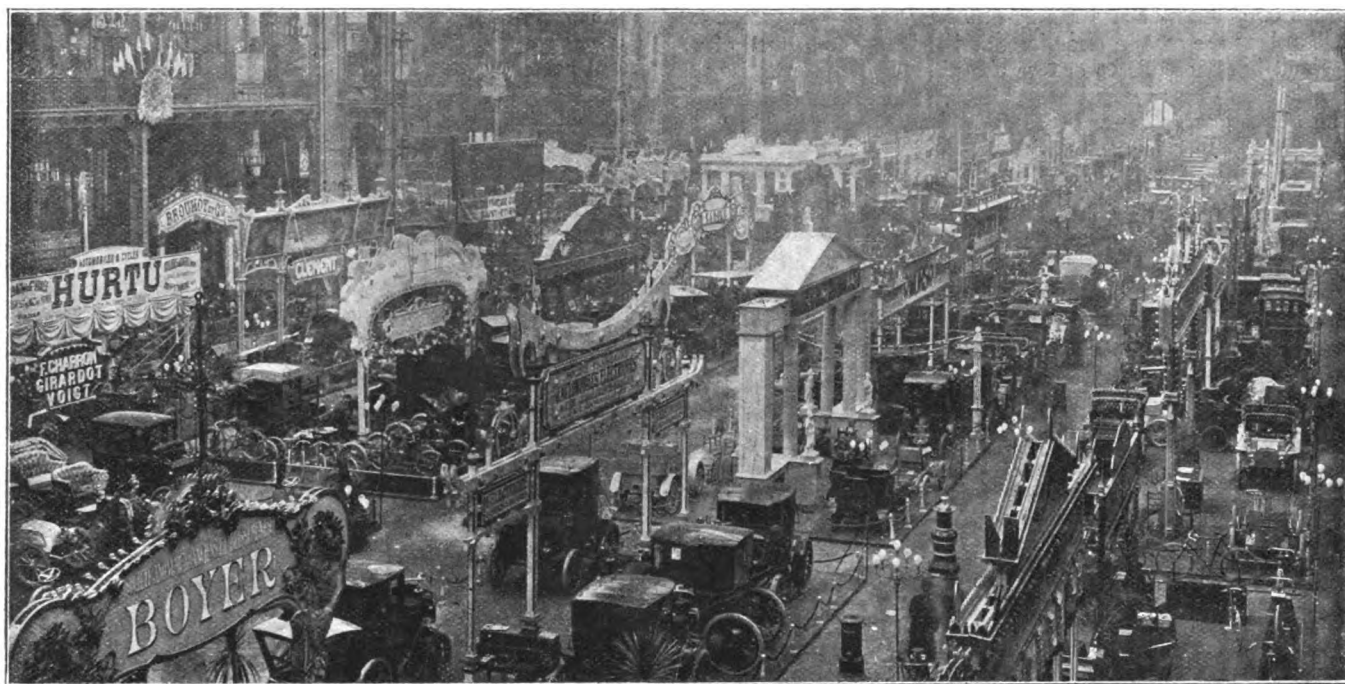
MR. RUDYARD KIPLING's story entitled "Steam Tactics," noticed last week, was not wholly devoted to the performances of steam-propelled vehicles, both artist and author introducing a petrol vehicle in concluding the incident.

MESSRS. CHARLES LETTS AND COMPANY, the well-known diary publishers, are about to issue a special book for the use of motorists generally. This book, besides other useful features, will contain a list of recommended hotels whose proprietors are anxious to cater for motorists, and who have agreed to a fixed charge for stabling, etc.; a list of recommended repairers, and also names of agents where petrol may be obtained. The proprietors of any hotels wishing to have their names included in this book should write at once to the Editor of the Log Book, care of Messrs. Charles Letts and Company, 3, Royal Exchange, E.C.

The Paris Motor-Car Exhibition.



(Continued from page 789.)



GENERAL VIEW OF THE SALON.

PANHARD and Levassor have several innovations which are remarkable, and we had the good fortune to visit their stand early on the opening morning, when Chevalier René de Knyff and the Commandant Krebs were there. The most noticeable feature of the exhibit is the introduction of a chassis fitted with a three-cylinder motor. This is of 8 nominal h.p., the cylinders and cylinder head being cast in one piece; the exhaust and induction valves are on opposite sides of the cylinder head. The high tension system of electric ignition is used, but in order to insure against the trouble of discharged accumulators a small dynamo

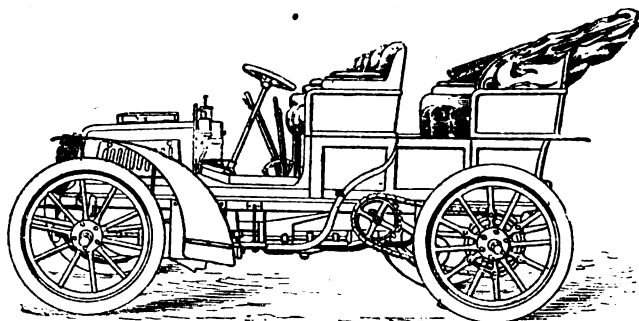


FIG. 1.—THE 15-H.P. LIGHT PANHARD DOUBLE PHAETON.

driven off the flywheel of the motor is provided. The function of this dynamo is to keep the accumulators fully charged at all times. A friction-driven pump of standard pattern is still used for the water circulation, but in conjunction with a Mercedes type of cooler and an entirely enclosed engine, air being drawn through the apertures of the cooler and past the motor by vanes attached to the periphery of the fly-wheel. Governing is by a throttle on the inlet pipe, and both the amount of throttle and the time of ignition can be regulated to a nicety by the driver by means of two convenient disc wheels ingeniously arranged on the steering wheel.

Georges Richard's exhibit comprises three new models, a 12-h.p., a 24 h.p., and a 40-h.p. The first has a two-cylinder engine, with magneto ignition and a new starting arrangement. The 24-h.p. car has two twin 12-h.p. engines, and the 40-h.p. vehicle has a stamped steel frame, four-cylinder motor, regulator acting on the admission and worked from the steering wheel, magneto ignition, and powerful brakes.

Serpollet is still far ahead of all competitors in heavy steam touring cars, and this year he has reduced the weight of his

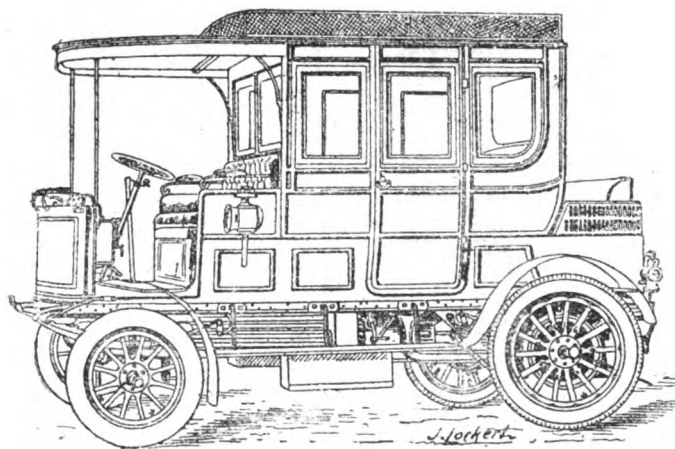


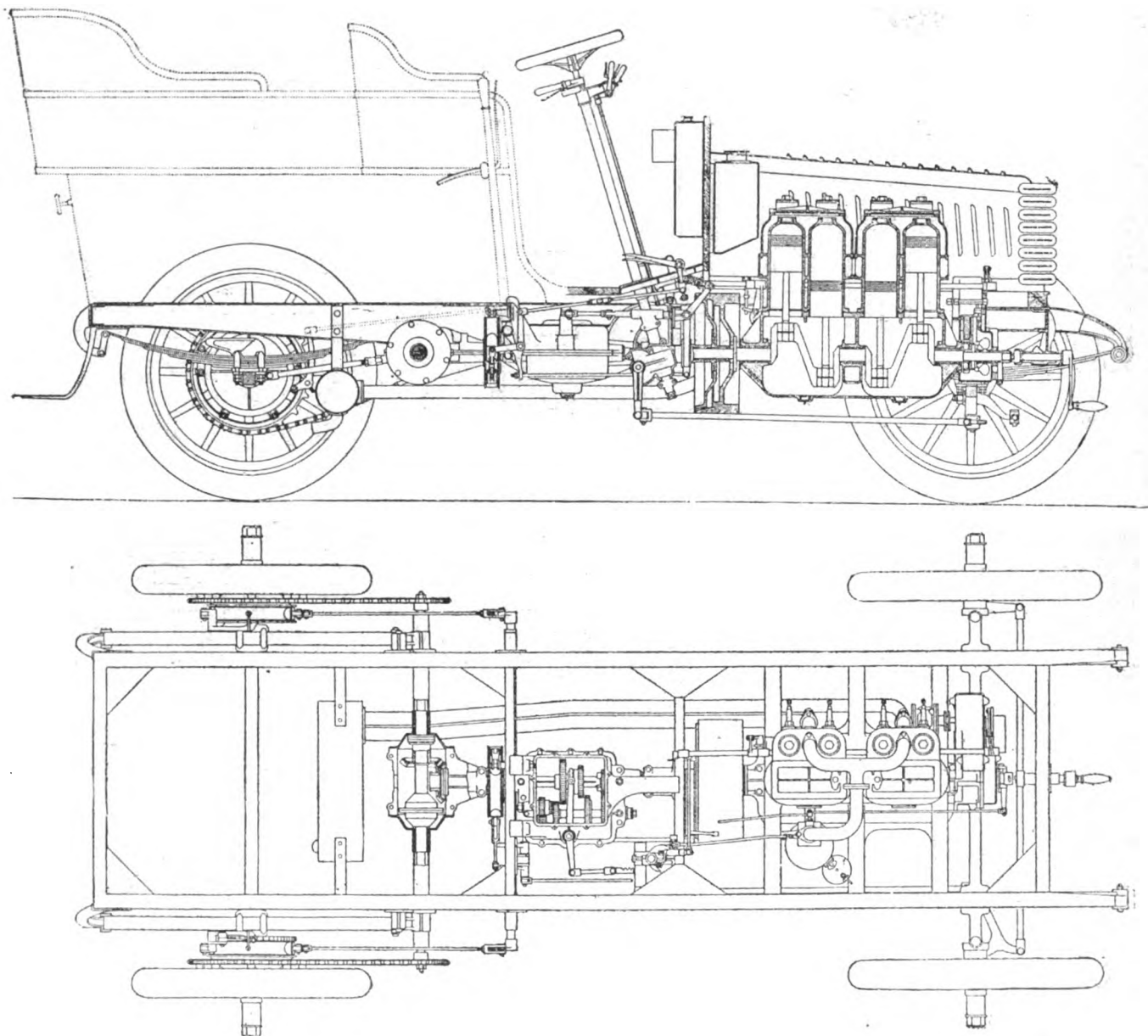
FIG. 2.—THE SERPOLLET BERLINE.

chassis considerably. Last year's 12-h.p. car weighed 1,000 kilos, whilst this year the 40-h.p. car weighs 920 kilos in touring trim, and 820 kilos in racing order. In the new chassis the boiler is very much lower, while the heating surface is the same, although there are fewer elements in the boiler. The cam shaft on the engine has been done away with, and in its place the pump is worked by an eccentric motion and a slide valve, which gives an easier and better speed regulation. Serpollet also exhibits an

omnibus with a 20-h.p. motor, to carry fourteen people at an average speed of from fifteen to sixteen miles per hour.

La Société des Automobiles Delahaye exhibit two new types of vehicles with vertical engines of 12-h.p. and 24-h.p. respectively. The Delahaye Company have not given up horizontal engines altogether, for they are still fitting them to the larger types of cars, such as omnibuses and delivery vans. The 12-h.p. vertical motor has two cylinders and the 24-h.p. four. The cylinder and valve chambers are cast in one piece, and the head is formed of a plate which is removable to expose the pistons. The cylinder is water-jacketed down to about two-thirds of its length, and below this the air circulates around the motor, to be warmed before

stamped U-shaped frame, throttle and advance ignition worked by two levers in the steering wheel, thus combining all the novelties of the year. The radiator has the air drawn through it by means of a fan placed just behind. The steering pillar is of a novel form; it is conical in shape, tapering towards the steering wheel. The carburettor is the smallest and most compact that we have observed; of course, the regulation is done by the carburettor, which consists simply of a float feed, with a wing tap at one side. The air is drawn in on one side of the wing, and passes the petrol jet; on the other the air alone comes in, and by varying the wing either can be altered at will as well as the admission of the mixture into the cylinder. It is the acme



FIGS. 3 AND 4.—ELEVATION AND PLAN OF THE NEW DELAHAYE 24-H.P. CAR.

entering the carburettor. The cranks are set at 180 degs., and the engine is further balanced by dividing the weight of the flywheel on each end of the crankshaft. In both the 12-h.p. and 24-h.p. engines the cylinder diameter is 100 mm. and the stroke 140 mm., the normal speed being 950 revolutions per minute. A noticeable feature of the vehicles is the independence of the motor, change-speed gear, and differential, each of which may be removed without interfering with the other. The countershaft carrying the differential is solidly bolted to the sides of the frame, and is connected with the rear road wheels by chains.

Mors shows two new models—the 11 and the 18-h.p.—with mechanically-worked admission valves, honeycomb radiator, steel

of simplicity, and if it works as well as report would have it, there is little further improvement to be made in that direction.

Messrs. Mildé and Co., in addition to a number of electric broughams, landaus, omnibuses, etc., display a new combination petrol-electric car, one of which is expected to be shortly seen in London.

La Minerve Company, of Billancourt, exhibit, among other vehicles, a little car driven by a single-cylinder water-cooled 6½-h.p. engine. The valves are all mechanically operated. The power is transmitted through a clutch to the gear box, and thence by a universally-jointed shaft and bevel gear to the live axle. Three speeds and reverse are available.

M. Darracq explained in person the novelties which his firm are putting on the market next year, and it may here be remarked, by the way, that no less than 1,050 Darracqs have been turned out at Suresnes in 1902, and that actually there are a series of 1,200 cars passing through the shops for next year. There are to be four models—a one-cylinder 8-h.p., a two-cylinder 9-h.p., and two new cars with engines having mechanically-operated valves, one of them a two-cylinder 12-h.p. and the other a four-cylinder 16-h.p. The frames of these two cars are of U-shaped steel, and the motors are provided with honeycomb radiators

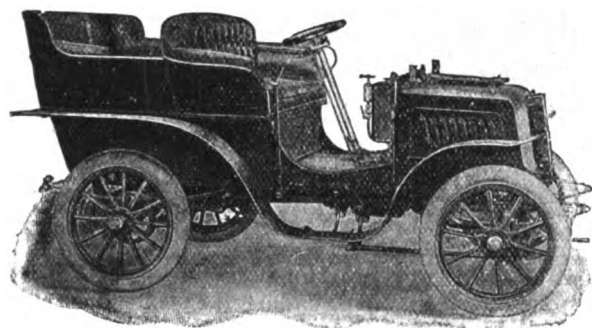


FIG. 5.—THE 12-H.P. DARRACQ.

throttle carburetors, worked by a lever on the steering wheel, and all the other Mercedes improvements. M. Darracq claims that these cars are even more silent and supple than the Cannstatt vehicles. There can be no doubt but that the transformation of the Darracq is complete.

Renault Frères exhibit a new four-cylinder 14-h.p. chassis, with a tubular frame and ordinary radiator, but, not satisfied with blindly following the mechanically-driven valve of the Mercedes, the Renaults have gone one better. They have constructed a

done in quite a novel manner. In the first place, oil is placed in the base chamber and thrown up by the revolving cranks. This oil falls and is collected in three tanks, through which it runs out to the bearings; thence, by means of holes in the hollow crank shaft, it runs down the cranks by centrifugal motion, and in each crank there is a hole which allows the oil to be thrown out into the cylinder.

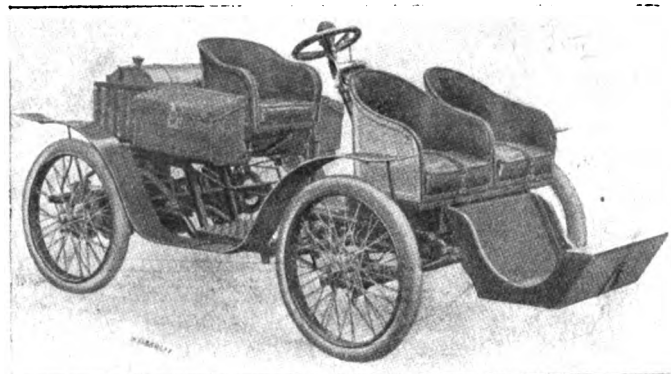


FIG. 6.—THE BOULET QUADRI-VOITURETTE.

An interesting development of the quadricycle is to be seen in the "Quadri Voiturette Suspendu" shown on the stand of Messrs. Boulet and Company. Three types are made—4-h.p. and 5-h.p. for two persons, and 6-h.p. for three riders, the latter being illustrated in Fig. 6. The motor, which is water-cooled, is located at the back, and drives the rear axle through a clutch and two speed gear.

Decauville shows a 16-h.p. four-cylinder, mechanically-operated inlet-valve car with a Mercedes frame. The engine is

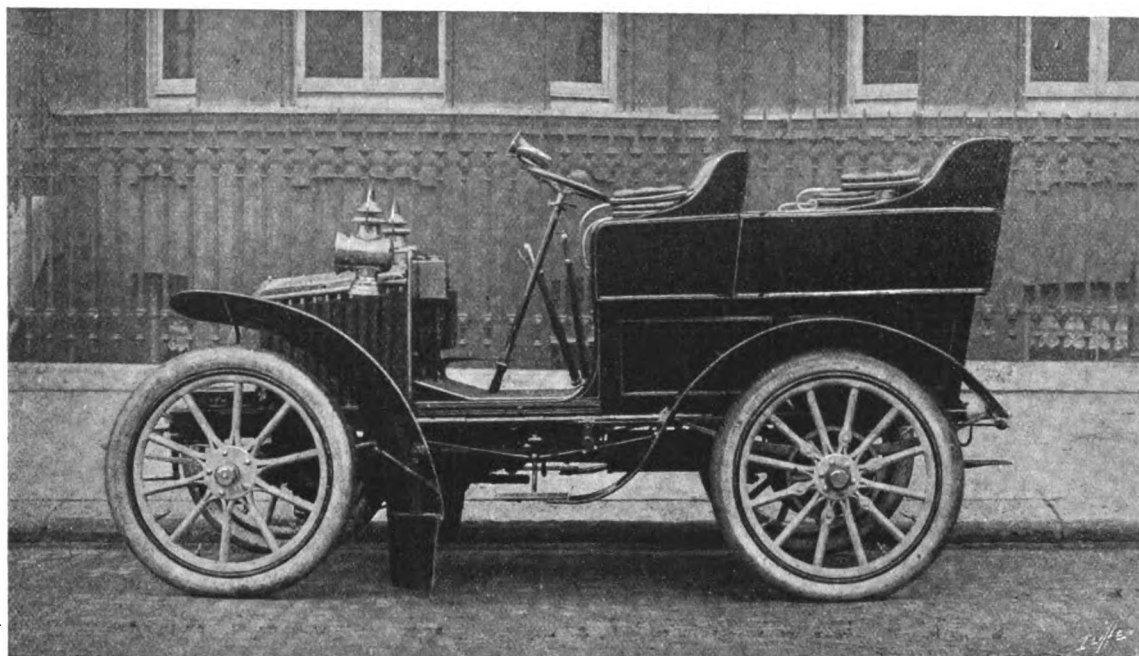


FIG. 7.—THE NEW 9-H.P. RENAULT.

mechanically-actuated admission valve, in which the lift is not only positive but also variable, and they regulate the speed of the car by varying the lift of the inlet valve, either by hand or by foot or by an automatic governor, and this appears to be a distinct advance. It is true that they admit that mechanical valves with them do not produce quite the same power as the automatic valves, but the other advantages are counterbalancing. All the brakes of the Renault car will in future act inside instead of outside a drum.

The lubrication of the cylinders, crank-shaft and cranks is

exceedingly compact, or, as they very aptly describe it in French, "très ramassé," there are three speeds and a reverse, controlled by one lever, and, of course, the direct drive for the third speed. The back axle is mounted in a novel manner, the wheels being free to revolve on the outer fixed tube and being rotated by the inner shaft, which at each extremity has a cap with notches cut in it. These notches engage in corresponding ones in the hub of the wheel. The advantage claimed for this system is that the centre shaft can be withdrawn, and the wheels then are quite free and can be taken off. The

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rear suspension of the chassis consists of three springs, two of which are parallel with the side frame of the car and attached to it at the front end of the springs only. The third inverted spring at the back is across the frame of the car and connected to it at the centre, the two ends being attached to the loose ends of the two other springs.

The new 18-h.p. chassis which the Peugeot Company are showing has attracted a great deal of attention, and is really deserving of it. The frame is of U-shaped steel, and at once strong and light. The four cylinder motor has, of course, mechanically-operated valves and the cylinders are fitted with

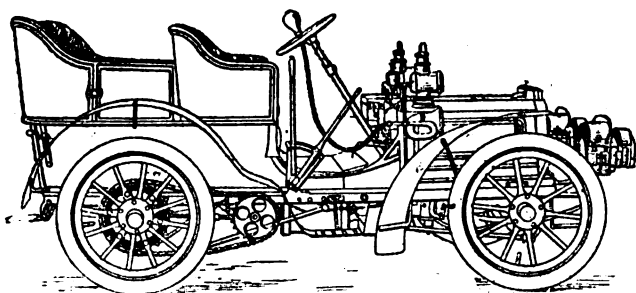
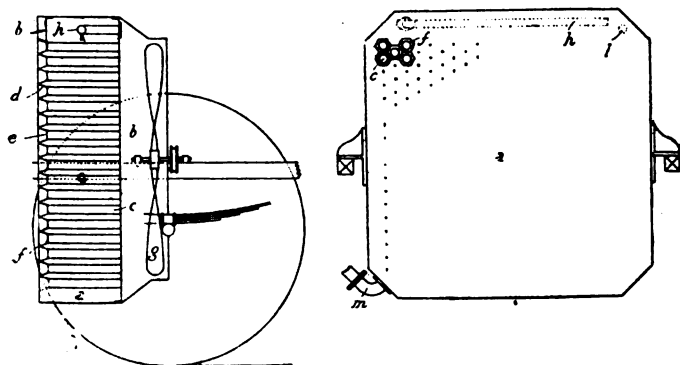


FIG. 8.—THE 18-H.P. PEUGEOT.

both magneto and electric ignition. The former is extremely simple, and consists of a rocking lever pivoted on a pin which enters the side of the explosion chamber and carries the contact breaker. It is silent in its action and entirely dispenses with the clicking noise usual with most magneto ignitions. The radiator (Figs. 9 and 10) is of the honeycomb type with a fan behind it driven by a belt; the speed regulation is accomplished by means of a throttle valve, worked by a hand lever on the steering pillar. The transmission is by chains, and there are four speeds forward and one reverse; the fourth speed is direct and without the intermediary of different sized pinions. The suspension of the gear box is well thought out. The differential shaft supports it at one end and it is held at the other on two points, one at each side.



FIGS. 9 AND 10.—SECTIONAL ELEVATION AND FRONT VIEW OF PEUGEOT HONEYCOMB RADIATOR.

The Rochet-Schneider car has been almost entirely inspired by the Mercedes. In one direction, however, the Cannstatt lead has not been followed—the frame is of armoured wood. The four-cylinder motor has mechanically-actuated valves and the ignition is by magneto with a rupture in the cylinder. In this case there is a long vertical rod, worked by a cam on the second speed shaft, which turns this rod round, a spiral spring twisted round it bringing it back with a jerk; the top of this rod carries a little hammer, which strikes on a pivoted lever placed on the top of the valve chest and traversing it. This pivoted lever is held in position by a small spring, and when the hammer strikes it the rupture in the cylinder is made, while the small spring brings the contacts together again. The ignition is advanced or retarded in an ingenious manner. On the top of

the four vertical rods already mentioned there is a bar sliding forwards and downwards at the same time. This bar presses down the rods in such a manner that the cams on the second-speed shaft attack them earlier and thus make the blow which causes the rupture and spark earlier. Should the motor have a back explosion and reverse the whole motion is put out of gear, and no further spark occurs. The transmission is by chain, and the change-speed lever works on two sectors like the Mercedes and has a lateral as well as longitudinal motion. There is, however, no rack and pinion movement as in the Mercedes, but a new and original method of accomplishing the same result. The two "train balladeurs" (for, of course, it will be understood that in change of speed gears of the Mercedes type there are always two sets of sliding gears instead of one set, as in the Panhard type) are each worked by a rod, and the two rods project from the gear case and each carries at its extremity an open stirrup. The change-speed lever has a side motion which allows it to engage with either stirrup or to pass between the two without engaging with either. One rod has three positions coinciding with the 4th, 3rd, and 2nd speeds, and the other rod has two positions corresponding with the 1st speed and the reverse motion. The clutch spring of the car is placed alongside of the side frame instead of behind the clutch. It can thus be seen and can be regulated instantaneously.

The Fabrique Nationale, of Herstal, Belgium, after turning out several experimental types of cars during the past two or three years, are now putting on the market a light car which presents some interesting features. The new vehicle is driven by a 16-h.p. (nominal) engine of the four-cylinder vertical type. One of its special features is that it is probably the slowest engine fitted to a vehicle of this class, its normal speed being only 650 revolutions per minute. The engine is of extremely simple construction, with every part enclosed in accordance with modern practice. Another interesting feature about the car is the change speed gear. It is adapted to give three forward speeds with a direct drive on the top speed. It is composed of two triangular pieces known as a "cavalier," and they swing to the right and left on a shaft at the apices. At each of the bottom angles they are connected by shafts carrying wheels for the first and second speeds, and the triangular pieces are cut away between these shafts for the passage of the motor shaft. By moving the "cavalier" one way or the other either the first or second speed wheels are put in gear with the pinions on the motor-shaft, and when the triangular pieces are moved to a vertical position, so that neither of the side wheels are in mesh, the drive is direct through the central shaft. The gear is very small and compact and runs in an oil bath. Power is transmitted to the rear live axle by a longitudinal shaft, in which the usual Cardan joint is replaced by an expanding joint, which is claimed to be stronger and more efficient. The shaft is, moreover, carried in a sleeve extending from the differential box.

Messrs. Vinot and Deguingand, of Puteaux, are turning out three models for 1903—a 10-h.p. two-cylinder car, with ordinary inlet valves, a 14-h.p. car, and one of 18-h.p. Both the latter have four-cylinder engines in which the inlet valves are mechanically actuated and interchangeable with the exhaust valves. The governor acts on the admission and a wide range of motor speed is obtainable by means of a hand moderator and a foot accumulator. The change gear is of the one-lever control type, and gives four forward speeds and a reverse, the power being conveyed from the differential shaft to the rear road wheels by a couple of chains.

Messrs. Henri Popp and Company exhibit a car they have built for use as a "Poste Ambulant" in connection with the Branly-Popp system of wireless telegraphy.

Messrs. Turgan, Foy and Company, of Levallois-Perret, this year confine their exhibit to heavy steam wagons, one having a wooden van body, specially fitted up for the transport of horses.

(To be continued.)

PARIS SHOW GOSSIP.

MANY are wondering if any English visitor will be lucky enough to win the 6-h.p. Gillet-Forest voiturette, which forms the first prize in the Tombola.

ON one agent's stand we noticed an 18-h.p. Mors, stated to be built for the Empress Eugenie, while on another is a 28-h.p. Panhard for the King of the Belgians.

UP and down the show are a number of racing cars which have made themselves famous one way or the other, and they have been keenly criticised by English visitors. Among them may be mentioned the Renault racer which won the Paris-Vienna race, and the Mors on which Augieres recently established a new kilometre record.

AS at all shows, there is among the "wheat" at the Salon a good deal of "chaff," to cover up the defects of which frequent use of the paint brush is made. English buyers need to exercise great care when dealing with concerns of whose names little or nothing has been heard before.

THE Gillet-Forest Company is among the few French builders who still pin their faith to the horizontal engine. These cars have, by their special bonnet and radiator, a distinctive appearance, and large numbers are to be seen in use in Paris.

A CARD bearing the words "English spoken" is to be seen on nearly every stand. The "Velo" refers to the large number of English and American visitors as the "note dominante" of the 1902 Salon.

THE British War Office Committee on Mechanical Traction has been busily engaged in going the rounds of the exhibits, and on Friday last week had a trial run on one of the Turgan-Foy steam wagons. It may be mentioned that one of the heavy vehicles on the Turgan stand has been built for Messrs. Kynoch, of Birmingham.

WE met quite a number of English motor-car agents on the look-out for a reliable little car to sell at about £150. There are quite a large number of voiturettes on view which could be sold at this price, but it remains to be seen whether they can be classed as "reliable." However, a number of different makes of these "populars" are likely to be soon seen in England.

SUNDAY last was a record at the Exhibition as regards attendance, over 60,000 persons visiting the Salon. Close inspection of the cars was impossible, the gangways between the stands being simply impassable. As for the gallery, we attempted to get round, but so thick was the crowd that we got blocked for nearly half an hour, and were glad to get out into the fresh air.

CLOSE upon eighty members of the Automobile Club and friends went over to Paris via Boulogne on Wednesday last week, while the party on Friday numbered over 120. Apparently, the French Customs authorities had got wind of the invasion, for the staff at the *douane* had been increased, and quite a number of the "foreigners" had to pay duty on the cigars, etc., they had with them.

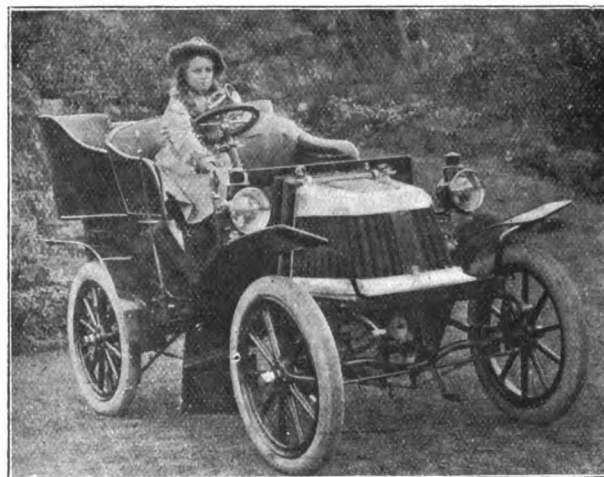
THE King of the Belgians was among the visitors to the Salon on Friday last week. The visit was quite without ceremony, the Royal motorist examining closely the new models of the large makers.

THE scene outside the main entrance to the Grand Palais all day long is of a most active kind—motor-cars and horse-drawn

vehicles following one another in a continuous stream, setting down visitors. The cars drawn up opposite the Petit Palais form no small exhibition in themselves. The Salon closes at 6 p.m., and at that hour one evening this week we counted no less than 117 cars awaiting their passengers, the queue extending from the Alexandre Bridge into the Avenue des Champs-Elysees.

MANY of the stands are most artistically decorated and at dusk are illuminated with an elegance and delicacy of colouring which gives the whole show a charming effect, especially when viewed from the gallery. There is one great drawback, however, in the all-pervading dust. Such a fine building as the Grand Palais is surely worthy a better flooring than loose dusty gravel, which is not only tiring to walk upon, but speedily covers every body and everything in a thick layer of white dust.

AMONG the new departures in the Panhard cars, it may be noted that the starting gear has received attention with the object of making it much easier to turn round the big motors which are now essential to an efficient automobile. Looking at the front of the car, on the left-hand side, just by the starting handle, there is a little knob like a tiny door-handle forming the end of a rod, which can be drawn out or pushed in at



A YOUNG ENTHUSIAST ON AN ARGYLL CAR.

will. This rod is attached to a cone which slides inside the valve cam. The cam in itself is in two pieces, one of which pivots on the other, and can be displaced by the sliding cone in question. The displacement of this part of the cam causes the valve to keep open for an interval more or less considerable, and thus reduces the compression and makes it easier to turn the handle.

THE ninth annual meeting of the National Traction Engine Owners' and Users' Association, of which Mr. John Allen is chairman, has been held at the Agricultural Hall, London.

THE SIRDAR RUBBER COMPANY, LIMITED, makers of the patent buffer tyre, have received the appointment of tyre manufacturers to the King.

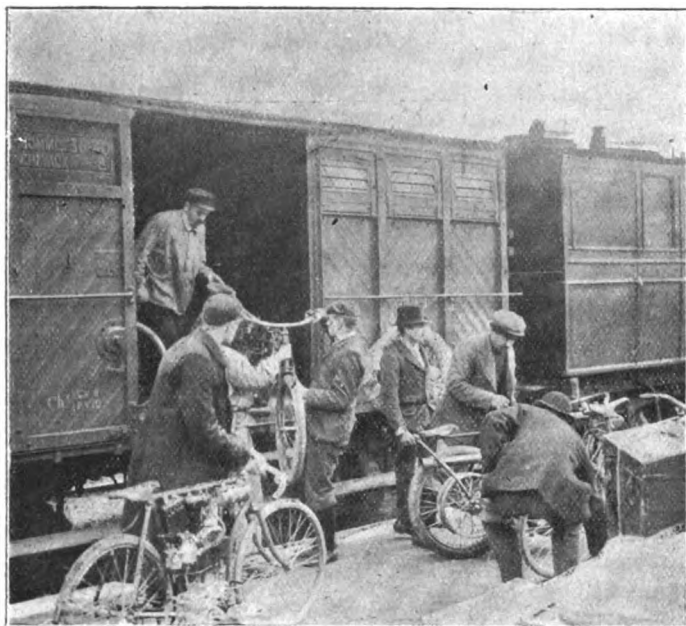
DESPITE the protest of County Councillor Jones, who has seen motor-cars rushing about "barking like dogs," the Holywell Urban Council has declined to adopt a resolution seeking to interfere with the present condition of things.

MR. KENNETH A. SKINNER has established a new record, reducing the net running time for the journey between Boston and New York and back, a distance of 488 miles, to 32 hours 22 min., or 8 min. better than the previous record. The car used was an 8-h.p. De Dion.

MOTOR-CYCLING NEWS.

TO-MORROW (Sunday), the weekly run of the Motor-Cycling Club will be held, the destination being Hertford. A start will be made from the Marble Arch at 10.30 a.m. The annual dinner of the Club will be held early in January, with Mr. S. F. Edge in the chair.

MR. J. BERRYMAN is enthusiastic in praise of the motor-bicycle as a helpmate to the angler. Distance is the chief obstacle to the angler's enjoyment, and distance the motor-bicycle goes a long way towards annihilating. And then the feeling of independence it gives! You are off at a moment's notice and your progress is a sport of itself. Indeed, the two sports blend delightfully. "Once the motor-bicycle under your control, think how independent you will be of train or trap. Arbitrary hours, inconvenient stations, delays, ticket-takings, and cold-catchings, how I miss them all, and do not want either! And how I go right to the water's edge without a timetable and without a groom! And how restful it is, your angling over and the shades creeping on, to sit on your spring seat and let your steed glide you joyfully homewards without whip or cord."

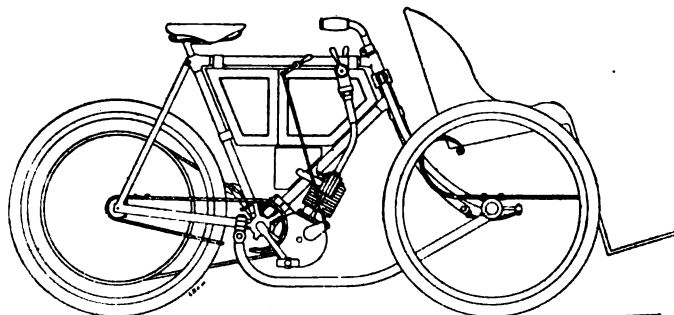


A SNAP-SHOT AT DIEPPE.

MR. T. EVANS, of Garston, has been giving his views on motor-bicycles to the members of the Liverpool and District Cycle Trades' Association. He said he had come to the conclusion that 1½-h.p. was ample, except when a trailer was to be used, in which case he recommended an engine of 2-h.p. Bicycles with engines more powerful than those he had named were generally heavy and cumbersome. He had weighed several machines, with the following results: A 1½-h.p., all on, came out at 100 lbs.; 2-h.p., 120 lbs.; and 2½-h.p., 170 lbs. Dealing with trailers, Mr. Evans pointed out that when used in conjunction with motor-cycles they should be provided with two brakes. Subsequent speakers in the discussion included Mr. J. Edge, of Liverpool, who preferred the spray carburettor and the spring type of valve. For general purposes, he recommended a 2-h.p. engine. Mr. Edge expressed the opinion that the millimetre system of measurement should be at once adopted. Compared with the system of measuring by inches, it was simplicity itself. Mr. G. B. Mercer (managing director of Robinson and Price, Limited) advocated the free loan of motor-bicycles to prospective customers. The sale of English engines should be encouraged; the work in them was generally better than in the foreign makes. Mr. T. H. Lancaster (hon. secretary Liverpool Motor C.C.), and Mr. W. Corbett (St. Helens), also spoke.

IN the annual New Year's midnight ride from New York, to Yonkers and Tarrytown the Associated Cycling Clubs of New York will this year include a special class for motor-bicycles.

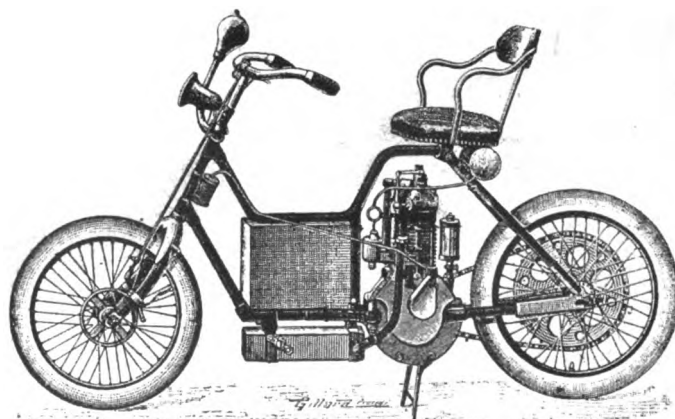
AMONG the newest attachments for converting motor-bicycles into three-wheeled vehicles for two persons is that which has been introduced by Mr. Leonard Straker, of Farnborough, Kent. It consists of a comfortable seat attached by C-springs, at the ends



of which are mounted forked lugs. The latter carry, on centre-pin hubs, so that, when steering, the seat is not moved, the wheels turning on their hubs as in a motor-car. The axle is attached to the frame of the machine by three tubes, two running to a single clip on to the head tube and one to the back forks just behind the bottom bracket, as shown in the illustration, in which part of the chain and chain wheel are broken away to show the method of fixing. The rear rider is not hampered in any way, the centre stay being carried underneath the motor, leaving him as free as when riding an ordinary bicycle. The steering is arranged from the forks of the machine, a distance piece being bolted between them, carrying on it a socket between which and the left hand side hub is arranged a rod with a socket joint at each end. No strain whatever is thrown on the front forks, with the exception of that required for steering.

THE motor-cycle section of the Austrian Touring Club will next year organise a number of motor-cycle events, including a 10 kilometre hill-climb (Schwettwein-Semmering), a 90 kilometre consumption trial (Vienna-Semmering), a 100 kilometre road race (Vienna-Pressburg and back), and a 100 kilometre race on the Vienna Prater track. The entries will be limited to motor-bicycles weighing under 50 kilogs.

THE "Auto-Fauteuil," or the arm-chair motor-bicycle, illustrated herewith, is one of the novelties at the Paris Salon, where



it is exhibited by Messrs. Gauthier and Company, of Blois, France. The motor is of 2½-h.p., and drives the rear wheel through a clutch and chain. The usual pedals are not fitted, the engine being put in operation by means of a detachable handle. The framework is low, the rear wheel being 23in. in diameter, and the front wheel 19in. The motor is fed through a spray carburettor, and control is effected through the sparking advance and throttle levers. A compression tap is also provided.

CONTINENTAL NOTES.

BY "AUTOMAN."

STANDING by the Peugeot brougham shown in the accompanying photograph is M. Armand Peugeot, whose work in connection with automobilism is well known both on the Continent and in England. He was born in 1849 at Valentigney, and after passing through college in France went to England to gain experience of the methods and practice of British engineers. When he returned to his native land in 1871, it was to take a prominent position in the works established by his father and uncle. Five years later M. Peugeot turned his attention to a self-propelled tricycle, but soon abandoned it for heavier types of motor vehicles. Experiment followed experiment, until the Paris Exhibition of 1889. About that time M. Armand Peugeot came into contact with the late Herr Gottlieb

THE field of utility of the automobile seems to be enlarging continually, and the possibilities of the future will no doubt disturb our grandmotherly legislators into framing useless preventative legislation in more directions than in the regulation of speed and the application of the obnoxious number. According to the latest automobile sensation in Paris, it will be no doubt advisable to frame a Bill for the prevention of elopement by motor-car, in which no doubt one of the clauses will be the compulsory bearing of a distinctive badge by all eligible young *chauffeurs*. Monsieur Maurice Marcile is a rising Parisian medical man in love with Mademoiselle Le Play, whose parents, however, had other matrimonial designs for their daughter and refused to consent to her marriage with the young doctor. In France a marriage cannot take place without the parents' consent, and in order to obtain the same Dr. Marcile imagined a scheme in which an automobile played a leading part. He retained a motor-car at one of the garages in the Avenue de la Grand Armée and had it kept in readiness with a relay of drivers, so that on the first

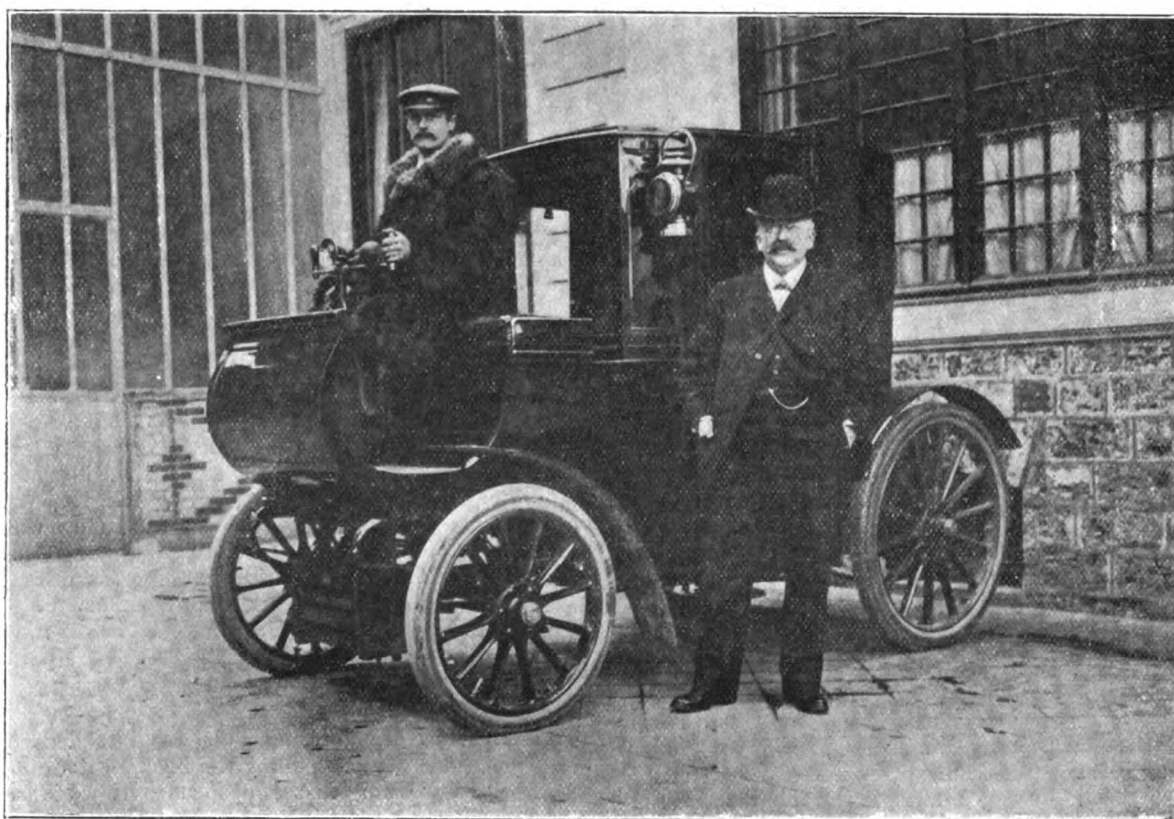


Photo by]

M. ARMAND PEUGEOT.

[Mr. C. Friessell.

Daimler and the late Monsieur Emile Levassor, who drew his attention to a light carriage propelled by a Daimler engine that did its duty very well indeed, so far as was considered "well" at that comparatively remote period. M. Peugeot at once recognised the value of this engine, and with characteristic energy co-operated with M. Levassor in promoting its successful application to motor road vehicles. Working quite independently, he soon produced successful vehicles; indeed, the first petroleum spirit motor-car to successfully undertake a long journey was made by the Peugeot firm. This was in 1891, when the now celebrated Peugeot car made its historic journey from Valentigney to Paris, from thence to Brest and back to Paris, and ultimately again to Valentigney, accompanying the competitors in the first great long-distance cycle race held in France, and reaching home, we are assured, in excellent condition. Since then the progress of M. Peugeot and the vehicles associated with his name have become the common knowledge of all who follow the history of the automobile movement.

call by telephone or otherwise it could appear on the scene of action. Enlisting the help of several friends, an occasion was awaited when the young lady was out walking, and then the motor-car was telephoned for. The young lady, who did not seem unwilling, was seized, and in spite of the screams of her governess, carried off in style in the automobile, which made for Chantilly on the fourth speed. At Chantilly friends were waiting for the party, and subsequently the lovers went off to Italy to await events and give time for the wrath of the parents to subside. A happy ending, of course, was the end of the adventure, and the fugitives couple are to be married shortly.

It is a moot question whether or no driving certificates for automobilists are of any use. Certain it is that the most incompetent driver can get a certificate with the greatest ease. Personally, I have been driving motor-cars in France for the last four years, both in Paris and in the provinces, without having a certificate at all, or without even being asked if I had one. I started

with a 4-h.p. Hurtu and passed through the whole gamut of powers up to the 40-h.p. Mercedes, and I have driven from Stuttgart in Germany to London, through Paris, and indulged in the higher speeds to my heart's content. For a long time past I have been seriously thinking of applying for a "permis de conduire," but my difficulty has always been that the formalities to be gone through in Paris are annoying and the time for the test run is uncertain, so that as I travel a great deal I can never be certain to be available when my turn comes round. Under these circumstances I determined to apply for a certificate in a provincial town, where the whole business could be got rid of in a few hours. A friend of mine in the town, which for obvious reasons shall be nameless, made the appointment for me and lent me his car, a one-cylinder 5-h.p. car, which I know nothing about, but which has an adjustable carburettor which you have got to thoroughly understand before you can drive the car; in addition to this, the change of speed lever and gear was quite different to that in the usual run of cars. Five minutes before the inspector turned up I had a run round, which convinced me that I should require a day or two's acquaintance with the car to be able to make anything of it. When the inspector arrived, however, I took the heroic resolve and the steering wheel, and off we went on the first speed. It was freezing keenly and the inspector had no furs. One turn round the town, never off the first speed, was quite enough for him, and I was the happy possessor of a certificate authorising me to drive any petrol car in France.

THE question of the efficiency of mechanically-operated inlet valves is occupying the attention of automobile circles in France as well as in England, and there is the same difference of opinion here as there is in England. All makers admit that they are more suitable for motor-cars, but on the question of efficiency opinions are divided, for the results obtained in different cases have varied considerably. I had a long talk with Monsieur Darracq on the subject, and he informed me he had found an increase of 10 per cent. in the power of his motors, attributable to the adoption of mechanically-operated valves. The secret of success, says M. Darracq, is in not allowing the inlet valves to open too soon, but to let the piston first begin its suction stroke and then opening the valves sharply. Marcel Renault, on the other hand, judges that he loses power by operating his inlet valves mechanically. Monsieur Gaillardet attacks the question in an article in the "Bulletin de l'Association Generale Automobile," and he seems to think that the delicate question is the moment at which the inlet valve should be closed, and he seems to imply that this precise moment is better left to the automatic valve to fix for itself. In M. Gaillardet's opinion fashion has a great deal to do with the adoption of the mechanically-operated valve, though throughout the article he is very guarded and does not express a distinct opinion as to the efficiency of the one or the other.

Two events of interest to aeronauts close the year in a seasonable manner. In the first place, the unfortunate disputes which divided the French Aero Club at the time of M. Santos Dumont's now historic experiences in the navigation of the air which culminated in his rounding the Eiffel Tower and securing the Deutsch prize of 100,000 francs, have been arranged with satisfaction to all parties. The hatchet has been buried and M. Dumont (the prodigal son, as the "Auto-Velo" calls him) has re-entered the Club, and has been promptly presented with the gold medal of that Association and the congratulations alike of his friends and late adversaries, and thus the regrettable incidents which raised such journalistic polemics have ended happily. The other event is the hibernation of the "Lebaudy Air-Ship," which is now doing its winter slumber in a shed on the banks of the Seine at Moisson. It should first have made a trip to Mantes and back, and to witness this event a party of Parisians set off by automobile and by train last week, and assembled on the estate owned by the Lebaudys. However, Jack Frost arrived before them, and had done his work so completely that it was

found impossible, even after prolonged efforts, to get the motor to turn, and the spectators, after standing shivering for some hours in the biting wind of the plain, returned to Paris. It has been decided to abandon the trial run until the spring time.

THE general meeting of the Association Generale Automobile was held last week at the Hotel Pastoret, Paris, and was presided over by the Baron von Zuylen, who, in his address to the members, told of the good work taken up by the Association in several directions, one of the chief of which had the object of studying and making records of the roads open for tourists, marking out the dangers and difficulties, choosing suitable hotels where members will be able to receive attention and buy supplies, and in general making the way more easy and agreeable for the tourists. The question of vexatious prosecutions was also gone into, and Maitre Guerinet, a barrister *chauffeur*, announced that gradually even the severest of the judges are beginning to cool down, and are actually sometimes giving judgments in favour of the automobilists instead of, as formerly, ruthlessly condemning them without a hearing. Whilst referring to the A.G.A., I would like to call the attention of English *chauffeurs* who sometimes drive in France to the effort the A.G.A. is making to mark off all the dangers of the roads by means of a set of painted signals which have been very cleverly designed to give an indication of the danger ahead. The cost of doing this is, of course, enormous, and it would be impossible for the A.G.A. to undertake it. The A.G.A. have therefore called for *chauffeurs* to subscribe to this expense in the following original manner. The average cost of a sign-post is twenty-five francs, and for this sum the A.G.A. undertake to set up such a post at the spot indicated by the subscriber of twenty-five francs and on the sign-post the name of the donor will be painted. It would be a graceful act for an English tourist, when he observes a difficult corner, a bad hill, an awkward *caniveau* or any danger of the same kind, to carefully note the spot and signify it to the A.G.A., and send a subscription of twenty-five francs for a sign-post to mark it.

THE automatic time recorder, invented by Mors and adopted by the A.C.F., and of which I gave a description last week, has been set into operation for the first time at Dourdan. As far as the recording instruments themselves are concerned, the results were satisfactory, but the automatic portion of the apparatus was a hopeless failure and had to be abandoned. The automatic part consists of a thin wire stretched across the road, which is intended to break as a car passes, and by pulling a lever set the apparatus in operation.

INSTEAD of operating as it was intended to do, this wire either breaks without pulling the hook, or does not break at all. But the worst thing that happened to it was, as reported last week, whilst Le Blon on a Serpollet was making his trial. The first wire broke and duly started the chronometers, and Le Blon came on at record speed, but just as he came up to the next wire a passer-by ran out of his way, snapped the wire, and spoilt the record. To add to Le Blon's misfortune and to prevent him having another try, his chain broke. The day's adventures were not confined to Le Blon, for Fournier, who was to attempt to beat the record on his Mors car, after spending hours thawing the ice which had gathered in the bends of his water-pipes, kept his motor running so as not to allow it to freeze again, but the distributing ignition cam becoming unkeyed, broke a tooth in the gear which drives the magneto, and put the car *hors de combat* for the time being. The following day, despite the intense cold, the trials were begun again, the Mors recorder being used, but worked by hand. Fournier twice over did the kilometre in 29 seconds, and thus tied the record which he could not break.

MAURICE FOURNIER, on a Carreau motor-bicycle, covered the mile in 1 min. 5 secs. (55.38 miles per hour), being a record for the 50 kilog. class, as was also Lamberjack's 39 1-5 secs. for the kilometre (57.06 miles per hour).

STEEL ROADS IN AMERICA.

WORK has been commenced on the first section of the experimental steel road, three samples of which are to be laid in New York under the direction of General Roy Stone, by subscription of members of the Automobile Club of America. The track is being laid in Murray Street, between Broadway and Church Street, New York. The necessary steel has been presented to the Club by Mr. Charles M. Schwab, of the Steel Trust. The idea of the steel road is simply that of

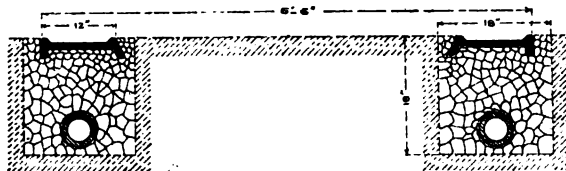


FIG. 1.—SECTION OF THE STEEL ROAD.

providing tracks for the wheels of vehicles and letting the horses, where there are any, walk between the tracks. The steel road, according to General Stone, is essentially a modern idea, especially adapted to the era of automobiles and other rubber-tired vehicles. A general idea of what the rails look like can be obtained from the accompanying illustrations. They are forty feet in length and one foot in width. At the outer edges of the upper side there is a rounded ridge a quarter of an inch in height which will serve as a guide for the wheels and yet may be easily overcome. The plates are three-eighths of an inch in thickness. The big flanges

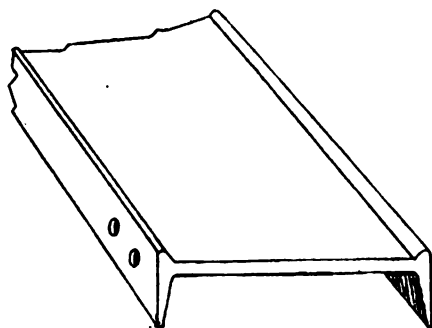


FIG. 2.—THE STEEL RAIL.

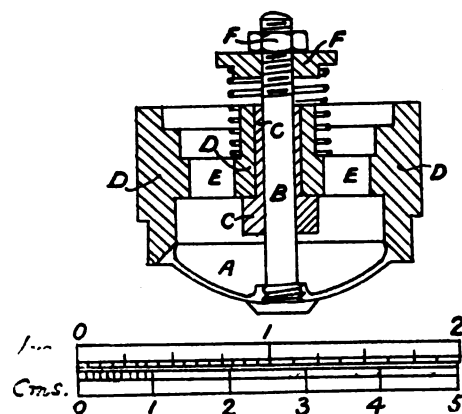
on the under side are 2½ inches wide, and are designed to be sunk into a bed of crushed stone so as to prevent the plates from side-slipping. In order to further assure perfect alignment fish-plates and binding rods will be bolted to the side plates underground, every thirteen feet. The ends of the plates, or rails, will also be bolted together. The rails will be laid with their inner edges 4 ft. 6 in. apart, or a distance of 6 ft. 6 in. over all. The foundation bed is 18 in. in depth and width. The larger stones are at the bottom and the smaller ones and gravel at the top. The foundation bed has a tile drain—an important feature of the construction. Considerable interest is being shown in the trials by American motorists.

AMONG the new members of the Automobile Club are Sir W. D. Pearson, Bart., Messrs. G. Montagu, M.P., and W. Younger, M.P., Sir W. B. Barttelot, Bart., and Sir C. Cameron, Bart.

At the annual meeting of the Dunlop Pneumatic Tyre Co., Ltd., last week, the chairman dealt at length with the subject of the Dunlop motor tyres, and in referring to the success they had recently achieved he pointed out that this was largely due to the intelligence, devotion, and application of Mr. John Gooding, the manager of the company's Para Mill.

THE COTHAM INLET VALVE.

IN our correspondence columns in a recent issue we published a letter from "H. C.," in which particulars were given of a novel form of inlet valve he has devised as a result of experiments with his 1½-h.p. motor-bicycle. Mr. H. W. Cotham, of Prescott, the gentleman in question, has, at our request, furnished us with the accompanying full-size sectional drawing of the valve. What led up to the idea was that Mr. Cotham noticed that while the motor of his machine was running, particularly at high speeds, there was a considerable amount of gas blown out of the mixing valve, this occurring in a series of puffs. At first he put this down to the inlet valve; and so reground it carefully, but that did not alter it in the least; then it occurred to him that the spring was too weak to overcome the inertia of the valve soon enough, so he fitted a stronger one. This decreased the amount of air blown back, but then the power of the engine was considerably decreased. He then designed a valve to be of less than half the weight though of the same strength. Referring to the



illustration, A is the dome-shaped head of the valve; B is the stem; C a brass liner, in order that a smaller stem may be fitted than that in the original valve; D is a standard 2½-h.p. De Dion valve seating; EE are the holes usually drilled in the seating to allow of the passage of the gas; FF are nuts to hold the spring in position and adjust the compression on the same. As will be seen, the shape of the valve is a part of a sphere, with the part of the sphere at which the seating is at right angles to the latter. The stem is 1½ in. long and 3-16 in. diameter, the valve seating is 1½ in. diameter and 3-32 in. broad, the dome is 1-80 in. thick, and the nuts on the stem ½ in. thick and ¼ in. across the corners. This works out at less than half the weight of the same size of standard valve, is just as strong, and, with a standard strength of spring, obviates the blow-back entirely without decreasing the power of the motor. Anybody may make use of the new idea, as Mr. Cotham informs us that he has decided not to patent the arrangement.

THE "K.C." MOTORS, LIMITED, has been registered with a capital of £20,000, to carry on business as cycle and motor manufacturers, etc.

ON Wednesday evening, in the Royal Institution, Colquitt Street, Liverpool, at the instance of the Liverpool Engineering Society, Mr. A. W. Brightmore, D.Sc., M.Inst.C.E., read a paper on "A New System of Motor Traction."

ARTHUR THACKERAY, aged twenty-five, a tramway-car conductor, in the employment of the Leeds Corporation, was getting off his car when he was knocked down and killed by a motor car, driven by Mr. Haydn Leigh, of Kirkstall. Mr. Leigh was not only unaware that Thackeray was about to cross the road, but he could not see him, owing to the tram-car obstructing the view, until he was upon him.

AN ENTHUSIAST'S FIRST MOTOR RIDE.

"GEE WHIZ," full speed ahead; we don't know anything about speeds, gears and combustion, but our driver does. He shall tell of these. Away from the "Wilds of Wales" and "Tally-Ho" first for Caerwent, the ancient Roman city, there to inspect bronze brooches, pottery, tessellated pavements and other objects, all fascinating to the antiquarian. After Caerwent we away for the Wye Valley and Forest of Dean. Are there many more beautiful rides than up the Wye Valley? Old Chepstow is soon left behind and we climb towards the Wyndcliffe, and then "Let her go" down the decline. Lovely Tintern is soon reached and then for Coleford. We fly through the Forest of Dean, while in the villages the sturdy coal-be-grimed miners smile at our car and jovial party. No high road motorists we, but by devious bye-ways and country lanes reach Newnham, where, in the old-fashioned, spotlessly clean and comfortable Victorian coaching inn, we take our ease for the evening, varied by a stroll to the tidal Severn.

The following morning we soberly proceed to Gloucester, and leaving, after a while, the Bristol main road, we again dive amongst the lanes and come out at Arlingham. Here an ancient house is our objective; its hoary walls and moat tell of generations long since gone. Once again we get under way, making for a dear old village green, Frampton to wit, the quaintest of old-



NAILSEA COURT.

time houses, timber-worked, with the oddest of gables, dwellings leaning this way and that, some supporting one another, others standing crookedly but cheerily alone, fit examples of a bright old age. Afterwards away to Dursley and Berkeley Castle. And now we get upon the Bristol road, and slide quietly down-hill into Bristol, where fresh petrol and stores will be obtained.

Next morning off to Avonmouth Docks, there to see the big work being commenced by Sir John Aird, and to find his busy representative, the general in command, marshalling his forces to carve out big docks, and so away again and good luck to "Bristol Redivivus." From Bristol we follow the high road for the west for a time, but soon betake ourselves to the bye-ways, for we seek for Nailsea Court, the home some 250 years ago of Major Wade, the defender of Gloucester against the Royalists, and after him the home of Rogers, the owner of the vessel which, being wrecked, left Alexander Selkirk alone on his island, and so gave us dear delightful Robinson Crusoe. A fine old pile, this Nailsea Court, redolent of ancient history; there are quaint tales of Madame Rogers, but no space here to tell them.

From Nailsea to Clevedon and thence over the Mendip Hills to Axbridge and from there to Bridgwater, stopping to dine at seaside Burnham, off the route, of course, for our car will, whenever possible, get off the big roads. Shall we ever forget the precipitous and sandy lanes of Wentwood? But that, gentle

reader, "is another story." And after Burnham the night ride to Taunton, the night air crisp, the roads freshly rained upon, just enough to lay the dust, and the car doing its very, very best. Is there any experience much finer than the first night ride on a motor and in good company? The ride all too short and Taunton too soon reached, for here we have to leave our car, and so — farewell.

The driver informed me that the car was one of the old type—6½-h.p. Daimler wagonettes turned out in 1899, and since November in that year has been running daily on public service and pleasure trips for the Aberdare Valley Motor Company, Limited, averaging at least forty-five miles per day. The motor is gravity fed with tube ignition, and, taking into consideration the mileage the car has done, goes to show what good work is in it. During the trip from Aberdare to Taunton a distance of about 450 miles was covered, and the driver did not open his kit box once.

SOME USEFUL NOTES.

NEVER push down upon a starting handle, always pull up, for, in the event of a back-fire, the hand may easily be released.

FOR treating belts use Collan oil. Never use resin or any similar compound. Resin has a most detrimental effect upon leather.

MANY cars will start away on second speed, but it is not an advisable practice. Always start with as little load on as possible, i.e., on the bottom speed.

SINGLE-CYLINDERED cars—e.g., the De Dion, Darracq—should be carefully managed as regards the gas. Drive upon as weak a mixture as possible, or the engine will overheat and the petrol consumption increase.

Do not forget to use the paraffin washer on a car; it prevents an engine becoming stiff from the oil sticking up the rings. If such a washer does not happen to be on a car, squirt a little paraffin down the compression taps.

AFTER a wet drive chains should always be removed and washed in paraffin, and then allowed to stand in warm Russian tallow until the latter is cold. Then wipe the chain well. Treatment of this sort will greatly prolong the life of a chain.

In a live-axle car always keep the universal joints well cleaned and well oiled. These joints take up any shock, and if they are not well cleaned and lubricated, one stands a very good chance of stripping the driving bevel or twisting off the crank shaft.

SHOULD a car develop a very fierce clutch, do not neglect it for one minute, as a fierce clutch can do very great damage. For a temporary remedy apply Collan oil to the clutch leather; then take the car home and ascertain the cause of the fierceness.

TYRES are not given the attention they should by the majority of automobilists. All conspicuous cuts should be plugged with cotton-wool and solution (in some outfits a special preparation is provided), otherwise the wet works in farther and farther every day, and the result is that the tread becomes loosened and peels off.

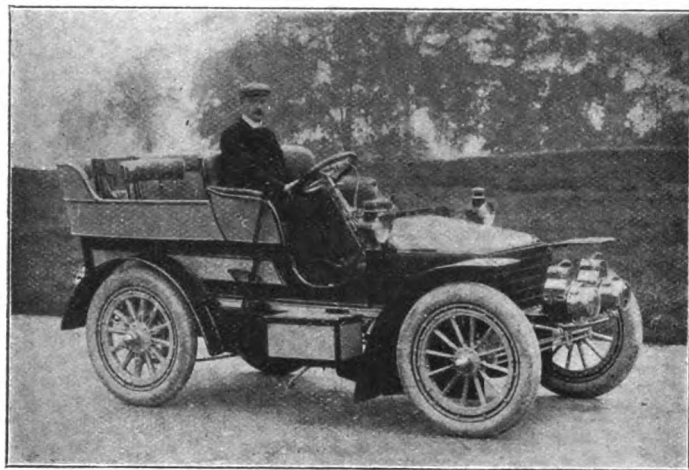
If the commutator on a car be on the dashboard, worked by a chain from the half-time shaft, be careful to either mark a link of the chain on a corresponding tooth of the chain wheel (both wheels must, of course, be marked), or have some distinguishing mark, so that the firing can easily be set if the chain comes off. On a dark night it is not a particularly easy task to set the firing of a four-cylindered engine.

HERE AND THERE.

LORD LOVAT has joined the ranks of automobilists.

AMONG the Society ladies motoring in Hyde Park, on Sunday, were Lady Newtown-Butler and Mrs. Gervase Beckett.

OWING to the demands upon the time of Mr. Lancaster, the engineer to the Automobile Club, it has been found necessary to appoint an assistant, who is now engaged daily in giving instructions in motor-car driving.



The 20-h.p. Wolseley double tonneau car built for Mr. J. Waddington, of Frant, Sussex. The body is specially designed to take an omnibus top for winter use.

IN addition to the many special features of their Christmas display, Messrs. Gamage, Limited, have not forgotten the claims of motorists, and gloves, gauntlets, caps and other seasonable clothing for them are being shown in great variety in their showrooms in Holborn.

IT is reported that the Chief of Police of Uralsk, Russia, has issued a peremptory order that no motor-car is to be allowed to run within his jurisdiction, owing to the scenes created by the appearance of one of these modern vehicles in the streets of a town which is largely frequented by peasants from the Steppes with their half-wild horses and camels.

AMONG motor-tailors Mr. Lovegrove is achieving distinction by the ingenuity of the ideas he embodies in cloth, fur, skin, or any material that comes to hand. At 175, Piccadilly, he has a very varied display of garments specially designed for motoring and well calculated to protect the wearer from all the vagaries of the English climate. There is an overcoat with a lining of silk and cotton in combination that defies the wind, and can be worn without attracting conspicuous attention when walking. One lapel folds over the shoulder below the coat lining, while the other crossing and fastening under the collar provides a complete protection for the chest. In ladies' garments Mr. Lovegrove has several excellent coats in fur, pony skin, and cloth, a brown leather coat being a notable feature of this department. Of recent introduction is a capital travelling and motoring rug, which is folded round so as to form a pair of waterproof trousers, perfectly obviating the unpleasantness of sitting on a damp driving seat. Being finished off with water-tight shoe soles, the feet are amply secured against the cross currents that often spoil the delight of motoring, while also preventing boots being muddied. This rug, which is likely to be a familiar feature on motor-cars ere long, is made in various materials, ranging in value from tweed to the most expensive fur. Of Mr. Lovegrove's stock of motoring accessories we shall have more to say in a later issue—but it may now be mentioned as completely embracing all the minor requirements, such as lamps, goggles, caps, etc., required by motorists.

WARNE'S Hotel at Worthing will be re-opened on the 21st inst., owing to the numerous applications that the proprietor has received from motorists and others.

Two entries have been received for the Eliminating Race for the Gordon Bennett Cup—one entered by Messrs. S. F. Edge, Limited, and another by the Star Engineering Company, Limited.

THE first of the lectures on "Locomotion," at the Royal Institution, by Professor H. S. Hele-Shaw, will be delivered on the 27th inst., the subject being the invention of the wheel. On the following Tuesday the principles of the motor-car will be explained.

MESSRS. J. W. BROOKE AND COMPANY, LIMITED, are designing a six-cylinder motor. With reference to the exhibition of a three-cylinder car at the Paris Show they write reminding us that they were the first firm to make three-cylinder motors in this country.

AN automobile, lent by Messrs. H. Smith and Co., of Barrow, was recently requisitioned in connection with carrying the "copy" of a political speech from Ulverston to Barrow—a distance of nine miles—and enabling the *Barrow News*, containing the address, to be sold in both towns the same evening.

WE have received a very effective pamphlet on Dunlop tyres for motor-cars, in which are several most useful pages dealing with the repair and care of tyres, as well as some excellent testimony to the value of the particular tyres with which the booklet is concerned. Novices will be interested in the page dealing with the selection of motor tyres.

MESSRS. VAUGHAN AND BROWN, the agents in this country for the Gillet-Forest cars, appear to be devoting special attention to the question of motor delivery vans. The accompanying illustration shows the van supplied by them some time ago to Messrs. John Barker and Co., of Kensington. This vehicle,



THE GILLET-FOREST DELIVERY VAN.

which is capable of carrying a load of one ton, covers about seventy miles per day, doing the work of several horses. So successful has the van been that three more are to be supplied to the same firm early in the New Year.

MR. THROPP, the County Surveyor for the Lindsey Division of Lincolnshire, says that the experiment of oiling the surface of the roads to prevent dust is only a temporary success, as when the wet commences a slimy mud is produced that is objectionable. The system is also too costly to be undertaken for the ordinary maintenance of roads. The suggested method of using tar macadam for country roads would, Mr. Thropp thinks, be far too costly for Lindsey.

CORRESPONDENCE.

THE AUTOMOBILE CLUB BILL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It was with great satisfaction that I read the decision of the Joint Committee of the Automobile Club to adhere to the policy of conceding in any Statute for altering the present absurd speed limit that cars shall not be driven on the road without having on them some symbol which shall afford means of identification. I agree with the objection to numbers, but a name to be associated with a number in the Register will serve quite as well and be consistent with the old usage of naming coaches, and the present practice of naming pleasure boats, yachts, etc.

We are told in the automobile press that what is proposed is quite unnecessary, and I notice that editors head paragraphs with "Let Well Alone," and correspondents sign letters with "Let Sleeping Dogs Lie." It will be obliging if they will tell us what it is that is "well" and to be left alone, and who are the dogs that are asleep. Until they do so, we may take the liberty of holding the opinion that there are more ostriches than dogs about, and that these proverbial expressions are as appropriate to the actual situation as was the solemn utterance of a certain sleeper at the bottom of the Hill Difficulty: "Then said Presumption, 'Every tub must stand on its own bottom.'"

Meantime I shall continue to have the belief that things are anything but well, and that this is no time for sleeping. It is a time for all moderate men to dissociate themselves from a class of automobilists already too numerous, who sacrifice to their own gratification that kindness and consideration towards their fellow-citizens, the absence of which tends to make the life of others unpleasant, and to rouse just indignation. Our principal reason for proposing now to put a symbol on our cars is that we desire our fellow citizens to know that we are out of sympathy with the apparent determination of some to use our roads as if they were made for racecourses, tearing along with roaring exhausts; in dry weather enveloping other users of the road in such a cloud of dust that for minutes they cannot move with safety, and so must sit until it settles down on them, while in wet weather they bespatter carriages and foot passengers with showers of mud—in a word, displaying a cynical want of ordinary courtesy and consideration that deserves the strongest condemnation.

I say nothing just now of the great alarm caused to people—even those who are not abnormally nervous—and of the actual risk which express-train speed on open roads necessarily gives rise to.

I am prepared, as a protest against the conduct of such enemies of true automobile sport, if some other gentlemen will do the same, to put a name on my car now without waiting for statutory compulsion.—Yours truly,

J. H. A. MACDONALD.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The lot of the motorist is truly an unhappy one. We are boycotted by the railway companies and persecuted by bucolic county magistrates. We have to pay a heavy tax to be allowed on the road at all, and now they want to number and licence us like cabmen.

To the small car owner this means an increased expense for the number-plates, license, etc., besides endless worry with his "lit-up" numbers at night.

According to some motor papers, the industry in the future will be largely dependent for orders on the small car owner, but I venture to think that by the time we have been tied down with a few more restrictions by a paternal Club, he will be as extinct as the dodo.

No, Sir; in my humble opinion it would be better to have one's name and address on the car in one-inch letters, thus getting off the two-guinea tax; it could hardly destroy the privacy of a car more than the proposed ugly number plates. I should like to add that, until lately, I thought there was something in numbering, but was completely converted after reading the arguments in last week's *Journal*.

It is much to be hoped that the motor trade is alive to the dangers of this proposed numbering Bill, and that they will oppose it to the utmost.—Yours truly,

"OPPOSER."

NUMBERING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The action of the Club and Legislative Committees at their meeting on the 3rd December reminds one of the "man and his cuddy." He tried to please everybody. He pleased nobody and lost his donkey into the bargain.

The numbering proposals of anti-motorists are made because they hate the motor-car, and wish to see it banished off the road; or, not to be uncharitable, they ask for a number so that the car going beyond the legal limit may be identified. Of course a car travelling over the legal limit could not be identified by its number, and more particularly on a dusty or muddy road, but county councils and other authorities who have no experience of motoring will not believe anything to the contrary. Of one thing the motorist may be certain, and that is that these authorities have no intention of conceding the abolition of the speed limit. They desire a limit to speed, and to have a number too. On our highways, be there little traffic or otherwise, I do not think that even motorists who are content to travel, say, at twenty miles an hour have any desire that these

highways be overrun with cars geared to sixty or seventy miles an hour. They are a positive danger to all users of our roads, and should be confined to a special track.

At the meeting it was suggested that the Act or regulations made under the Act might provide that the "method of identification should not be made use of unless the driver could be charged with having driven to the danger of other passengers." A clause to this effect will not prevent cantankerous people putting the motorist to the trouble and expense of going to court to prove there was no danger to other passengers, and with a prejudiced magistrate on the bench the chances are ten to one the motorist comes off second best.

Like all other innovations, motoring has to run the gauntlet, and till then it is surely better to put up with the ills we know than take on those which would simply make the life of the motorist unbearable and put back for a generation an industry which can only be for the welfare and the best interests of our country.

Our thanks are due to the Editor of "Auto-Velo" for his able article on the question in last week's *Journal*, and it is to be hoped it will be made as public as possible.—Yours, etc.,

JOHN LOVE.

MECHANICALLY-OPERATED INLET VALVES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I think Mr. Frank Morriss falls into a little error in supposing it to be possible that any cylinder can "be thoroughly scoured on its exhaust stroke." There must be an amount of used gases left to fill the firing chamber, and if the exhaust valve be set to its best advantage these used gases may scarcely be above atmospheric pressure. Therefore there would be no tendency to escape through the mechanically-operated inlet valve.

In all engines this amount of gas must mix with the fresh charge, so contaminating it. Mr. Morriss is quite right in advocating a short induction pipe, but not for the reason he gives. Suppose any burnt gases do escape through the mechanically-operated inlet valve into the suction pipe, a short pipe would be beneficial if a spray carburettor be in use, as the gases would then escape through the air holes; but if a surface carburettor, then the gases would remain in the carburettor. In his letter he does not state which. On this theory it would indicate that a surface carburettor must in no case be used in combination with a mechanically-operated valve.

In engines coming under my notice for repairs, I take the liberty of altering the timing of the exhaust valve where I find it differing from my ideas, which is to set the exhaust valve so as to close very late, viz., at the commencement of the suction stroke. We all know that there is a time (however small) when the piston is absolutely stationary; therefore, why not utilise this time to allow the expanded gases to escape through the exhaust, so leaving as little as possible behind? In order to gain this result, three years ago I fitted a large valve to a tricycle, operated from the top bar of frame, allowing the exhaust gases to escape into the air through a two-inch pipe, and only three inches from the exhaust valve. Naturally, I used this only on roads void of traffic, but with grand results. I see the Mercedes are now, fitting something of the kind.

From experiments I have made, I find the automatic inlet valve does not close as soon as it is generally supposed to do. Granted, that on the suction stroke taking place a vacuum is formed, more or less according to the strength of the spring, but this vacuum is immediately filled when the valve opens, and the inrush of gas is so great that it causes the valve to remain open until the completion of the down stroke, so that the cylinder must get fully filled. This rush of gas, when once started, has a power of its own, and when the valve does close (and possibly this does not occur until after the commencement of the up stroke) this power is not expended, for if you drill a small hole in the inlet pipe near the valve and hold a flame near it, the out-rushing gas fires in a long stream at the moment of the closing of the inlet valve. The same phenomenon can be observed by suddenly turning off your sink tap (when connected with the main): a loud shock will be heard, generally taking place where the pipes are highest in the house, caused by the impetus of the water knocking against the ends of the pipe.

I think it, at present, remains to be proved which of the two kinds of inlet valve is the better, especially when some of our great authorities, like De Dion, hesitate which to use.—Yours faithfully,

FRANK COX.

WIRE & WOOD WHEELS FOR MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It would prove interesting if some of your readers who have had experience of both would give their view of wire wheels as compared with those of the artillery type for use on light cars. Until recently the light motor-car has been largely supplied with the cycle type wheel, but there appears to be a general tendency to discard that in favour of those of the artillery type. The points to be considered are strength, durability, and appearance. As to the first point, much needless discussion would be avoided by subjecting wheels of the different styles to practical tests. A series of tests could be selected that would no doubt prove conclusively the relative strengths. Citing isolated examples of cases where wheels of the two types have failed is absolutely without value in determining facts. The strength of such an argument will evidently be on the side of

the one who has the greater amount of energy and displays the greater number of cases. Durability evidently cannot be so easily determined. It will, however, depend to a great degree on the strength. The third point, appearance, is largely a matter of individual taste. It does, however, to some extent depend upon the general lines of the vehicle. A heavy motor-wagon would look just as incongruous on slender cycle tyres as would a lightly-made bicycle equipped with wood wheels.—Yours truly,
F. R. R.

SCOTTISH VIEWS ON NUMBERING.

A MEETING of the Western Section of the Scottish Automobile Club was held in the Windsor Hotel, Glasgow, on Monday, for the purpose of discussing speed, numbering, and registration questions. Mr. H. M. Napier presided, and there was a large attendance of automobilists from different parts of Scotland.

Mr. John Adam, of Larchgrove, who opened the discussion, said that his object was to endeavour to come to some reasonable basis which would satisfy the public without at the same time hindering the progress of the trade, which was at present in its infancy, but which might in the near future revolutionise the inter-communication of what might be called the district carrying trade. It would not confine itself to passenger and pleasure vehicles, but the larger portion of the motor manufacturers' business would

from an official source, which showed that in 1830 the stage coach between London and Birmingham went at from eleven to eighteen miles an hour. The average speed of the Shrewsbury coach worked out at seventeen miles, and at the present day London 'buses were driven at twelve miles an hour. Yet motorists were breaking the law if they went a little faster than a London 'bus. He did not think he was far out of it when he said that Glasgow tramcars, at some part of their runs, touched sixteen miles an hour. Coming to the Act of Parliament by which they were at present governed, and which had caused so much feeling, he quoted from the speech delivered by the author of the Bill, the Rt. Hon. Henry Chaplin, at a dinner of the Automobile Club. He thought that the County Councils, both in Scotland and in England, were looking at the motor law in a very reasonable frame of mind. They all admitted that an amendment of the law was desirable, if not necessary, and most of them thought that numbering and registration would meet that requirement. If a "Road Hog" knocked a man down on the highway his car could be identified by a number. If they could show how a person guilty of such an action could be brought to justice he believed a large part of their trouble would be overcome. On the other hand, many motorists had well-founded objections to their cars being ticketed like cabs, and these objections came from very careful drivers. It was quite within the bounds of possibility that persons, who had no ideas of speed, and had at the same time prejudices against motoring, could easily be got to swear that the most considerate driver was endangering the lives of a whole neighbourhood, and even the incorruptible policeman might lose his usually perfect judgment if backed up by a horsey member of the great



A "FAIR" LOAD ON AN 8-H.P. MERCEDES CAR.

[Allgemeine Automobil Zeitung.]

consist in building conveyances for goods. The more perfect and reliable motors became, the more they would be used for business purposes. The first point they had to consider was the reason of the opposition to motoring. The motorist, known as the "Road Hog," could not be defended, and he was afraid the "Hog" was often the cause of the reasonable man being caught and fined. Any law made to stop him would be willingly accepted by the majority of gentlemen who were considerate for the comfort and safety of their fellow men and road users. Coming to the question of non-motorists—who had not taken advantage of the opportunities afforded of informing themselves of the power of control and safety of cars—he had been told of an engineer who had seen a motor-car going along the streets of a Glasgow suburb at the rate of from 80 to 100 miles an hour. (Laughter.) Probably it had been going at about 30 miles an hour. He contended that motor-cars were as safe as horse-drawn carriages going double the pace. He had been met with the answer that horses could not be driven at the rate of eighteen miles an hour, but that was easily replied to by quoting

unpaid. That was the risk of numbering. In conclusion he hoped the day was not far distant when this country would see that it would be to its advantage to promote an industry which would, he thought, have more far-reaching effects than most people at present imagined.

Mr. James Burns, Town Clerk of Motherwell, considered that numbering was not a satisfactory means of identification. Some other means should be devised. He thought it would be much easier to recognise offenders from the goggles worn by the driver, or by the numbers of passengers, or by their sex. If they could not tell from these, how much less could they tell from a number attached to a dusty machine?

Mr. William Kingsburgh pointed out that if the number on a motor-car was damped before going out for a run, the car would not go far before the number became totally obscured.

Mr. T. Blackwood Murray expressed himself in similar terms.

Mr. Norman D. Macdonald, Chairman of the East of Scotland Section, said he objected to private owners being subjected to the rules, regulations,

and restrictions of cabmen. He could not see why the nobleman's carriage, or the noble lady's brougham, should be immune from the restrictions which were imposed on a motor-car owner. He was strongly against the proposal, and did not see why the matter should be brought up at all. His advice at present was to wait.

Professor Galt said he was opposed to delay, and asked what was to be gained by it.

Mr. R. J. Smith, Secretary of the Western Section, Mr. F. A. Macquisten, Mr. John Shaughnessy, and the Chairman also took part in the debate, the last-named suggesting it was more necessary to license drivers of horses than automobilists. He thought waiting was the policy. As for county councillors, they were a lot of busybodies who wanted something to do in their spare time.

Mr. Adam was, at the close of the meeting, awarded a vote of thanks for his paper, but in regard to the numbering question he had only the support of Professor Galt, the feeling of the others being that legislation should not be invited in the meantime.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Sheffield	H. Bush, Leeds	25 m. p. h.	£1, etc.
Horsham	C. M. Guy, Crawley	23 m. p. h.	40s. "
Stockport ...	H. Chapman	—	Dismissed.
Bedford	A. du Cros, London	20 m. p. h.	£5, etc.

Where no alleged speed is given it is understood to be above the legal limit.

IN the case against Mr. Arthur du Cros at Bedford the Police Superintendent said that the Chief Constable of the county had given instructions that no prosecution should be taken in connection with the driving of motor-cars unless it was accompanied by danger to the public.

SEQUEL TO A REGENT STREET ACCIDENT.

THE sequel to the motor-car smash which occurred in London earlier in the year has just come before Mr. Justice Darling and a common jury. Leonard Gay, of 91, Regent Street, suing Mr. Oswald Lord for £1,175, the amount of damage done to his shop front and goods. Mr. J. A. Symmonds, who appeared for the plaintiff, said that shortly before two o'clock on the morning of April 23rd defendant drove his motor-car, in which a lady and gentleman were riding, down Regent Street. He was running at 25 or 30 miles an hour, on the wrong side of the road. He tried to stop, and put on the brakes, but the car skidded, mounted the pavement, and crashed through the revolving shutter of the plaintiff's shop. Police-sergeant Parker gave evidence of the accident. The jury assessed the damages at £600.

NO LIGHTS.

T. TAYLOR, Reading, has been summoned at Guildford for driving a light locomotive at Knaphill on the 15th ult. without having the necessary lights attached. Fined 20s.

EDGAR COLLETT, motor-car proprietor, of Bournemouth, was summoned at Christchurch for not exhibiting the necessary lights on his motor-car after lighting-up time on the 17th November. Mr. George Chilton, solicitor, appeared for the defendant, who pleaded not guilty. P.C. Carter said he saw the motor-car in the High Street proceeding in the direction of Purewell at eleven o'clock on the 17th ult., and seeing no red light at the rear of the vehicle, he stopped the driver (the defendant) and asked him where it was. The defendant said it had gone out. There was a red lamp at the rear of the car, and defendant lit it again. In answer to Mr. Chilton, witness said there were three white lights on the front of the car. He did not see the small red light at the back of the lamps on the sides of the front of car when he was standing at the rear of the vehicle. The defendant, on oath, said the small red panel which was set in the back of his two front lamps could be seen from the rear of the car. The red lamp attached to the rear of the car must have blown out just after passing the railway bridge in the Barrack Road. Sidney Millett, motor-car proprietor, of Boscombe, who was driving his car in company with the defendant on the night in question, said the small red light in the rear of the car was alight up till the time he passed him by the corner of the Station Road. The Bench fined defendant 1s. and 13s. costs.

DISPUTE AT NOTTINGHAM.

AT a special sitting at the Guildhall, Nottingham, on Monday, Frederick Collins, motor-car driver, was charged with stealing a motor-car, the property of Messrs. C. Allen and Co., on the 2nd inst. Mr. H. B. Clayton prosecuted, and Mr. W. B. Smith appeared for the defendant. Mr. Clayton explained that Messrs. Allen and Co. found that the motor-car required repairing, and in September last sent it to the premises of Mr. Arthur Collins, brother of the defendant. At that time, Frederick Collins was in the employ of Messrs. Allen and Co. as a motor-car driver. The repairs to

the motor came to £16, but there was a dispute as to the amount of the bill, and the car was taken to some premises and stored, as the prosecutors would not pay the amount charged, thinking it unreasonable. That matter had not been settled yet. At the end of September the company again got possession of the car, paying the cost of the storage previously. This was because they had received a letter in which it was threatened that if the £16 was not paid the car would be disposed of. The car remained on Messrs. Allen's premises until November 22nd, when defendant was discharged from the prosecutors' employ. On December 2nd the defendant went to the premises, where the car was stored, and took the vehicle to the premises of his brother, Arthur Collins. Then it was removed to the premises of a man named Crofts, who was the landlord of Arthur Collins. It was perfectly clear, said Mr. Clayton, that the defendant had no right to remove the car from the prosecutors' premises. The result had been that the prosecutors had been unable to regain possession of the car, a valuable property, as the wheels had been taken off. Mr. Smith submitted that there was no case for him to answer. He admitted that they still had the car, and that the wheels had been taken off, but that was for protection, as a claim against the debt owing by the prosecutors.

The Bench intimated that they would require stronger evidence than had been submitted to convince them that there had been felonious intent on the part of the defendant. The summons was dismissed.

MR. H. SCOTT RUSSELL, of the D'Oyley Carte Opera Company, is doing his journeys in Ireland on his 8-h.p. Peugeot car.

Madame must really be careful. In a recent issue she referred to an English lady who is "having built for her by the Motor Garage Company a 60-h.p. Mercedes-Simplex."

THE following advertisement is taken from the columns of a New York daily:—"Wanted to Exchange—Topsy, a full-grown elephant, for an automobile.—Address, Lund Park and All World's Amusement Exposition, Coney Island."

MR. F. W. PECKHAM, of the Oldsmobile Company, who is at present in the United States, is reported to have secured the English agency for the Winton cars. It is also stated that he is bringing to England the Baker electric torpedo, with which he hopes to capture the mile and kilometre record.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

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COMMENTS.



IN our Correspondence columns this week Mr. Norman D. Macdonald contributes an important letter to the discussion which has been going on with regard to the numbering of motor-cars and the harassing of motorists. He suggests that a plebiscite should be taken of all motorists with regard to their views on the question, and also as to the desirability of delay in the matter. The idea is a decidedly good one, and can, moreover, be carried out without delay or difficulty. All that is required is for each Club Secretary to send a

Prosperity follows the Car.

postcard to the members of his own association and thus obtain their opinions. We feel sure such action would reveal the strength of the opposition to the numbering proposals that have lately been advocated.

ago John Bright and others—as a correspondent who has lately been motoring in East Anglia reminds us—pointed out that magistrates who owned and rented game preserves were not always the most desirable persons to try poachers. So the question may arise as to whether horse-breeders and others interested in similar pursuits should be allowed to adjudicate in motor-car cases.

Hotel Enterprise.

AMONG the evidences of the national prosperity associated with automobilism is the expenditure that has been necessitated at the leading hotels at seaside resorts. At Warne's Hotel at Worthing, for instance, more than 800 cars have been stabled during the past season. To the equipment of the garage there has now been added a 7-h.p. motor-car for emergency purposes, and any motorist whose car breaks down within twenty miles of the town has only to telephone to 0199 Worthing and the car will be despatched with a competent engineer to assist the hapless motorist. A new charging station for accumulators has also been fitted at the hotel, and Mr. Warne has also made arrangements with the Corporation Electricity Works for the charging of electrical cars.

Educating the Public.

AT the last meeting of the Renfrew County Council Mr. Cross called attention to the speed of motor-cars, and moved that it be remitted to the County Road Board to consider the advisability of posting up notices in the various villages of the county setting forth the existing state of the law regarding the matter, and showing the rights of those in charge of horse vehicles in connection with the speed of motor-cars. This was agreed to.

"Wake-up, England."

"IN France, even now, there is a feeling amongst travellers that they have been born too soon to be able really to enjoy the joys of the automobile, for roads and road laws have not yet been made for us, and they therefore suffer continually. But in England matters are worse, and what a pity!" Thus writes M. D. Yzelen in a French contemporary. This gentleman, who has recently been touring in this country, goes on to remark that "Hospitality there is so genuine, life so comfortable, and the roads across a very pretty country are most agreeable. I have still before my mind the delightful picture presented by the landscape during a tour from London to Bournemouth, *via* Maidenhead, Basingstoke, and Southampton. There, thanks to the system of undivided property, the country is nearly always like one continual park. It does not assume that ugly utilitarian aspect it does in France wherever cultivated; there are no pieced-out fields, cut up by innumerable hedges and bordered by ugly pollards; instead, the emerald undulation of the meadows, shaded by the rich foliage of magnificent trees in the soft bluish but pleasant mist of the atmosphere. But I must stop, I will not linger on the charms of which Wordsworth and Constable can give a better idea, and in the meantime will wait for Great Britain to rouse herself from a lethargy already too long, and open her mind to the automobile movement and at the same time her doors to foreign *chauffeurs*, whom the fear of contraventions, the scarcity of petrol depots, etc., at present prevent from visiting her many beauties."

"Who's Who."

"WHO'S WHO" is an annual biographical dictionary of nearly every person of public importance. The 1903 volume, just issued by Messrs. A. and C. Black, is as complete and accurate as the preceding volumes, and the recreations of well-known people afford interesting reading. Motoring is among the chief sports of the Earl of Shrewsbury and the Right Hon. A. J. Balfour. The Right Hon. Sir J. H. A. Macdonald is described as a strong supporter of the automobile movement. Mrs. Kennard's motoring enthusiasm is mentioned, and her favourite summer amusement is "to go off on a tour and ride forty or fifty miles a day, seeing the country, natives, etc." Mr. Alfred Harmsworth is duly described as editor of the *Badminton* volume on motoring, while motoring is also among the recreations of Messrs. Hildebrand and Leicester Harmsworth, M.P. The Hon. C. S. Rolls has for recreations "music, acting, football, motoring, and ballooning," and for hobbies "engineering: business." Altogether "Who's Who" is interesting as well as informative.

Hunting and Motoring.

THERE is a complaint in hunting districts that motoring has affected the hunt, and that most devotees of fox-hunting have found new interests in the automobile. Probably there is a great deal of truth in the statement; but it must not be thought that because sportsmen have become motorists they have ceased to be huntsmen. They may occasionally miss a meet, but that they have permanently given up following the hounds is hardly conceivable. Many huntsmen—Masters of

Hounds included—recognise that the motor-car has its place in our countryside, and that it really opens up the pleasures of an open-air life in a way never before known. In fact, we have heard it said that, in facilitating the foregathering of those interested in the chase, the motor-car has rather helped than lessened the attendance at meets in many otherwise inaccessible places.

A Scene Near Brighton.

WITHIN easy distance of London-by-the-Sea are several charming hamlets well worth visiting by the many motorists who spend the week-end at Brighton. Rottingdean has many artistic and literary memories of Sir E. Burne-Jones, William Black, and Mr. Rudyard Kipling, while a few miles distant is Ovingdean, with its tiny church and picturesque location. Here was taken the accompanying photograph of Mr. Frank Taylor on his 6-h.p. Weston steam car—the same car as that on which he toured Ireland in the summer.



A 6-H.P. WESTON CAR AT OIVINGDEAN (SUSSEX).

Mechanically Operated Inlet Valves.

COMMENTING on the tendency towards the adoption of mechanically-operated inlet valves, both for high speed and low speed petrol motors, the "Horseless Age" considers that the adoption of these valves for motors of high piston speeds is easily explained.

Mechanical operation permits the valve to be made larger, heavier and stronger, so as to endure more rapid closing. The larger the valve-opening, and the shorter the time of opening and closing, the higher will be the speed at which the motor gives its maximum power, and the greater, therefore, its horse-power. In low-speed motors, this consideration does not apply. The motor speed is purposely kept down to reduce wear and tear, and a complete charge can easily be obtained with the ordinary suction intake valve. The reason for the adoption of the mechanically-operated valve must therefore be of another order. It is, without doubt, because mechanical valves, in spite of the added complication, are less troublesome than automatic valves. It is well known that the spring pressure of an automatic valve must be minutely adjusted if the valve is to give good results. If the spring is too stiff the valve opens insufficiently and the motor is choked; if, on the other hand, the spring is too slack the valve closes late, some of the charge drawn in is forced out again before the valve seats, and in extreme cases back-firing occurs. What aggravates the matter is that a spring valve once correctly adjusted will not remain adjusted, even if precautions are taken to prevent dislocation of the spring stop on the valve stem. The effect of the rapid compression and extension of the springs is to reduce the elasticity, and the springs therefore lose some of their original

pressure in course of time. This effect is the more pronounced the greater the ratio of the compression to the total length of spring, and, as in practically all automatic inlet valves the spring is enclosed, it is necessarily short and the above ratio large.

Experience will Show.

ORIGINALLY automatic inlet valves were the general practice. The present adoption of mechanical valves is a deviation from this practice, which has not yet become sufficiently general to form a conclusion whether the mechanical valve will eventually supersede the automatic one or not. Both kinds of valve are, of course, quite practicable, and the question of the superiority of one or the other involves some points that can only be decided by long experience with both kinds.

Another New Book.

THE popularity of the automobile is responsible for the filling of bookshelves; and to the lengthening list of books on motor-cars must now be added another, Mr. Rhys Jenkins, M.I.M.E., having written "Motor-Cars and the Application of Mechanical Power to Road Vehicles." This is published by Mr. T. Fisher Unwin, and is apparently designed to fill a place between the technical volumes of Mr. W. Worby Beaumont and the Badminton book on "Motors and Motor-driving." Like all Mr. Fisher Unwin's publications the tome is attractively got up, and although the hundred or so illustrations in its pages are familiar to all who follow the *Journal*, they will have some interest for the general reader.

Early History.

IN his introduction Mr. Jenkins refers to the present agitation for the removal of the speed limit, but dismisses it with a curtness that adds nothing to the discussion. On the subject of roads the author writes with fuller knowledge, and rightly insists on the necessity of improvements on the highways being necessary in the development of the automobile to a more perfect state than the present. Several chapters are devoted to animal power cars, carriages propelled by the wind, early attempts to apply steam power to road vehicles, and the boom between the years 1824-1840—all well-known phases of automobile history. The section devoted to the steam carriages brought out between 1858 and 1881 is of considerable interest. Electrical carriages are given a short historical chapter, concluding with the failure of the electrical cabs in London, in 1897. Another deals with developments since that date.

The Present Movement.

NATURALLY the greater part of the volume is concerned with what Mr. Jenkins calls the modern revival. A good account of the common features of petrol cars is followed by descriptions and diagrams of all the well-known cars:—Wolseley, Daimler, Lanchester, Argyll, M.M.C., Panhard, De Dion, Benz, Mors, Mercedes, etc., while shorter accounts are given of the principal features of nearly all the leading British, French, and American vehicles. The work also includes chapters on motor-cycles and motor vans and wagons, concluding with a consideration of such technical questions as gearing, brakes, horse power, etc.—the whole three hundred and fifty pages forming a useful book, well suited to the requirements of the motoring novice.

Motoring and the Profession.

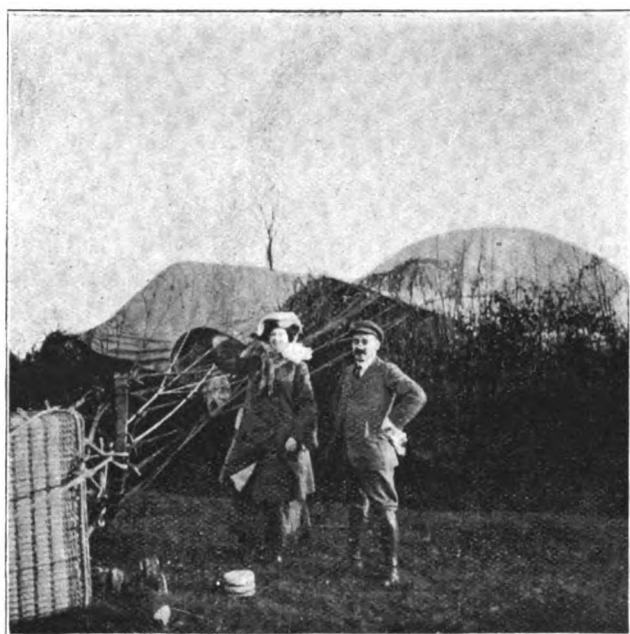
THE dramatic profession has been most kindly disposed towards the automobile, not only introducing it on to the boards, but also in promoting its popularity in the streets. Actor-managers like Mr. Beerbohm Tree and Mr. Lewis Waller are ardent motorists, while a goodly number of actresses have proved themselves expert drivers.

For Touring.

Napier is a triumph of the coachbuilders' art, and reflects credit on the Coupé Company, who have carried out Mr. Ogilvie's suggestions. We hope to give an illustration of the car together with further particulars in a later issue; meanwhile some account of the body itself will be of interest.

Seating Arrangements.

THE carriage is designed to carry six passengers, including the mechanic. The central seats are raised nine inches above the front one, thus overcoming an objection to the rear seats of most automobiles. As a rule the passengers at the rear see little or nothing of the road ahead. But not so in Mr. Ogilvie's new car. The raised seats are protected at the back with a hood, which, when down, entirely shields their occupants from dust. The hood is so designed that (by the addition of two



MR. LESLIE BUCKNALL AND THE WRECKED BALLOON "VIVIENNE II."

Photo by]

moveable side columns and a section of the roof, which are carried on the car) it can, in less than three minutes, be converted on the open road into a landaulette or miniature brougham. This covered in carriage will prove useful and convenient, not only while touring in bad weather, but for driving out to dinner and evening parties, as the owner is dispensing with his horses and intends to rely solely on his car. The rear Spider seat, which is on a level with the central seats, is for the servant (when not driving) and the fifth passenger.

Luggage Carriers.

SPECIAL attention has been given to the disposal of luggage, a necessary point in touring. Under the seats of the landaulette is a boot—somewhat on the lines of that on a four-in-hand, access to which is obtained from the rear of the car. Into this boot are fitted two canvas suit cases or dressing bags 19in. by 29in. by 13½in. Below the Spider seat is another large dust-proof tin portmanteau, japanned like an officer's kit case, measuring 30½in. by 18½in. by 10in. Under this again is a groove or slot, which carries the moveable flap of the top and the side columns of the landaulette when not in use. Beneath the footboards of the Spider seat are two compartments divided into

various pigeon holes, to carry all necessary spare parts and tools, while under the frame, and between the rear wheels of the car (with doors opening out backwards), is another large box to carry the Castle and Bleriot search lamps during the day time. While going on long tours, picnic or shooting parties, this box is designed to be available to carry further luggage, a luncheon hamper, or guns, ammunition, etc., instead of lamps. There is also a large and roomy well beneath the footboards of the landaulette, where the servants' luggage and emergency stores are carried.

Naming the Car.

ALTOGETHER the novel appearance of the body well warrants the space we have devoted to this description of its main points. Our impression on seeing it in the Regent Street garage the other day was that it presented some of the elegance and substantial appearance of the old stage coaches. Its long wheel base is certainly notable. The body is painted in Napier green with black moulding and fine lines of red, the wheels being of a rich red colour with broad green lines. Mr. Ogilvie has christened his car "Stai," the familiar cry of the



READING AS SEEN FROM A BALLOON.

(Mr. Frank H. Butler.)

Venetian gondoliers and motorists in the eastern counties will welcome him to their ranks. At one time he sat on the Kingston and Guildford benches as a Surrey county magistrate. Were he to do so now he would probably not be happy in such uncongenial company, from a motoring point of view.

MR. C. D. ROSE, one of the candidates for the representation of the Newmarket Division of Cambridgeshire, is touring the constituency on a motor-car.

THE report is being widely circulated that the London County Council may shortly be experimenting with an automobile ambulance.

THE first of the motor-omnibuses designed by Mr. Stirling for the London Motor Omnibus Syndicate has commenced its trial runs on the Cricklewood and Oxford Street route.

A SERIES of balloon ascents for reconnoitring purposes was inaugurated at Aldershot on Saturday, by Mr. Harold Norfolk, of the 13th Hussars, the balloon being in charge of Mr. Spencer. The Hog's Back was crossed at an altitude of 5,000 feet, and after passing over splendid country a good descent was made one mile from the sea at Angmering, near Worthing.

The Paris Motor-Car Exhibition.



(Concluded from page 810.)



GENERAL VIEW OF THE SALON.

VISITORS to the Exhibition have this year been more numerous than ever, and the English contingent has been particularly large. One distinctive feature this year was the arrival of the provincial agent, who no longer relies on the London firm, but comes over from Edinburgh, Glasgow, Dublin, Manchester, Liverpool, Birmingham, and countless other towns to see and judge for himself. There can be no possible doubt that this will greatly influence next year's trade, for the provincial agent will no longer be satisfied with old models. The Exhibition itself has much the same appearance as last year, except that one misses the navigable balloon and Ver-

lines. Fig. 11 gives a plan view of the 20-h.p. chassis, and Fig. 12 an illustration of the four-cylinder motor; it is fitted with mechanically-operated inlet valves, and a governor acting on the admission. The connection between the engine and the

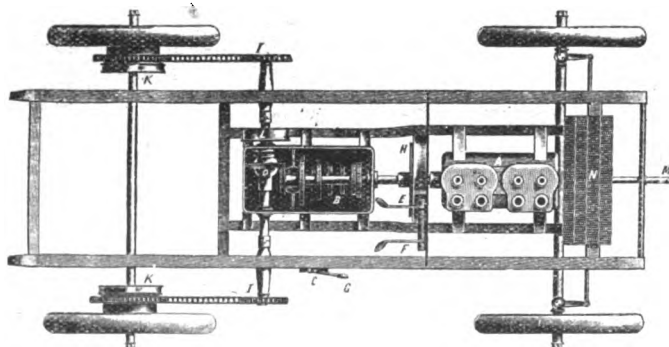


FIG. 11.—PLAN OF THE BROUHOT 20-H.P. CAR.

cingetorix, which were the first things that struck one's attention on entering the Palace.

Messrs. Brouhot and Company, of Vierzon (Cher), have given up their old construction, and are now turning out 10-h.p., 15-h.p. and 20-h.p. cars on what may be termed the standard

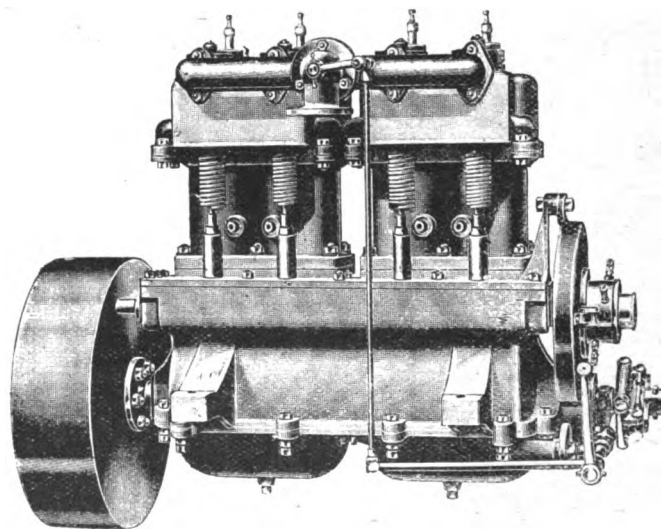


FIG. 12.—GENERAL VIEW OF THE BROUHOT 20-H.P. FOUR-CYLINDER MOTOR.

change-gear box is through a special form of clutch, which consists of a leather-faced steel spring band. The latter is held in position on the male clutch by means of a gun-metal disc, and is prevented from twisting round by a steel key on the male clutch. The frame of the car is built of wood and steel.

The cars of the Societe des Automobiles Gillet-Forest, of St. Cloud, are easily distinguishable by reason of the form of their bonnet and radiator. Two standard types of chassis are being made, one having a 6 to 7-h.p. motor and the other one developing 9 to 10-h.p. In both the engine is of the single-cylinder horizontal type, running normally at a speed of 900 revolutions per minute. A governor is provided, this acting on

with either a Clement or Aster motor. This vehicle has a long Mercedes style of bonnet and cooler, air being drawn through the tubes in the latter by a belt-driven fan. Governing is by a throttle on the inlet, the levers for throttle and ignition control being placed on the dashboard. The frame of the chassis is of wood, backed by a steel fish-plate. The change gear is driven by a leather-faced cone friction clutch, and gives four speeds

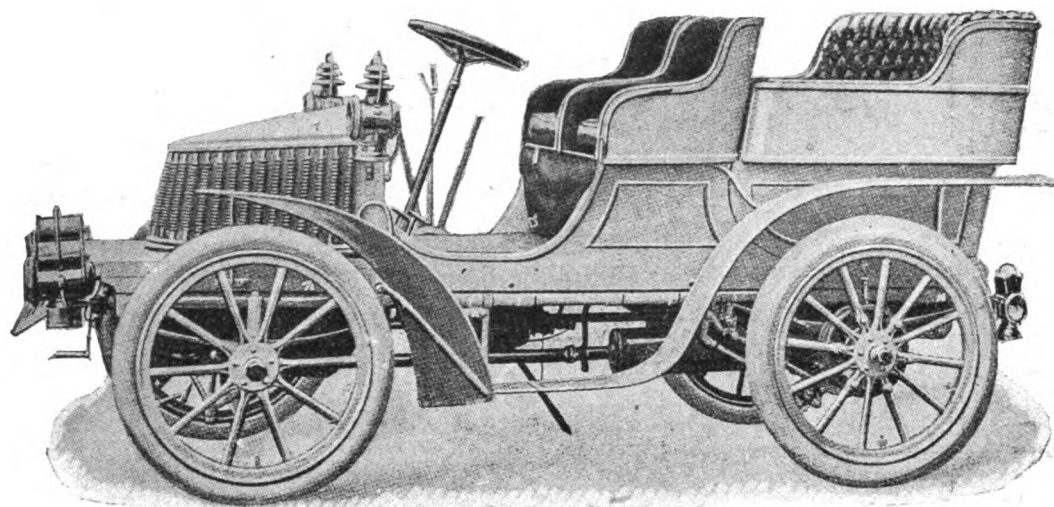


FIG. 13.—THE GILLET-FOREST 9-10-H.P. TONNEAU.

the exhaust valve; by means of an "accelerator" the speed of the motor can be varied at will from 200 to 1,200 revolutions. Three speeds forward and a reverse motion are available by means of a train of sliding gears. The engine transmits its power through bevel gearing to the change-gear box, and thence by a longitudinal shaft and bevel gear to the rear live axle. A special form of radiator is used, the water circulation being on the thermosyphon system. Messrs. Gillet-Forest claim to have produced a

forward and a reverse. All the bearings are lubricated by grease from a central feeder on the dashboard. The countershaft brake is lined with iron, and the brake drum is cast with an internal flange on the face; this flange has teeth cut on it to engage with a pawl, which can be raised or lowered by the driver, and, when in action, it entirely prevents the car from running backwards. The Gladiator Company are also building a two-cylinder 10-h.p. car fitted with the honeycomb cooler.

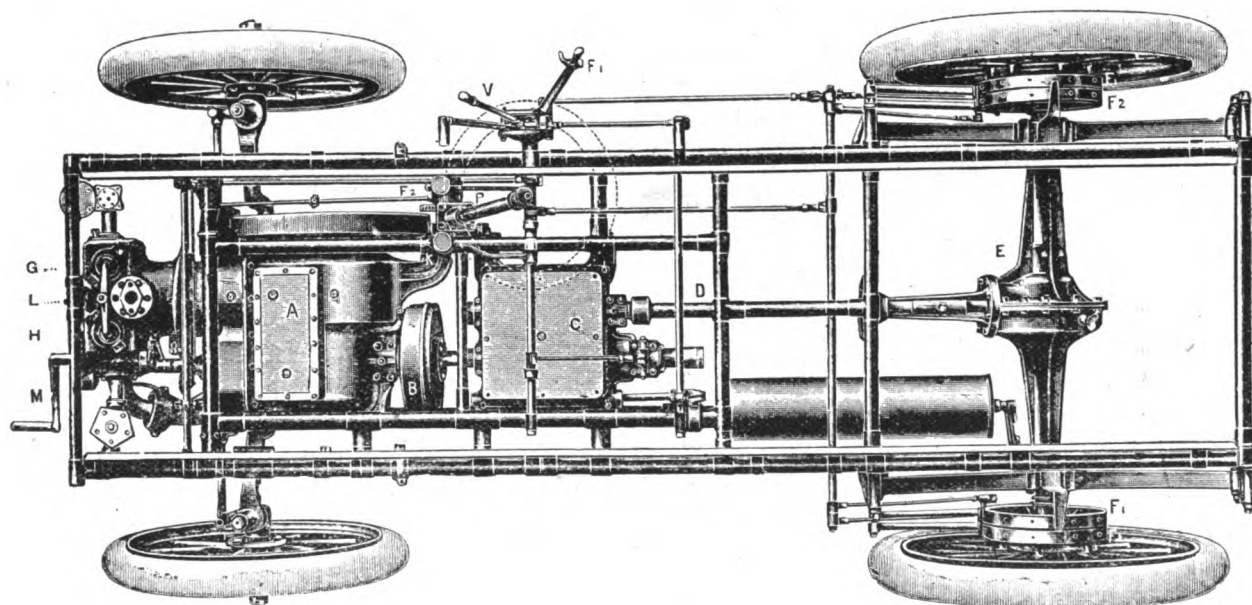


FIG. 14.—PLAN OF THE GILLET-FOREST 9-10-H.P. CAR.

A, Motor.
B, Clutch.
C, Gear box.

D, Longitudinal shaft.
E, Bevel and differential gear.
F, Brakes.

car which requires a minimum amount of attention on the part of the owner, and the large number to be seen running about Paris bears testimony to their success.

A distinct advance both in design and detail is to be seen in the Gladiator cars. The most interesting exhibit on their stand is the new four-cylinder 12-h.p. car, which may be fitted

The Roadway Autocar Company, Ltd., has a stand on which they show a 15-h.p. Mors in racing trim, and one of the new type Renault 10-h.p. two-cylinder cars.

Mr. P. Corbeau, of Port Audemer (Eure) is making a speciality of leather suitable for the upholstering of motor-cars, and exhibits some excellent specimens.

Les Usines de Prunel, of Puteaux, exhibit a range of Prunel cars, including a little 6-h.p. which they have named the "Indispensable." This has a tubular frame, in the fore part of which is mounted a De Dion or Aster motor. Three speeds and a reverse are provided, the transmission being by means of a longitudinal shaft and bevel gear to the rear live axle. Fig. 15 shows the Prunel light delivery van, one of which did so well in the recent

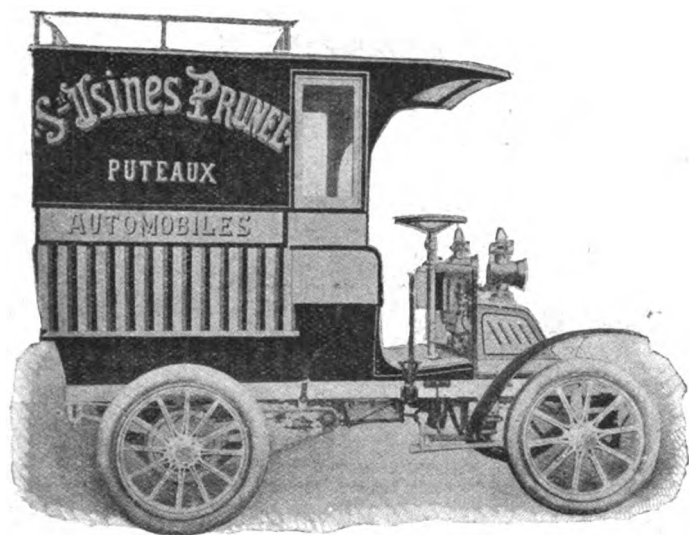


FIG. 15.—THE PRUNEL LIGHT DELIVERY VAN.

trials of the A.C.F. It has a 9-h.p. De Dion and Aster motor, and three speeds and reverse. In this car the power is conveyed from the differential shaft to the rear road wheels by two chains.

Considerable interest is being shown in the automobile fire-engine exhibited by Messrs. A. Thirion and Fils, of Rue de Vau-

shaft. A clutch is provided so that the engine may be put out of gear with the transmission shaft, and into gear with the pumps. The pumps are of the usual plunger type with large air compressors. A hose reel is carried at the rear of the pumps, and there is accommodation for five firemen. The vehicle can attain a speed of fifteen miles per hour; it can pump 40,000 litres of water per hour to a height of 100 feet.

It is not only English firms that have this year invaded the Salon, Italy being represented by La Fabbrica Italiana di

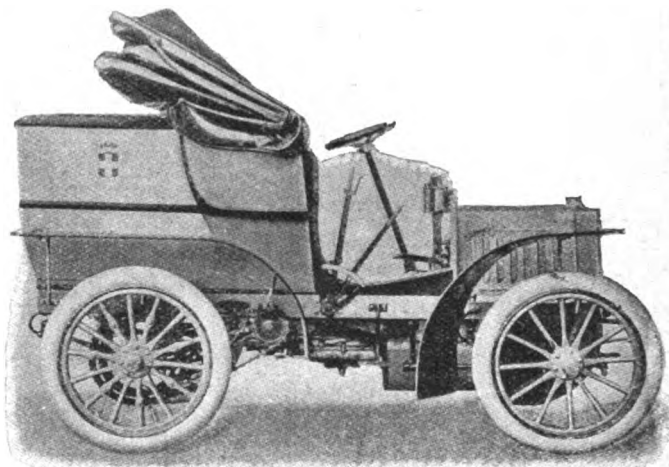


FIG. 16.—THE F.I.A.T. 8-H.P. DELIVERY CAR.

Automobili, of Turin, whose cars are known as the F.I.A.T. Amongst the exhibits are a 12-h.p. car, a chassis of 12-h.p., a complete model of a 16-h.p. motor, and model of the change gear. In the cars, the four-cylinder engines have automatic inlet valves, but the new type has induction valves operated mechanically,

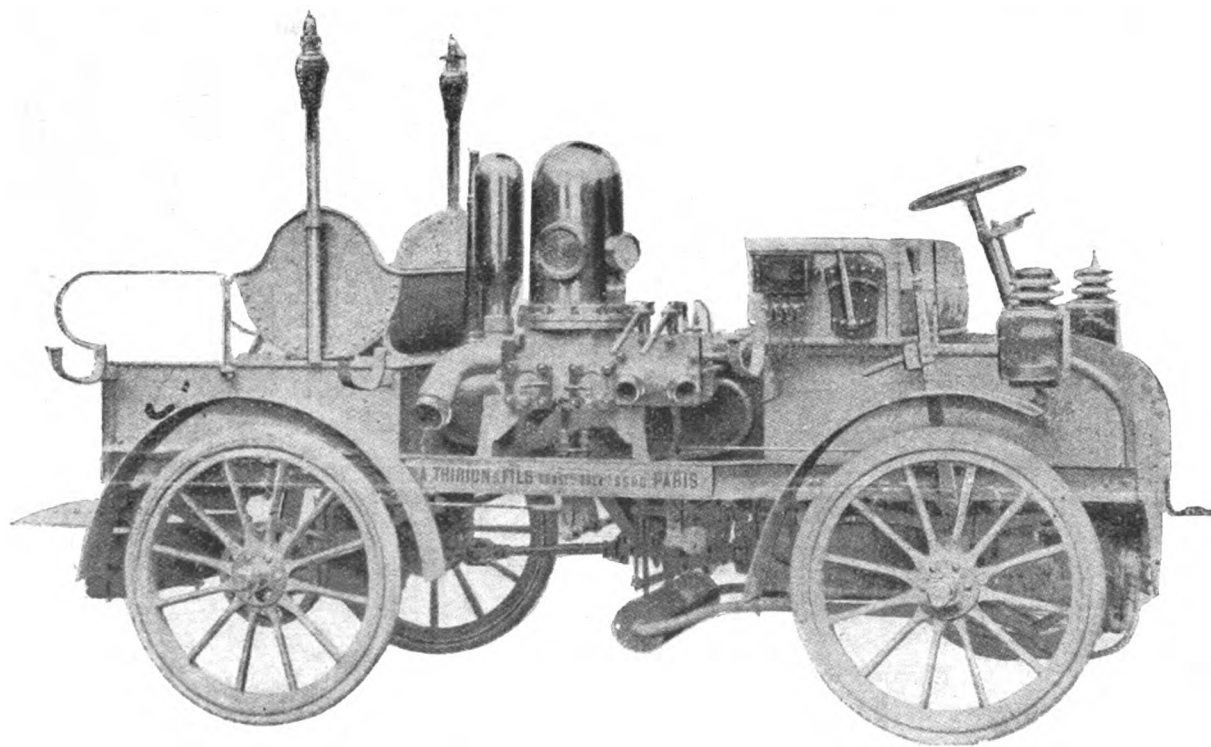


FIG. 17.—THE THIRION PETROL FIRE ENGINE.

girard, Paris, and illustrated in Fig. 17. For a fire-engine the vehicle is built low; it has a two-cylinder horizontal petrol engine in front, driving by the usual speed gear box—giving three speeds forward and reverse—and Cardan jointed shaft on to the differential on the rear live axle. The pumps, which are placed fore and aft of the vehicle, are driven from a two-cranked shaft by means of a large roller chain running from a chain wheel on the transmission

The cylinders are 110 mm. diameter, by 110 mm. diameter, the normal speed being 800 revolutions per minute. Magneto ignition is fitted, with an ingenious centrifugal device for automatically advancing and retarding the ignition. Between the clutch-shaft and the first shaft of the change-speed gear there is a flexible connection formed of a number of teeth, on which are fixed leather cone. A radiator of the Mercedes type, with fan, is

being used. The F.I.A.T. cars have been very successful in races in Italy and Portugal, and are used by the King of Italy, the Italian War Office, the Italian Postal authorities, while quite recently the Portuguese Minister of War placed an order for several cars.

One of the most novel vehicles in the *Salon* is that which made its appearance on Monday of last week on the stand of the Societe des Automobiles Hautier, and of which a plan view is given in Fig. 18. It is to be made in three sizes—one cylinder, 7-h.p.; two cylinders, 13-h.p.; and four cylinders, 18-h.p. The frame is of U-steel; the usual arrangement of motor in front is followed, but a number of modifications have been adopted. In the first place, it will be noted that the fly-wheel, instead of being to the rear of the engine, and forming part of the clutch, is situated just behind the radiator. It has vanes formed on it, so that it acts as a fan to draw air through the radiator. The four-cylinder motor has a bore of 100 mm. by 115 mm. stroke, and runs at a normal speed of 1,000 revolutions per minute. The inlet valves are mechanically operated, and are interchangeable with the exhaust valves, which are placed on the opposite side of the motor. The governor is adapted to act on the inlet valves, and

inside it. The weight of the 10-h.p. engine is 78 kilogs. without the flywheel, or 100 kilogs. complete. The water-circulating pump is provided with an ingenious spring drive. In the basement Messrs. De Dion-Bouton have a large space devoted to motors driving pumps, dynamos, machine tools, and applied to various other processes. They also have a staff of girls engaged in the manufacture of sparking plugs, and it is interesting to the automobilist to watch the different stages through which this necessary article passes, starting from lumps of metal and clay and finishing off ready for immediate use.

Some well-thought-out vehicles are shown by M. Berliet, of Chemin des Quatre-Maisons, Lyons. The four-cylinder motor has a bore of 125 mm. and a stroke of 140 mm., and running normally at 600 to 700 revolutions, develops 24-h.p. The change-speed gear, with two trains of sliding wheels, is arranged for a direct drive on the top speed. M. Berliet is also turning out 10-h.p. and 16-h.p. cars, both having four-cylinder engines.

Messrs. Chenard and Walcker show two-cylinder and four-cylinder motors, in which the regulation is effected by means of increasing or decreasing the length of time during which the inlet valve is lifted. On the half-speed shaft there is a cam mounted

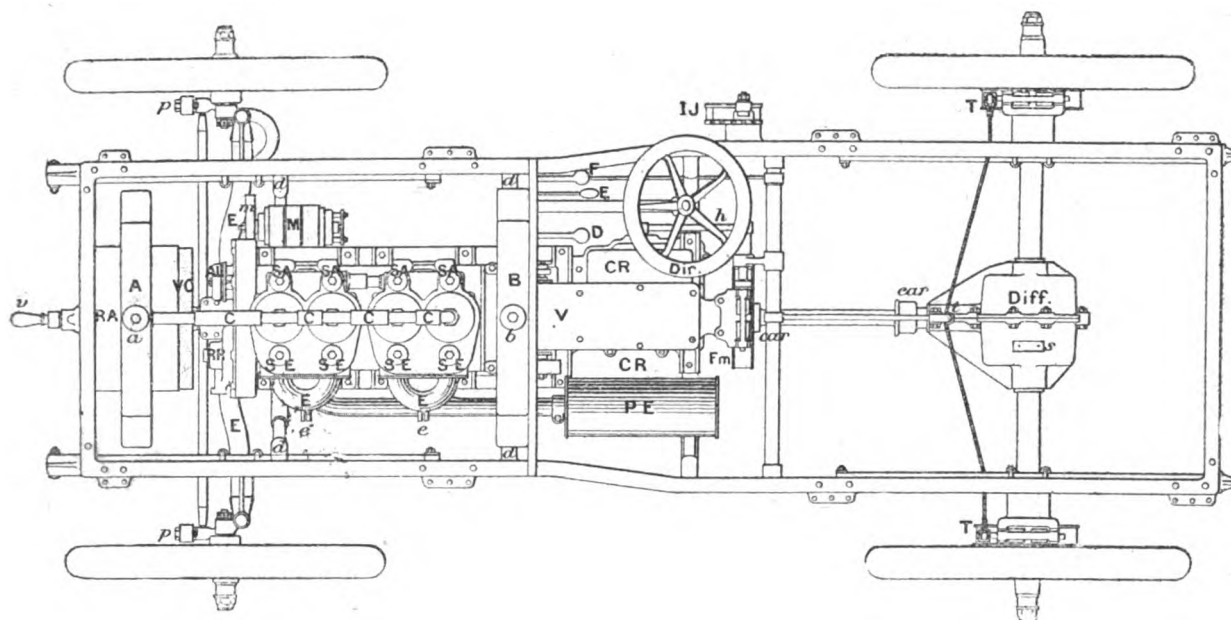


FIG. 18.—PLAN OF THE HAUTIER FOUR-CYLINDER CAR.

A, Water tank.
B, Petrol tank.
CR, Change gear box.
D, Clutch pedal.

PE, Exhaust box.
SA, Inlet Valves.
SE, Exhaust valves.
VO, Flywheel.

La Locomotion.

regulates, not the degree of lift, but the time they are allowed to remain open. The water-circulating pump is mounted on an extension of the crank shaft. Rotary magneto ignition is adopted, although the ordinary electric ignition can be fitted if desired. A special clutch is employed between the engine and gear-box; it is metal to metal, and forms at the same time a speed-reducer, decreasing the engine speed in the ratio of 5 to 1. Four speeds forward and a reverse are available, the gears being constantly in mesh; from the gear-box the power is transmitted by a longitudinal shaft and bevel gear to the rear live axle. The radiator employed is a novel one, consisting of a spirally-wound coil. The engine, clutch, and gear-box form three distinct units, each of which can be separately taken out in a very short time. Altogether the 1903 Hautier is an interesting vehicle.

Messrs. De Dion-Bouton et Cie. make a prominent feature of their new 6-h.p. Popular car and of their new change-speed gear, giving three speeds and reverse. This is fitted to the 10-h.p. car with two-cylinder motor. A peculiarity of the latter is the method of lubricating the gear and motor by means of a pump, which sends the oil to the top of the gear-box and crank case, where it is distributed by a perforated channel running round

on a sleeve and with the eccentric part of it finishing in a flat right angled triangle with unequal sides, the short side being in the direction of rotation. When the sleeve is pressed forward to its fullest extent the valve stem is lifted up and held up whilst the side of the triangle passes under it. As the sleeve is drawn back the distance traversed is less and less, so that the time that the valve is lifted becomes smaller, although the height of the lift is always the same. The makers claim that this is most the economical and efficient mode of governing. The sparking commutator employed by Chenard and Walcker for a two-cylinder engine, or rather the contact breaker, has only one contact, there is, therefore, a spark in both cylinders at once, although only one is used; the makers claim that this arrangement, although it uses up the batteries a little quicker, has great advantages, for it avoids the difficulty of adjustment which occurs when there are two contact breakers to regulate in synchrony. The Chenard and Walcker cars can be supplied either with live axle or with a chain drive; the differential shaft and the live axle are almost identical in form and independent of the change of speed gear.

An excellent display of the Turcat-Mery system of cars is made by Messrs. Dietrich and Co., of Luneville, examples of the

8-h.p., 12-h.p., 16-h.p., and 24-h.p. cars being shown. As is known, these vehicles are now built on standard lines, with the engine in front and driving through a clutch and gear-box to the differential shaft, which is connected with the rear road wheels by two chains. There are a number of interesting details in the cars, not the least of which is the facility with which the clutch can be adjusted.

La Societe de Constructions Electro-Mecaniques, of Levallois-Perret (Seine), exhibit a combination petrol electric car, known as the "Electrogenia." Fig. 19 herewith shews a view, in plan, of the arrangement adopted. A is a 9-h.p. two-cylinder petrol motor mounted longitudinally in the front of the car, and coupled directly to the dynamo B. The terminals of the dynamo are connected by cables to the horizontally-mounted controller C, from which a second set of cables run to the electro motor D, which drives directly on to the differential gear E, by means of enclosed spur-wheel gearing. It will be seen that the car represents to all intents and purposes an electric vehicle in which the battery of accumulators is replaced by the combination of a petrol engine and dynamo. It consequently enables the flexibility of the electric car to be very largely

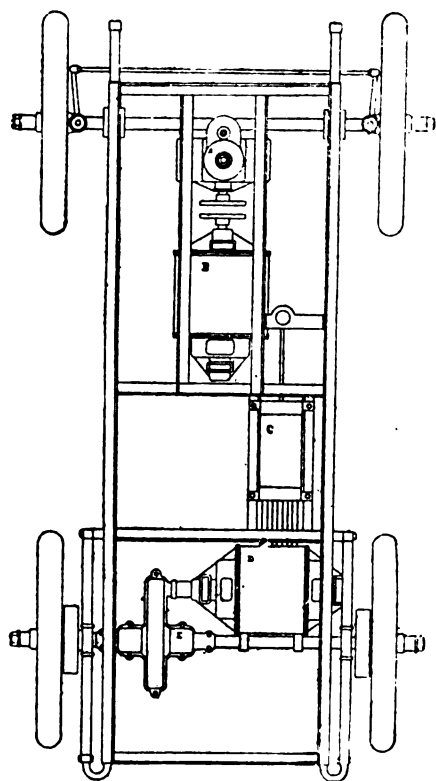


FIG. 19.—PLAN OF "ELECTROGENIA" COMBINATION PETROL-ELECTRIC CAR.

A. Petrol motor. B. Dynamo. C. Controller. D. Electric motor. E. Differential.

realised, though this undoubtedly means a slight extra weight. Change-speed mechanism, otherwise indispensable in a petrol car, is dispensed with, while the electric braking effect, which is so useful in an electric vehicle, can be obtained.

On Messrs. Malicet and Blin's stand we notice a new steering motion which is particularly ingenious. The usual sector and pinion, or worm and wheel, is replaced by a cam movement. The idea of the invention, which is due to a Monsieur Denis, is to make the steering irreversible when the car is going in a straight line, and reversible when going round corners, that is to say, whilst the tendency of the car will always be to keep on in a straight line, it will at the same time be much easier to turn the wheels in either direction than with the usual steering gear. In addition to this there is no back lash or play in the motion. At the foot of the steering pillar there is mounted a V-shaped cam, which moves the steering lever backwards and forwards, transmitting its motion through two conical rollers mounted on the

steering lever. When the wheels are straight the V angle of the cam is mounted on top of the front conical rollers, and it is then quite impossible to move the lever either backwards or forwards. When the steering wheel is turned to the right or left the cam forces the lever, through the rollers, to move either forward or backward as the case may be. The whole movement is made of steel, tempered and case-hardened, and is enclosed in an oil-bath.

The Gobron-Brillie Company show their two-cylinder, four-piston motor with the explosion taking place between the pistons. The cars on the stand comprise a 35-h.p. racer and an 18-h.p. tonneau. This firm have on the stocks a new racing car with four cylinders and eight pistons, calculated to give 100-h.p. The car will have four speeds and reverse and a direct drive.

At each Salon there has generally been shown an arrangement of converting horse-drawn carriages into motor-vehicles. The novelty in this line is the "Avant-Train Cantono" of La Compagnie des Vehicules Electriques, of St. Ouen. In their system a set of forty-four accumulators, controller, and motor are mounted on two front wheels with a steering pillar. By removing the front wheels and front axle of any ordinary carriage, and cutting a suitable opening for the steering pillar to get through the driver's footboard, an ordinary horse-driven brougham can be transformed into an electric vehicle.

M. A. VILAIN, of Rue de l'Atlas, Paris, exhibits an ingenious water-cooler for petrol motors. It consists, as will be seen from Fig. 20, of a series of coils of copper tubes connected at the top to a collector, in which is a safety valve M, and at the bottom to another collector, in which is a draw-off cock C. The cooler is intended to be fixed in a position where the air has free access to it, and placed in such

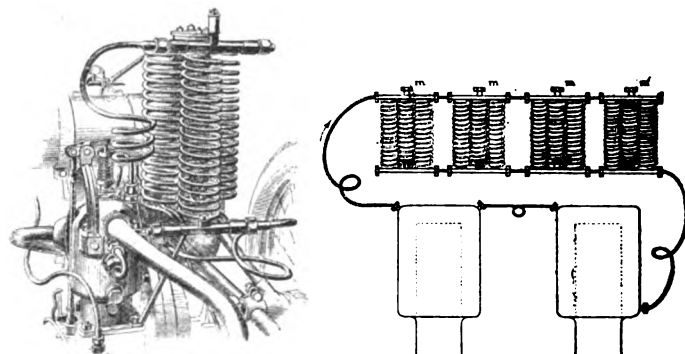


FIG. 20.—THE VILAIN CIRCULATION WATER COOLER.

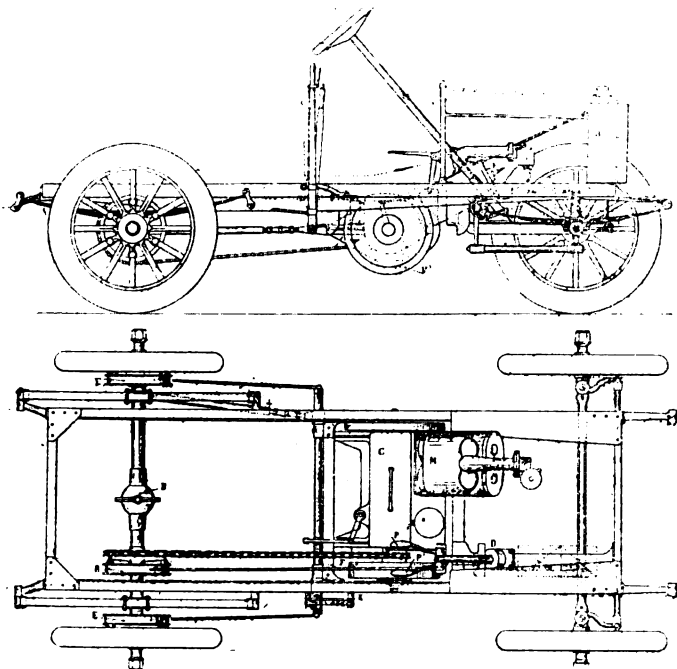
position that the lower collector is above the head of the motor. Fig. 2 illustrates the method of connecting up the cooler to a two-cylinder motor. The coil is hermetically sealed so that there is no loss of water; in fact, M. Vilain claims that once the coil is filled with water it needs no further attention for a long period.

M. E. Chaboche is one of the few French builders devoting attention to steam vehicles; as regards pleasure cars, he has on view a limousine and a double phaeton, while the industrial section is represented by a light steam lorry shod with solid rubber tyres. A number of improvements have been introduced in the Chaboche vehicles, the main one being the adoption of petroleum as fuel in place of coal.

The Clement Company have gone in for mechanically operated valves and honeycomb radiators, together with stamped steel frames and magneto ignition. The most attractive vehicle seems to be a four-cylinder car of about 16-h.p., with the motor very low down and the flat square bonnet, which is the prevailing fashion this year. There is also a two-cylinder car with mechanically-operated valves.

The Continental Rubber Company have an important stand chiefly noticeable for the 100 and 125 mm. covers, which fit 85 and 95 mm. rims. Messrs. Falconnet and Perodeaud, in addition to their solid and pneumatic tyres, show their new flat armoured tread, which can be fitted to any tyre, and which, they claim, does away entirely with side-slip.

AN interesting car is that shown by La Societe des Automobiles "Motobloc," of Bordeaux. Figs. 21 and 22 give respectively an elevation and plan of the chassis, while a section through the two-cylinder motor is given in Fig. 23. The name of the car is derived from the fact that the motor and variable gear form a compact single set. The frame of the car is constructed of steel and wood. The motor develops 10-h.p. at a normal speed



FIGS. 21 AND 22.—ELEVATION AND PLAN OF "MOTOBLOC" CAR.

of 1,000 revolutions. Its feature lies in the fact that the change gear, which gives three forward speeds and a reverse, is mounted in the crank case, which is extended at the side for the purpose. Only eight gear wheels are used to give the different speeds, and to actuate the exhaust valves and ignition. As will be seen, the engine is mounted in the fore part of the frame in an inclined position. The change-speed gear is ingeniously arranged, the drive being direct on the top speed. A single chain connects the variable gear shaft with the rear axle.

One of the neatest two-seated cars in the *Salon* is that which is somewhat hidden away among larger cars on the stand of the Societe Parisienne de Cycles et Automobiles. It has a frame of tubular construction, and is a replica, as regards general arrangement, of the standard style of car. The motive power is supplied by a 4-h.p. Aster engine, and the change-speed gear is adapted to give three speeds ahead and one reverse. From the gear-box a longitudinal shaft and bevel-gear transmits the power to the rear live axle. We understand that arrangements are in hand for the placing of this vehicle on the English market. La Societe Parisienne also show a 1903 model 18-h.p. Mors, fitted with one of the most sumptuous bodies we have seen. It is the handiwork of Messrs. Lamplugh and Co., and is more like a small Pulman car than anything else, the passengers being provided with comfortable seats and lockers.

The Tony Huber is a comparatively new car with a four-cylinder 20 to 24-h.p. motor of 112 mm. bore and 140 mm. stroke. The engine has mechanically-operated valves, and only one cam shaft. The governing is on the admission, with a foot accelerator. Each pair of valves is held in position by a stirrup which swings aside and allows them both to be taken out easily. The transmission is by universal joint and live axle. On the water-jacket of the motor there is a peculiar attachment to obviate the difficulty of making and remaking the joint by means of rubber tubing; instead of this they have a wire spring clasp, similar to the well-known fastening for beer bottle stoppers, and by means of this the joint can be instantly removed if necessary.

The Societe d'Automobiles et de Traction (Systeme Bardon) show a new type of light carriage, with steel frame, and fitted with a 7-h.p. motor. In order to allow of the employment of shaft transmission, the position of the engine has been changed. As it well known, power is transmitted from the crank shaft by bevel gear to the primary shaft, which is parallel to the cylinder, and instead of being placed across the front of the car they are now arranged longitudinally. The secondary shaft is below the primary shaft, and thence the drive is taken through a universally-jointed shaft to the differential on the live axle. The single cylinder two-piston motor is retained, but the inlet valves are now operated mechanically, and, owing to the distance of the valves from the half-speed shaft, and also to their position, this is done by means of a sort of trip gear. The engine is also now governed on the admission. The Bardon Company also show one of their two-cylinder four-piston cars, with the old style of transmission.

Henriod shows a combined change speed gear and live axle, with sliding gear, four speeds and reverse, and direct drive. It is very compact and of small dimensions. The carburettor made by this firm has no float feed; the jet is in the suction pipe, and the pointer which closes and opens the jet is attached to a valve which lies across the suction pipe. The stroke of the piston sucks up the pointer and allows the petrol to flow, or lets the pointer drop and stops the petrol from flowing as required.

Pneumatic tyres are fairly well represented in the Exhibition. We say fairly well, because a motor show can hardly be complete without a stand representing the productions of Michelin; but this year the great Clermont-Ferrand firm have declined to exhibit, and thereby hangs a tale. Everyone who has visited previous exhibitions will well remember Michelin's circus, where solid wheels and wheels with pneumatic tyres went round and round over obstacles. Everyone will also remember the nail extractor at work, [and the *mechanicien* showing how quickly a tyre can be fitted or a tube changed. All these side-shows attracted a great deal of attention and helped to instruct the public. This year Messrs. Michelin were refused their usual positions, and there was a desire to relegate them to a side gallery, which in their opinion was derogatory to their importance, and they therefore withdrew entirely from the Show.

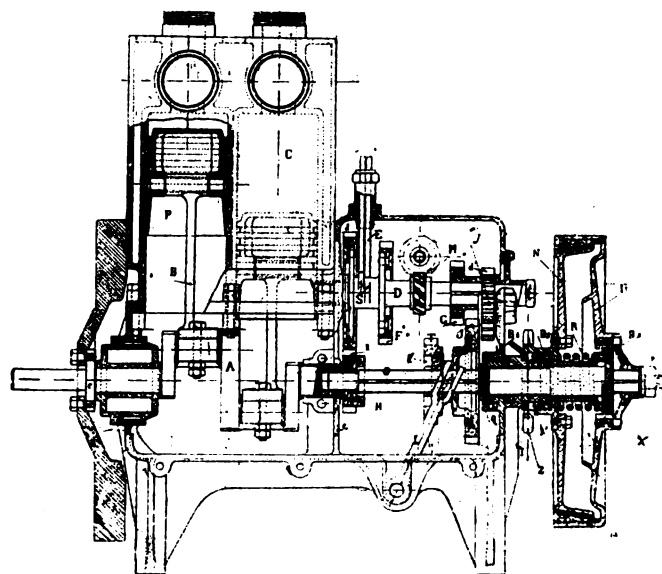


FIG. 23.—SECTION OF "MOTOBLOC" 10-H.P. TWO-CYLINDER MOTOR AND CHANGE-SPEED GEAR.

M. Jeantaud again makes a display of electrical vehicles, included among which is one of his special design of four-wheel hansom. On this stand also is a huge omnibus built for the Compagnie de Traction Automobile, for service at Montalban. The vehicle is designed to run on ordinary roads, but to derive its current by means of a trolley on an overhead conductor, the same as an electric tramcar.

Messrs. Cottureau and Co., of Dijon, have made great strides since last year, and show a four-cylinder motor weighing $3\frac{1}{4}$ cwt. The cylinders are 92 mm. bore by 126 mm. stroke, and mechanical admission valves are fitted. The magneto-ignition arrangements are particularly simple and allow for efficient advance and retardation of the moment of rupture in the cylinders; should there be a back explosion a spring dashpot receives the blow which would have made the rupture. The regulator works on the admission. The chassis for which this motor is destined will be chain-driven, and will have four speeds and reverse, the fourth speed being direct, on the lines of the Mors and Georges Richard arrangement. In addition to this Cottureau and Co. are putting on the market a new small car for two persons, with a single-cylinder motor, mechanically-worked valves, three speeds and reverse. The chassis will only weigh about 6 cwt. This car will, however, not be ready until February next.

La Societe des Automobiles Belgica, not to be left behind, has produced a two-cylinder and four-cylinder motor with mechanically-operated valves, and a regulator on the admission. The supply of lubricating oil in the base chamber is maintained at a fixed level by a float valve. Both motor and gear case are mounted on the frame and attached at three points, forming a triangle. Between the motor and the gear-box there is a universal joint. The cars exhibited by the Belgica Company are particularly well finished, for show purposes the engine parts are in some cases nickel plated, while a glass window is fitted in the bonnet to enable the motor to be readily seen.

The "Pipe" car with four cylinders is on view, but the model with mechanically-operated valves is not yet ready; the carburettor, however, of the present car is supplied with a slide throttle valve on the Mercedes principle; the slide, however, which opens and closes the inlet is conical in shape and fits into a cylinder in which triangular-shaped slots have been cut, and in this manner the flow of the gases is regulated with precision. The motor at present used is similar to the well-known Phoenix.

Krieger shows his well-known electric carriages, and in addition to this a new combination petrol-electric car. It is fitted with a single-cylinder 8-h.p. De Dion motor, which drives a dynamo at a constant speed, the dynamo being so wound as to be able to give either a high current at a low tension or a low current at a high tension. The current thus produced is transmitted to two motors placed on each side of the front axle, on the usual Krieger system.

A large crowd of visitors is all day long to be found round the stand of Messrs. Charron, Girardot, and Voigt, examining the eight-cylinder motor this firm is introducing, with the idea of doing away altogether with mechanical change-speed gearing. On one large crank chamber are mounted eight 5-h.p. cylinders, arranged in sets of four. The power is transmitted direct to the countershaft, and all intermediate gears are entirely dispensed with, the speed of the car being controlled entirely through the engine by means of a throttle governor and by the timing of the ignition. Any speed from three miles an hour to the maximum can, it is claimed, be obtained at will. The cylinders and combustion chambers are of cast steel, bolted to an aluminium base; the water-jackets are of brass. The induction and exhaust valves are on opposite sides, both being mechanically operated. All the cylinders are entirely separate one from another, and are interchangeable. The frame of the chassis is of unusual construction, being made up of a core of hard flexible wood of square section, over which is a light steel covering of solid-drawn round steel tube, pressed over the wood to a rectangular form, the whole making a strong, flexible frame. The new C.G.V. clutch is practically a metal band-brake, which, rotating as part of the flywheel, can be made to grip a metal pulley on the clutch shaft. A 15-h.p. military car is also to be seen on this stand. It has a steel-protected body, and is equipped with a Hotchkiss machine gun firing 600 rounds a minute.

AMONG well-known automobilists who have recently taken possession of Daimler carriages are Lady Meux, Sir William Pearce, Bart., Sir Ralph Hare, Bart., and Sir William Gordon Cumming.

CONTINENTAL NOTES.

BY "AUTOMAN."

"LE VELO" views with alarm and regret that the English language seems to be gaining ground in the French automobile world. "Why do our builders," remarks this daily, "want to bring in English to say what they have to say to visitors, when the French language is so convenient and possesses quite as many appropriate expressions as the former? It is only necessary to look at the catalogues published this year by builders, and the placards they post up, and there you will find more frequently than in preceding years the two letters h.p. voiture, 8-h.p. tonneau, 6-h.p., etc. As far as the number of words goes we see no reason for substituting something else for 'cheval-vapeur.' But in colloquial French we should not say 'cheval-vapeur,' we should simply say 'cheval,' so that one word suffices, as against two in English." "Le Velo" considers that it is merely snobbishness which makes French motor builders use a foreign expression instead of their own language.

THE sensation of the week has been the challenge that Santos Dumont has issued to the Lebaudy Brothers for a race in mid-air. It came about through an article which appeared in "Le Velo," in the course of which it was reported that M. Edouard Surcouf, in an interview, has declared that the Lebaudy balloon, of which he is the pilot, was capable of attaining a higher rate of speed than the Santos Dumont No. VI., the winner of the Deutsch prize. The young Brazilian aeronaut could not stand this, and almost before the ink which printed it was dry he drove to the Aero Club and deposited a challenge for 100,000 francs to race the Lebaudy balloon, when, where, and how the Aero Club should settle. One quarter of the sum was deposited to show that he meant business and the sporting press of Paris took up the matter and considered it a matter of course that the Lebaudy Brothers would at once accept the challenge.

THEY have, however, sent a letter to the "Auto Velo" in which they state that they learn from the press that they have been challenged to an aerial race. They do not, however, know the conditions of the race, but in any case, should any such challenge reach them, they would not be inclined to accept it. They wish to continue the experiments they began three years ago, without changing their programme.

I WAS glad to see, from the last issue, that you had noted the case referred to by "La France Automobile" under the heading "La Faillite des Numeros"—the failure of numbering—where M. Pernod, who is President of the Automobile Club of Avignon, has been prosecuted for killing a dog belonging to a municipal councillor at Pontoise, when he was going about his ordinary business quietly in Avignon, which is at the other end of France, several hundred miles away. Possibly M. Pernod will be acquitted—I say possibly—for it is not at all certain, but whether acquitted or condemned will make very little difference to his pocket or his convenience.

AFTER writing the above paragraph I looked up the actual distance between Pontoise and Avignon, for the sake of bringing the matter home to those automobilists in England who still have leanings towards numbering, or who have an open mind on the subject and are willing to take a lesson from their neighbours. Avignon is 466 miles by rail from Paris, while Pontoise is about twenty miles from the capital in quite another direction.

To make a good comparison, imagine an owner of a motor car living at Esher receiving at breakfast a summons for running over the dog belonging to a municipal councillor of the town of Kirkcaldy, on the east coast of Scotland, between Edinburgh and Dundee. If he is a very busy man, the best, and, indeed, the only thing he will be able to do, is to let the case go by default, and pay for the dog and the expenses and probably also

a fine. But what if it is an accident to a human being. In that case he cannot let it go by default, but he will have to fight the matter to save himself from imprisonment. Here comes in another question. Suppose somebody has been run over and killed and a false number taken, our friend at Esher may be actually arrested.

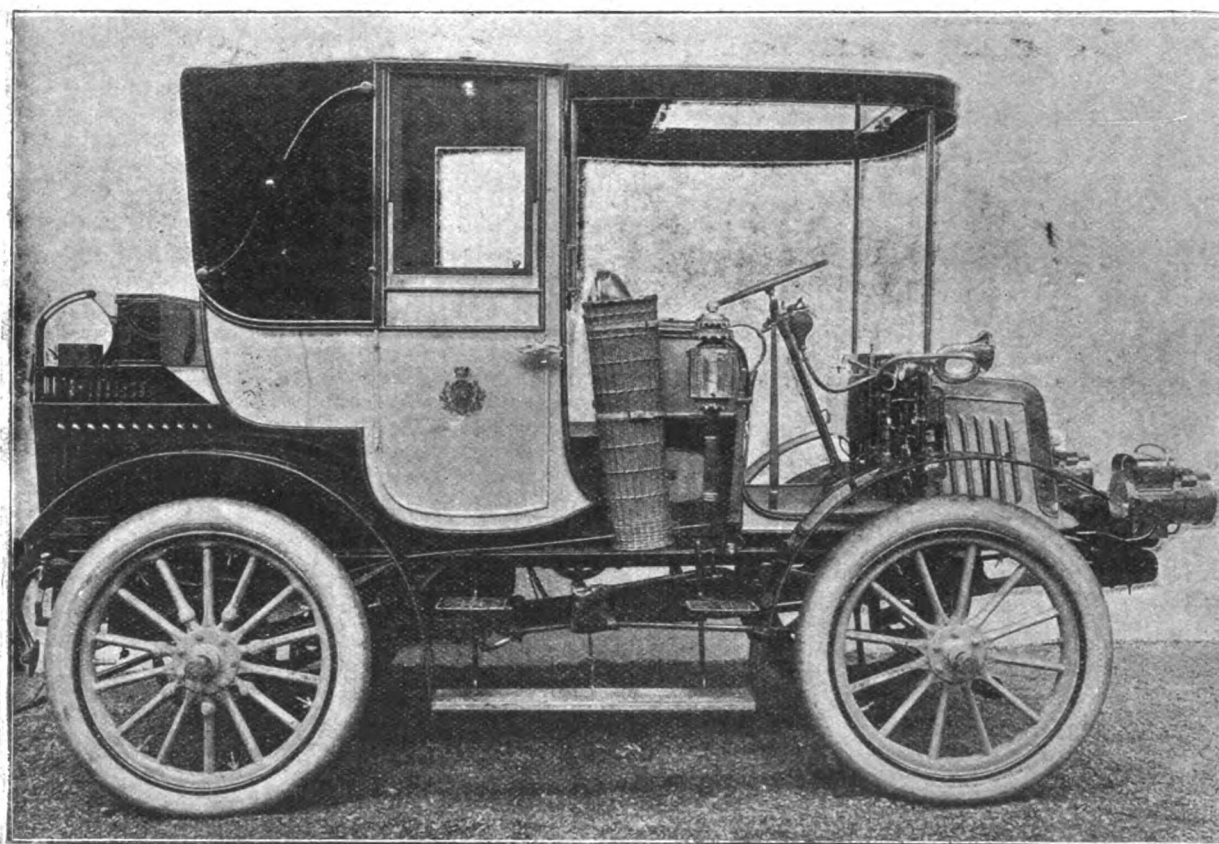
THE other day I met a member of the Committee of the A.C.G.B.I. in the Salon, and I asked him, knowing that he is a practical automobilist, what he thought about numbering. He did not give me his opinion, but said that if a numbering Bill was not brought in by automobilists one would surely be brought in by the Government, and that this was the reason for the promotion of the Automobile Club Bill. If this be the case, there is no time to be lost for the press to get up an agitation against numbering—an agitation such as will reach the ears of the Government and cause them to look into the question seriously. One thing is certain, and that is that

It is proposed to organise an excursion into Andalusia at the termination of the Paris-Madrid race.

A COMPANY has just been formed in Sweden with a capital of 135,000 kr., to be known as the Actiebolag Svensk Automobil-fabriken.

MESSRS. GILLET-FOREST AND COMPANY, who still adhere to the single cylindered, horizontal engine for touring cars and delivery vans, are, I hear, building a 100-h.p. four-cylinder racing car, which is not to be sold, but which is solely intended to compete in next year's important races.

L'AUTOMOBILE DE CUGNOT A WOLSELEY is the title of a well compiled booklet in French which is being distributed by the Wolseley Company at their stand at the Paris Salon. In addition to comprising a series of about a dozen views of the works and departments of the Adlerley Park Works, where the Wolseley cars are built, the pamphlet touches upon the growth



THE 50-H.P. SERPOLLET STEAM LANDAULETTE BUILT FOR THE SHAH OF PERSIA.

[La France Automobile.

numbering in France is doomed, and it will only require a sheaf of absurd mistakes similar to that of M. Pernod, of Avignon, to cause the law to be changed. In the meantime the trade and the public must suffer for the shortsightedness of the legislator.

THE old maxim, "Better bear the ills we have than fly to others that we know not of," just fits the case nicely and expresses the sentiment of most British automobilists. The persecutions of the police will gradually die out as motor-cars become more general, and, above all, as magistrates and police superintendents become motorists themselves. The narrow ideas of speed will become wider and the objectionable restriction of twelve miles an hour will become a dead letter, whilst the real scorcher will be watched for and condemned, just as the drunken waggoner is attended to now. Everything points to this result in every country, and, after all, if the aggregate fines were added up and proportioned out over all the users of motor-cars, the results would be quite insignificant.

of the motor industry from the earliest known type of car to the present day. The last paragraph in the work reads "At this date (December, 1902), the company has orders on hand for over 800 cars of different types, representing a value of about £300,000. The output of the works is now actually ten cars per week."

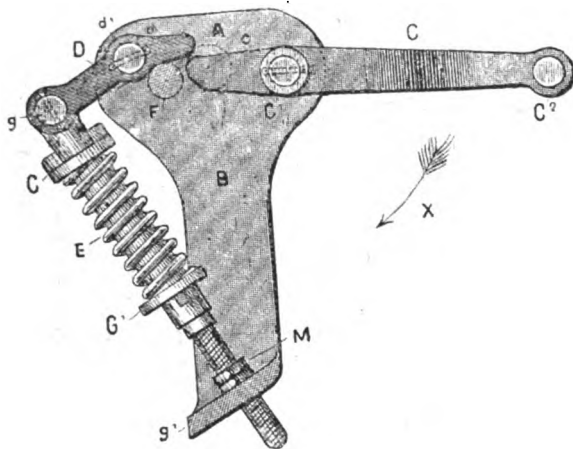
THE Dukes of Manchester and Newcastle are among the candidates for admission to the Automobile Club.

A COMPANY is being formed at Tenerife, Canary Islands, to introduce a number of motor-cars to ply between the different towns in the island. The cars will be furnished by Messrs. Panhard and Levassor.

MESSRS. FORTIN AND HIJO, of Tegucigalpa, Honduras, write that they are interested in motor-vehicles for carrying merchandise over macadamised roads with a maximum grade of 12 per cent., and would be glad to receive price lists, etc., from makers of such cars.

THE "ANTI-SHOCK" STARTING HANDLE.

MOST motorists know from experience that unless the ignition is well retarded, a petrol motor has, on starting, a nasty tendency to back-fire, and if one is not careful, a sharp blow on the wrist from the starting handle is experienced, the result being a sprained, if not a broken, wrist. During our rambles at the Paris Show we came across a novel starting handle, which automatically disengages itself at the slightest attempt of the motor to backfire, and so prevents these unpleasant and inconvenient experiences, and as we feel sure it will be read with interest, we hasten to publish a description and illustration of the device. It is known as the "Anti-Shock," and, devised by an engineer named M. Duchene, has just been put on the market by Les



Etablissements Montauban and Marchandier, of St. Quentin Aisne. It consists of a plate B, which is to be keyed at A on to the shaft of the engine. The handle is pivoted on the plate at C, as is also at d^1 , the short lever D, the end of which bears, owing to the action of the spring E, against a stop F, and lightly on the end of the lever C. The spring E is so mounted that the effort necessary to compress it is slightly above the degree of compression of the explosive mixture in the combustion chamber of the motor. The operation is as follows: To start the motor, turn the handle in the direction shown by the arrow; if all goes well, the whole device will turn as one piece; if, however, there is any tendency to premature explosion, the force of the back-fire is taken up by the spring E, which, becoming compressed, causes the lever D to be lifted off from the end of the starting handle proper, the latter thus becoming quite free and independent, and receiving no shock whatever. To put the handle in position for a fresh attempt to start the motor, it is only necessary to give it one complete turn. The "Anti-Shock" starting handle costs about £2; it is made in two sizes, one for motors under 8-h.p. and one for engines over that power. The makers state the device can be fitted to any engine. The only information required being the horse-power, the diameter of the engine shaft, and the direction of rotation of the motor.

AT the thirteenth annual meeting of Alldays and Onions, Limited, the Chairman said that in the cycle and motor departments they had done better than before, and it was gratifying to announce that the considerable loss of the previous year on the motor department had been turned into a small profit, with excellent prospects.

THE American National Association of Automobile Manufacturers' executive committee has sent out a circular letter to the makers of lamps urging a standardisation of lamp brackets.

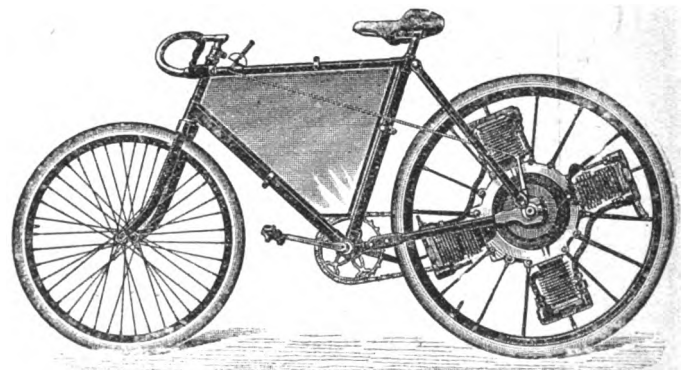
MOTOR-CYCLING NEWS.

IN connection with the Liskeard Literary Institute Dr. C. C. Lord, of that town, has been lecturing on motor-cycling. Dr. Lord is the only Liskeard resident using a motor-tricycle for professional purposes. With regard to the working expenses connected with his machine he said that fuel (petrol) cost 3s. per 100 miles; electricity, by the time the accumulator had reached Liskeard, 4d. per 100 miles; while a quart of lubricating oil at 1s. 6d. would be a liberal allowance for 100 miles, so that altogether the cost worked out at 4s. 10d. per 100 miles. Then tyres were a big item, the first cost being about £3 10s. per wheel. The cost of the machine was close on £70; with an air-cooled motor of the same type the cost would have been about £10 less. Including in his working expenses an item of £10 for a big smash, he found that he was still £3 per month to the good on what it had cost him to drive horses.

At the first meeting of the Derby and District Motor-Cycle Club, Dr. Barwise accepted the presidency and Mr. Isaac Hill the vice-presidency. The committee consists of Messrs. C. T. Leech, Collinbell, Dowell, Cyril Smith, Wall, and Hallam, with Mr. T. R. Turner as secretary. The inaugural run will be held on Boxing Day.

It is proposed to form a Belfast branch of the Motor Cycle Union of Ireland.

THE "Roue Automotrice," illustrated herewith, is one of the motor-cycle novelties at the Paris *Salon*, where it is exhibited by Messrs. Gaston Rivierre and Company, of Courbevoie (Seine). As will be seen, there are two pairs of two-cylinders built in the rear wheel. Of each pair, only one cylinder is used for propelling the machine, the other serving to compress the charge. In this way the usual valves are done away with, and an explosion is obtained in the working cylinder at every revolution. The driving wheel has no through axle; the



connecting rods of the cylinders have a common big end bearing upon the crank pin of the fixed hollow crank axle carried in the back fork ends. The bosses of the driving wheel run on ball bearings on this fixed axle. The cylinders, of course, rotate with the wheel, of which they form practically the central spokes. The mixture is introduced to them through the hollow axle and suitably-made drilled bosses and connections therein. Messrs. Rivierre claim great efficiency for this machine, as the back wheel, with its revolving mass of cylinders, acts as a most efficient flywheel, and the cylinders are kept very cool by their rapid rotation in the air.

A NOTICEABLE feature of many of the motor-bicycles exhibited at the Paris *Salon* is the fact that instead of a rim brake acting on the rear wheel as is found on such machines in this country, the inner surface of the large belt pulley is made to serve as the brake drum. Such a brake is found on the Werner 1903 model and appears to be most effective.

"THE MOTOR MANIAC."

MRS. EDWARD KENNARD is well known to motorists as an enthusiast for their sport; to the reading public she is favourably familiar as the author of "The Girl in the Brown Habit," "Tony Larkin, Englishman," and other novels. Now she appeals to both sections of the community with "The Motor Maniac"—a novel just published by Messrs. Hutchinson and Company. Chapter I. opens well with the heading, "Mrs. Jenks decides she must have a motor-car," but not till the sixth chapter does she receive her first driving lesson. After the momentous decision to purchase a car had been come to, the good lady read the advertisements in the *Motor-Car Journal* and sallied forth to Holborn Viaduct—a reference to the location of the motor-car depots that has already become out of date. Having spent some time in investigating the points of a Peugeot and trying the patience of the salesman, she went to "the home of the Decauville," from whence Mr. Soppet Board took her for a drive on a 5 h.p. car.

"Mrs. Jenks mounted into the car, and Mr. Soppet Board got in on the driving side. A minute later, and they were whirling through the traffic at a surprising speed; now stopping dead short, just when it seemed as if nothing could save them from going crash into the rear of an omnibus; again, dashing past the very nose of a hansom cab horse, and performing marvellous, awe-inspiring feats of dexterity. Once a policeman cast a severe glance at them as they glided by; but Mr. Soppet Board waved his hand in token of good fellowship, and moderated the pace for about fifty yards. He and the blue-coated official were evidently not unknown to one another. Meanwhile, he discoursed most agreeably to Mrs. Jenks, and quite won her heart by his charm of manner and the happy flow of his conversation. Her only regret was when she found herself back again at the starting-point, after what seemed to her their headlong flight through the City streets. However, no accident had occurred, although she thought every moment they were on the verge of one."

Trips were then paid to Messrs. Hewetson's place, to Holland Park to see an Orient Express—and home again to argue with Mr. Jenks. Next morning a sight of the motor-car journals rekindled her ardour, and she rushed into East London in search of a second-hand Benz Ideal—the property of a Mr. Long, who became the good lady's first motor tutor. On page 88 there is a reference to business methods, and then Mrs. Jenks goes into raptures over "the handsome Francis," whose place in the story need not be detailed here.

Then comes the inevitable—if prejudiced persons speak truly—viz., "the first smash."

"Faster and faster went the car, but the cart ahead moved not an inch either to right or left. There was room to pass, but its mere proximity flurried Mrs. Jenks. She gave a wobble, then another, and managed to graze past with about a foot to spare. But the effort was so great, it caused her to steer an erratic course, and the car began to lurch in a most disagreeable, not to say alarming, fashion. She herself believed she would have got to the bottom in safety; but all of a sudden her companion stretched out his hand; seized the steering lever from her grasp, and gave a tremendous wrench. The car had been perilously close to a grass bank, but in answer to the helm it shot almost out into the centre of the road. Then, without any warning, an extraordinary thing happened. It turned completely over, and both Mrs. Jenks and Mr. Bone were hurled to the ground with great violence. For one agonising moment they perceived a yellow flash over their heads, which threatened to annihilate them. But the flash passed beyond where they lay, and a hideous crash followed. For full a minute there was deathlike silence. Flat amid the dust reclined two prostrate forms; on its side on the grass reposed the damaged car."

After that Mrs. Jenks progressed wonderfully, and it was not long ere Mr. Jenks was converted and went for a drive himself, his initial trip being such a success that he "contemplated writing to the *Motor-Car Journal* and recording his doings." The incidents of touring and the introduction of Miss Angela Marrimee are responsible for many pages in the book, over which we glanced with general interest until Mr. Montmorency Black comes upon the scene with his Napier—a car which was one "of clever Mr. Napier's latest productions fitted with all the improvements that the joint intelligence of himself and the celebrated Mr. Pellin Sedge could devise." Timothy Snooks having become the motor confidant of Mr. and Mrs. Jenks, the lady wanted

something more than a Benz and decided on a motor-tricycle. One of the early trips on the latter is thus described:—

"She had a delightful run of about thirteen miles, and was nearing an important village, where she proposed turning round, when, on taking a corner at rather a high rate of speed, a horrid little fox-terrier jumped out suddenly from a hedge and flung himself defiantly right in her path. Before she had time to alter her course the front wheel passed clean over his body with a tremendous jolt. So great was the force of the impact that the tricycle all but upset. In frantically endeavouring to right it Mrs. Jenks partially lost control of the steering. Leaving the road, they bounded on to the grass at the side, and were very nearly precipitated into a wide cut ditch. Avoiding this by a miracle, the tricycle next dashed off in the opposite direction, traversed the road again, jumped the low bank that bordered it, and finished off by executing a marvellous leap in the air. All three wheels seemed to leave the ground simultaneously, and it was just touch and go whether they descended in an upright position or not. Fortunately, they ended by doing so, but not before the rider experienced moments of agonising uncertainty. And to owe such sensations to a wretched little dog! Mrs. Jenks scarcely knew whether to be more frightened or angry. As a matter of fact, she was both. Such a hairbreadth escape could not be characterised as pleasant."

After getting summoned, and appearing before the magistrates, Mrs. Jenks decided to obtain converts to automobilism



Photo by]

[Mr. W. C. S. Luther.
A SNAPSHOT AT COBHAM.

The chapters on this development as well as the sale of the first car are as entertaining as any in the novel.

Later, Messrs. Peto and Radford are introduced—probably the first time they have thus appeared in literature—and then follow in quick succession the Hon. Cyril Rowley, Mr. Lark Hewmay, Miss Cutler, Mr. Macpherson, Mr. Master Sidbrook,—to say nothing of a visit to "Mr. Napier's works in Vine Street, Lambeth." The last few chapters bring out the names of many leading cars, and if the plot of "The Motor Maniac" is slight the automobile interest is undoubtedly strong—as might well be imagined from Mrs. Kennard's enthusiasm for the pastime.

THE Wolsley Tool and Motor-Car Company, Limited, have sent us a copy of a leaflet they have just issued, in which they point out that with the approach of winter it becomes necessary to remind owners of motor-cars that during cold and frosty weather there is great danger of the water in the cylinder jacket and radiators freezing during the night, or while the car is stabled. It is therefore most important to see that the water is drained off when the car is not being used. For this purpose a tap is fitted in each combustion chamber of the Wolsley motor. The pump cover should also be taken off and water-bottle caps removed. When refilling the motor with water it is advisable to occasionally sluice out the pipes, etc. This may be done by inserting a hose in one of the water bottles, leaving the pump cover off, and sending a stream of water through the pipes for about ten minutes.

HERE AND THERE.



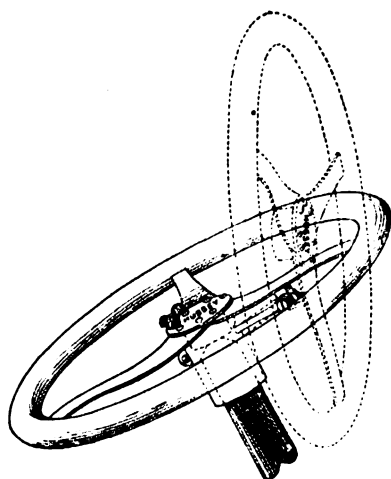
THERE are now thirty-five automobile clubs in France.

MESSRS. BRYANT AND MAY, Ltd., will have a steam delivery van from the Lancashire Steam Motor Company running in London early in the new year.

AN automobile census has been made by the "New York Sun," in which the output of the American factories during the first eight months of 1902 is placed at 19,000 vehicles, valued at more than £4,000,000.

THE Albany Motor Company, Limited, has been registered with a capital of £10,000 to adopt an agreement with the Albany Manufacturing Company, Limited, to carry on the business of a motor company generally.

ONE of the latest American novelties is the tilting steering wheel illustrated herewith. To allow of easy ingress and egress to and from the front seat the steering pillar is, in a number of cars, pivoted at the bottom in order to permit of it



being tilted up into a vertical position. It is, however, not so much the pillar that is in the way as the wheel itself, and Mr. P. L. Hussey, of Clarke Avenue, Detroit, U.S.A., the maker of the device illustrated, gets over the difficulty by fixing the wheel in such a way that it can, by releasing a catch, be tilted up.

AMONG the tailoring firms now seeking to be of service to motorists is Messrs. Walker and Co., the well-known sporting tailors of Sackville Street, W. They are bringing out a motor coat of smart appearance, with ample pleats at the back, which allow for the knees being fully covered when sitting, while in walking there is the maximum of freedom for the legs. Fitting closely round the throat, the lapels afford good protection for the chest, and Messrs. Walker and Co. should find the ideas they have incorporated into the coat very acceptable to practical motorists—of whom the principal of the firm is one. They also make coats lined with fur, or with the fur on the outside, and in this department have some distinctly good styles.

ON Saturday, at Christchurch, St. Leonards-on-Sea, the marriage of Mr. Lionel Savory and Miss Beatrice Norton was celebrated. Mr. Savory is the proprietor of the Westminster Motor Car Garage, and drove from London on the Friday on his 12-h.p. Gladiator car. He was closely followed by the best man, Mr. Martin, in his 12-h.p. M.M.C. car; Mr. Reynier came next on his 8-h.p. M.M.C. car, and he was followed by Mr. Shaw on his 7-h.p. M.M.C. car. There was quite an interesting meet of motorists at St. Leonards. Even at the wedding breakfast the motor atmosphere did not cease, for the cake was decorated with miniature automobiles, and lilliputian policemen. After the ceremony the bridegroom drove the bride away in his car to Brighton and the West of England.

A BRIGHTON correspondent informs us that the local police are very watchful in the neighbourhood of Patcham.

SIR JOHN FULLERTON, Groom-in-Waiting to King Edward, has, we learn, entered the ranks of motorists, his choice having fallen on a Beaufort car.

THE Belgian Automobile Club has decided to hold a congress of motorists on the 9th February to protest against the action of the police with regard to motor-car traffic.

AT the inquest at Leeds on the body of Arthur Thackray, 25, a tram-car conductor, who was killed by a motor-car driven by Mr. Haydn Lee, engineer student, the jury have found the latter was guilty of negligence which was not culpable.

A MOVEMENT is on foot to establish an automobile school in Philadelphia, where the novice may take a full and thorough course in the art of handling a motor-car, receive his or her diploma, and be entitled to a certificate as a full-fledged *chauffeur*. Several wealthy motorists are said to be behind the project.

In addition to Mr. Alexander Winton, it is reported that Mr. H. S. Harkness, Mr. W. T. White, Mr. L. P. Mooers, of Cleveland, and Mr. W. K. Vanderbilt, Jun., are claimants for the honour to represent America in next year's Gordon Bennett race. It is said that Mr. H. S. Harkness is having a special Peerless car built for him, and that a special steam car is in course of construction for Mr. White.

MR. GERALD PILCHER has designed a neat form of note book for motorists, which he terms the "Practical Motor Record," and which will shortly be published by a London firm. It will form a convenient pocket-book on the re-fill plan, enabling the automobilist to keep a daily, weekly, and monthly record of his runs; and will also contain a list of hotels recommended by the Automobile Club.

NOW that the King's stud of motor-cars is increasing to such an extent, it has been found necessary to appoint an official engineer and repairer, and Mr. Frank Morriss, of King's Lynn, has been appointed. Mr. Morriss is to be congratulated upon the Royal appreciation of his services and of the satisfactory manner in which he has executed the necessary repairs, etc., to His Majesty's cars from the commencement of the latter's automobile career.

THE IVEL AGRICULTURAL MOTORS, LIMITED, is the title of a company registered with a capital of £10,000, to adopt an agreement with Mr. Dan Albone, and to build and deal in and with, and let to hire any oil, steam, electric, or other motors or tractors for purposes of traction, especially for agriculture, and motor ploughs, and all agricultural implements. The directors are Messrs. C. Jarrott, S. F. Edge, and D. Albone, and there is to be no initial public issue.

SOME little time ago Messrs. John S. Morris and Son, of the Victoria Bridge Oil Works, Manchester, sent us a sample of their "Speedon" motor-cylinder oil, and as a result of actual use we may say that it appears to thoroughly fulfil the various claims made for the lubricant. "Speedon" is a pure hydro-carbon oil, and does not clog or "gum" the working parts in any way. The flash-point and viscosity are high, and it is free from objectionable smell. It does not appear to foul the sparking-plugs, nor yield any carbonaceous deposit. In addition to its durability under extreme heat, it has also the advantage of being fluid at low temperatures, a valuable desideratum in a motor-car lubricant. As well as for cylinder lubrication "Speedon" is adapted for use in axle-bearings, pinion-wheels, and valve-lifter guides. To meet the varied requirements of motor-car lubrication the oil is manufactured in two consistencies, the thinner oil being specially recommended to those who motor in the winter, as it is very free flowing at all temperatures experienced in this climate, and there is no necessity for warming the oil in order to make it pass down the tubes to get to its work.

CORRESPONDENCE.

CARBURETTORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Can any of your large number of readers recommend a good economical carburettor? I have a 9-h.p. Rex car, fitted with a small unnamed spray float feed, and even when driving on the hand throttle can never get more than eight miles out of the gallon; perhaps someone used to this particular make of car can advise me how to overcome this difficulty.—Yours faithfully,

L. P. MELL.

BUSINESS METHODS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I corroborate the complaints recently made in your columns as to the carelessness of subordinates in the motor-car trade. I have over and over again been unable to use my car for a fortnight because everything has been sent wrong and has had to be returned to one of the leading firms. Articles not in stock have to be specially manufactured and arrive unsatisfactorily. They are returned and have to be made again. For instance, an induction valve stem was wanted two months ago. "Not in stock" was the reply. I then applied to another company, and was supplied by return. My order was for stem only. The letter of advice states "valve stem." The post brings a 2 in. square parcel, which by outward appearance is enough to insinuate, as usual, "wrong; not ordered"; will be returned not wanted.—Yours truly,

SOLID v. PNEUMATIC TYRES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to the letter of "Anxious Enquirer" in the issue of the 13th inst., asking a question as to tyres, the best answer I can give is my own experience of the Collier. I had these tyres fitted at the commencement of last year to a Locomobile, and ran the whole season, only having had one puncture from a three-inch nail. A new tube was inserted, and the tyre has run ever since without giving any trouble. Early this year I had my 10-h.p. Wolseley car fitted with four Collier tyres. It has travelled nearly 5,500 miles, and I have had only one puncture, from a four-inch nail. In all the tyres the treads show practically no wear, and I shall be exceedingly disappointed if I do not get 10,000 miles out of my Wolseley car without any additional expense in respect to tyres. I have never had any bursting or pinching, and it is almost impossible to pinch an inner tube with a Collier tyre owing to the nature of the seating and fastenings.—Yours truly,

A. E. WILLIAMS.

GREASE CATCHERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should like to suggest to motor-car builders the desirability of providing to every car means for catching the grease and oil which have an obnoxious way of working out of gear and crank cases, generally through worn bearings, and forming disagreeable and convicting pools whenever any (or almost any) car is at rest for a few minutes after a period of running. Such leaks make an ugly mess even in a coachhouse, and are detrimental to rubber tyres, but at one's front door, or, worse still, at one's friend's front door, they are an intolerable nuisance. If the offending grease gets on to an unwitting hostess's skirt or drawing-room carpet it is likely to result in the owner of the peccant car finding a much less cordial welcome on the occasion of his next visit. It should not be very difficult to devise means of preventing any drops of oil or grease reaching the ground, and the leather or other guards which are nowadays frequently fixed to protect the flywheel and adjoining gear-case, etc., from mud and wet to some extent probably effect the object in view. On the occasion of the last Anniversary Run I had an object lesson as to the amount of grease dropped from cars, for, happening to start from Grosvenor Place some time after all the others had left, I had no difficulty in tracing the route, which I did not know, through Kensington and Hammersmith by the iridescent sheen caused by the drops of oleaginous liquid on the surface of the swimming streets. Although after the first stopping-place I had no need to depend upon this method of finding my way, it would have been available all the way to Oxford.

I was also struck by the number of bolts and nuts and other parts that were dropped upon the road, which also points to the necessity of alterations in practice on the part of some car-makers or owners.

Referring to the subject of lubricants, a doubt has occurred to me with reference to Captain Longridge's suggestion of adding water to the oil in the crank chamber—whether there would not be a danger of fracturing the chamber in frosty weather. I should like to take the opportunity of expressing my sense of the obligation motorists are under to Captain Longridge for his most valuable paper, rich both in information and suggestion.—Yours faithfully,

EDGAR SOAMES.

STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In addition to the writer, it would probably be of great interest to many of your readers if some really practical drivers of Serpollet, Miasse

Locomobile, and other types of cars gave their experience. The following are a few queries on which I should like information. Firstly, after about what distance or time would the poppet variety of admission valve require grinding in, and which has generally to be replaced first, piston ring, or poppet valves of the same engine? Are the reliefs of Serpollets really reliable, as it appears to the writer that tightening the packing gland would affect the relief by causing more friction, which would vary after the valve had been worked a few times. Are not the D valves of a Locomobile, or similar type of same, a trouble to keep free from scores, working at 200 lbs. pressure, and about what relation with regard to wear have they to the wear of the piston rings of the same engine, presuming both types of engine above mentioned are properly lubricated by forced lubricant.—Yours truly,

STEAM.

THE DURYEA TRANSMISSION GEAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Our attention has been called to a volume entitled, "The Automobile: its Construction and Management," by G. Laverne, translated by Paul N. Hasluck, in which an illustration and description of the Duryea change-speed and transmission gear is given. As, however, this shows a gear which was abandoned as far back as 1897, and does not in the slightest degree resemble the method now employed, we would ask you to permit us to state, in order to avoid misunderstanding, that the present gear, which has been used for the last five years, consists of a simple epicyclic gear carried upon the motor shaft, which is inoperative at high speed, when power is delivered direct by a sprocket and chain to the road wheels, and gives a low gear for hill work and a reverse when needed, by tightening a brake band on either the outer member of the gear or upon the pinion carried, as required.—Yours truly,

THE DURYEA COMPANY.

THE S.A.C. AND PROPOSED LEGISLATION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—On page 819 in your account of the meeting of the Western Section you dub me the chairman of the Eastern Section. That honour belongs to my friend Mr. John Macdonald. I am chairman of the General Council of the S.A.C. as a whole. And I should like to say that in any remarks or letters I have given on this subject, I spoke for myself in my private capacity and not for the S.A.C.

The large and animated Western meeting was almost to a man against numbering, and I think even the one or two who half supported it had not at first considered the various difficult and also trouble-causing points which could only evolve after the country had plunged into licensing and numbering. Even Professor Galt, I think, in the end only went the same length as I did—that if every vehicle whatsoever were numbered we had no complaint to make; unless as citizens who don't like to see their country do idiotic things. To a man, I think, the meeting agreed that delay was the proper policy, and hoped no more panic legislation would hamper progress.

We have been through all this before, as to railways, bicycles, and what not. At present the public has motor measles and Parliament must be infected also, and it is madness to throw any Bill on the floor of the Houses and fondly imagine that we can control them by any arrangements. You can't "arrange" with Parliament what it will impose on you, nor bargain for freedom in one thing if you allow yourselves to be stamped as specially dangerous as an exchange. We are in danger of selling our birthright as free citizens, who want to do no harm, for a mess of pottage in the shape of a removal (or is it merely an increase to eighteen or so miles an hour?) of the present legal limit. The fire of a fussy set who may guide Parliament is worse than a legal frying pan which is fast melting away by its own sheer absurdity. The motor measles has come out so badly that it is certain the cure will be the more rapid, and when County Councils get tired of minding other folks' business, and have had some rides, and Parliament has become a place of petrol, then we may leave it to the Government to legislate on sane lines on a number of problems which will by then have become plain.

I find that outsiders argue in favour of numbering because carts, etc., have to have names painted on them. But the fact is that these names require to be only on one side, and in letters one inch high. They are not intended for identification at all, but are for Inland Revenue purposes. It is in order to make them (if no tax is paid on them) so prosaic and businesslike that the owner (who might otherwise have a private carriage and pay a tax) would not care to use them for private purposes. And also to mark them in case of any point arising as to evasion of the tax, etc.

Consider what will happen if the law to licence drivers and number motor cars were passed. The regulations would be left with the President of the Local Government Board and the Secretary for Scotland. They would certainly understand the intention of Parliament to be identification; and would, considering dust and speed, devise and ordain a size of standard board, and a colour and class of numbers, more conspicuous than elegant. I suppose the State would provide these; perhaps ordain one in front also. I do not attempt to deal with the darkness problem, it makes a grand field for the inventor, no doubt. And don't let us throw dust in our own eyes; some fondly talk of oil to make its face to shine (for a moment), and others of the Irish car driver's negligent rug which will droop over his number when racing a rival to Phoenix Park. The law is "a haas," but it will

hold that almighty Parliament meant the number to be seen for identification and one may be hauled up for not having it so, entailing stopping every few miles to wipe its beautiful face.

Then a tribunal will have to be set up to act as censors of driving. But what or which? As the Board of Mines does in France, perhaps the Board of Lunacy would do here, if it is not fully occupied already. How long will it take even 100 examiners to pass the (say) 10,000 persons who already can drive? I reckon that imports and home make will give us over 5,000 motor-cars in 1902. If each requires one and a half persons to use it we arrive at 7,500 examinations this year. And next year? and the year 1912? By the latter date the Government machinery and red tape will have become a great thing in the earth; and in spite of perhaps nine-tenths of the traffic being done by a safer mechanical method, and most men seeing the folly of the 1903 short-sightedness of the A.C.G.B. & I. and Imperial Parliament, still it will be difficult to undo the precedents and practice.

Do our numbering friends contemplate asking Parliament to number, and the rest, only up to, say, 1908? Are they looking to the future at all, or are they merely so mad to get out on to the roads to rush around in hot blood, free from the twelve miles an hour nightmare, that they are ready to sacrifice principles and the future? Cannot they wait and go more slowly, till the sense of the nation asserts itself in the light of knowledge?

Again, is Parliament to follow the cabman principle and have the convictions endorsed on the licence? I think I see the old women of the English J. P. sort poisoning their gleeful pens! And then how about the poor fellow (who may be innocent) who goes a second time before another court with his condemnation card humbly in his hand? Then, is a citizen who has had luck on the road, or in his Bench, to be debarred from driving his own carriage at his own risk because he has three times (or more, or less) been convicted of some nominal offences, like driving to the common danger (a very elastic term), or not obeying some sudden impulse of a policeman, etc.? If I lose my temper on seeing mine enemy on the street and drive my horses at him and kill him on the spot, the High Court of Justice can give me penal servitude for life. If I behave myself to the satisfaction of H.M. Prison Board I am let out at the end of twenty-three years, and no one has the power to prevent me driving my horses in Princes Street again that very joyful day. What power will restore to a motorist his freedom of action if his licence is taken from him?

How are we to learn to drive at all unless we have private grounds, if we cannot be on the roads without a licence?

I pin my faith to the very statesmanlike declaration which the A.C.G.B.I. made on the subject of numbering in its "blue book" to the County Councils of England and Wales last year. So far as I know the vast body of motorists has never asked it to turn round on that.

I think this is a matter so vital that the views of all the clubs should be taken, and if there is any doubt about what they are, a general plebiscite on signed voting cards "Yes" or "No," to the following two questions:—

1. "Are you in favour of car numbering?"

2. "Are you in favour of delay in the matter of any legislation?"

One to be sent to each member of all the clubs.

As good subjects we shall submit to what the Crown may impose. It is another thing to seem to ask for licences and labels *ourselves* by the hasty action of some people who gird at the twelve miles an hour nominal restriction.—Yours truly,

NORMAN D. MACDONALD.

CAPTAIN C. C. LONGRIDGE writes:—"In your issue of December 13th, p. 800, in the letter from the Endurance Motor and Cycle Co., occur the words: 'Increase on the suction-operated inlet valve.' Is this 'increase in power' or 'increase in weight of charge'? I presume the former was meant."

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Newark	Sir W. Barttelot, London	25 m. p. h.	£10, etc.
Shoreham L...	L. Strode	—	£5, etc.
"	H. Clark, London	—	"

Where no alleged speed is given it is understood to be above the legal limit.

At the Newark County Police Court, two summonses have been heard against Sir Walter Barttelot, charging him with furiously driving a motor-car in the parish of Kelham on the 11th November. Defendant was not present, being on the Continent, nor was he represented. The evidence showed that he drove a car past Newark Cattle Market at the rate of twenty-five miles an hour, and a telephone message to Retford failed to stop him, but he was intercepted at Doncaster. The Bench fined the defendant £10 and costs on one charge, and £1 including costs on the other, the total amount being £15.

FINANCIAL EMBARRASSMENT.

At the London Bankruptcy Court a sitting has been held before Mr. Registrar Hope, for the adjourned public examination of P. H. Easton, late of London Road and James Street, Brighton. In examination, the debtor gave particulars of his career as a cycle dealer. Afterwards he again started at North Road, Brighton, under the style of the Motor Fittings and Engineering Company. This business, after some months, was closed. In March, 1902, he, with a Mr. Browne, promoted the Automobile Components, with a capital of £2,000. The business was carried on at premises in Featherstone Street, London. As the result of the bankruptcy he had resigned his directorship. He was also connected with the promotion of the Central Steering Traction Company. He attributed his insolvency principally to loss in connection with the purchase and sale of motor-cars. The examination was concluded upon accounts showing debts £985, and assets £450.

CLAIM FOR HIRE.

At the Newbury County Court the Hon. Arthur Russell has retried a claim for £24 made by Messrs. Stradling and Plenty, motor-car agents, of Newbury, against Dr. W. S. Whitcombe, of Aldermaston, balance of account for the hire of a motor-car for three months. The case was first heard in April, and his Honour then stopped it, deciding on the agreement that all plaintiffs agreed to supply was a car, all liabilities being covered by the agreement. He therefore gave judgment for the plaintiffs' claim, remarking that if the High Court thought he was wrong, they could send it back again. Application was made in due course to the High Court, and an order was made for the retrial of the case at the Newbury Court. After a long hearing the Judge said it was ridiculous for them to be called upon to try a case which ought to have been referred to some expert with a knowledge of the subject. It was, he said, an action to recover £24, the balance of £36 incurred for the hire of a motor-car at £12 a month. Dr. Whitcombe had it for one month, and then returned it. The only direction he had to give the jury in point of law was that plaintiffs undertook to supply a car reasonably fit for use, and reasonably fit for the purpose for which it was supplied. They had listened to the evidence, and had heard of the different contretemps and incidents which had happened to Dr. Whitcombe, and had heard his explanation of them. It was for them to say whether they were satisfied that it was reasonably fit for the purpose for which it was supplied. This was the whole case in a nutshell, and he did not intend to say anything further about it. It was for them to say whether they found for the plaintiffs or the defendant. The jury returned a verdict for the plaintiffs, and judgment was entered accordingly.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shos Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

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COMMENTS.



WE have now entered upon a new year, and a review of the past twelve months affords proof of the gratifying advance made by automobilism during that period. The trade outlook will be distinctly improved as soon as the present agitation in favour of numbering ceases and matters are left alone, or the speed limit withdrawn, and driving to the public

danger is made the indictable offence. We agree with the "Field" in saying that "the question is one of extreme difficulty, for it is by no means certain that the numbering proposals which are the basis of the bill introduced into the Lower House in the session now closed would not have left the automobilists in worse case than before. At any rate, it is imperative that in the coming year there shall be an alteration of the law which will afford to the public protection against the inconsiderate driver, and yet free the careful motorist from vexatious prosecutions for breaking a regulation which no one thinks he ought to obey."

Racing Rules.

The position of members of the trade acting on committees in connection with trials and tests is, undoubtedly, an awkward one. It has already been mentioned in discussions with regard to the competitions organised by the A.C.G.B.I., where the difficulty of finding experts unconnected with the trade has been pointed out. This is also felt on the Continent, and found expression at the conference of delegates of the various European automobile clubs held a few days ago in Paris. Several representations with regard to the details of races were there made by the British delegates, and these are to be further considered by the clubs of the various countries with a view to arriving at some international agreement on the subject.

Royal Institution Lectures.

On Saturday Professor H. S. Hele-Shaw, F.R.S., began his Royal Institution lectures on Locomotion, remarking that the wheel was the secret of man's power of artificial locomotion upon the earth. Its speed was only limited at the point where it flew into pieces. A number of models, showing the actual working of a wheel under various conditions, were placed in the lantern, and from the pictures projected on the screen the audience observed how the pneumatic tyre absorbed the obstacles, while the solid iron rim peacefully climbed over them. Fifty years ago a brougham fitted with pneumatic tyres was running in the streets of London, yet the invention only caught on some few years ago owing to recent mechanical advancements and improvements in rubber manufacture. People used pneumatic tyres on vehicles because these reduced shock and vibration more than any other kind of tyre. But pneumatic and solid rubber tyres offered more resistance than a hard iron tyre provided the roads were fairly smooth, and for this reason spring wheels had been invented. Professor Hele-Shaw has been experimenting with a new spring wheel fitted on a motor-car, and he mentioned that he found the vibration exceedingly small, even though iron tyres were used.

The Motor on the Road.

THE second lecture of the series was given on Tuesday, when "The Road Motor" was dealt with, the principles of the petrol engine being described. It was called an internal-combustion engine because it took the fuel and utilised it inside a cylinder, whereas in the steam motor a boiler was necessary. The fuel could be petrol, alcohol, benzine, or petroleum. It was first vaporised, then mixed and compressed, and then ignited at the proper moment in the cylinder, thus giving the required force to drive the engine. Professor Hele-Shaw had models and actual engines, and by means of these he made the audience understand the cycle of operations in the petrol engine. He showed how the combustible mixture was generated, how the charge was fired, how the speed of the engine was regulated, how the cylinder was cooled, and how it was lubricated. With reference to the motor-bicycle, he believed it would become popular in the course of a few years. He had ridden one constantly in all weathers, with just a slight covering for the knees, and his belief was that of all kinds of automobiles that was the most useful and convenient for practical purposes. Thursday's lecture was concerned with the steam motor on the rail, and to-day (Saturday) Professor Hele-Shaw's discourse will be on the electric motor.

Motor-Lurries and the Emission of Smoke.

A CASE of importance to motor-lurry owners has been before the Manchester County Police-court. An owner of motor-vehicles was summoned for an infringement of the law with regard to the emission of smoke and vapour. He admitted that vapour was emitted, but pleaded that in the particular instance it did not constitute an offence because the Act made an exception in the case of "some temporary or accidental cause." His driver found that the valve of the condensing pipe had not been turned, which Mr. J. M. Yates, the stipendiary magistrate, attributed to carelessness. The defendant then added that as there was a damp atmosphere on the day of the offence the presence of so much vapour might be put down to that cause. Mr. Yates said it was always damp in Manchester. He imposed a minimum penalty of 5s. and costs, and said he thought that this provision of the Act should receive careful attention, because until horses became used to motor-vehicles there was danger to the public.

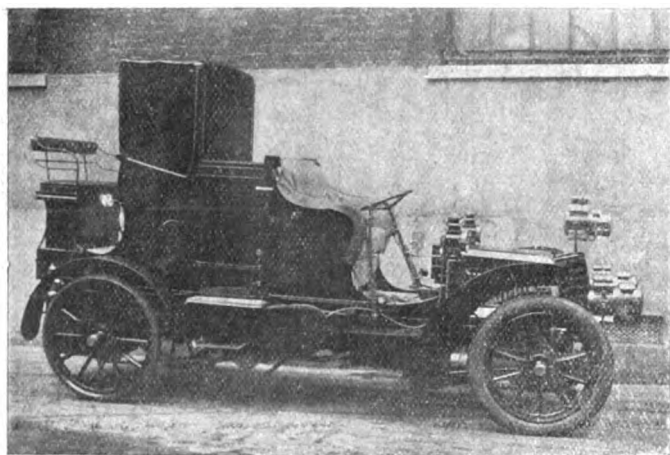
Oiled Roads.

SOME few months ago a portion of the Hampshire roadway was treated with oil, and the early experiences of motorists who passed over that particular road were duly chronicled. But we have waited for further reports as to the efficiency of the treatment. Now that they are to hand they are somewhat confusing. Mr. Walter Philips, M.I.M.E., says: "I have had a conversation with a mounted policeman, who was over the road six or seven times a day, and he testified that during the heaviest rain no splashing mud came up; although the surface became muddy, it never cut up, and as soon as the rain ceased it commenced to dry at once. Another conversation I had was with the road foreman, who confirmed what had been told me by the patrol, and added that it did not require so much cleaning as the

other parts. During the month it had been down he had not heard of any side-slips or accidents of any kind. Taking into consideration these reports and my own observations, I am of opinion that had the road been newly made up when dressed with oil, it would have been even a greater success than it is, as I understand the part selected was about the worst portion there was. In a conversation I had with a doctor living in the neighbourhood, he said that being a daily passenger, by cycle principally, over this road, his opinion was that it was a decided success, and that the Bagshot Town Council were going to treat the High Street, Bagshot, in a similar manner, as during the summer time it was impossible to open any windows facing the street, owing to the dust."

An Adverse View.

MR. A. W. RUMNEY, a councillor of the Cyclists' Touring Club, has also published his experiences, and concludes by suggesting that an application of the oil in March would possibly be more efficacious than in the later summer. An *habitué* whom he questioned said that undoubtedly the road was more slippery, and that the mud was stickier. Pedestrians told him that they believed the oil injured their boots and made them puerous to water. The horse drivers seemed to condemn it without reserve, though they admitted its cure of the dust in September. Finally, Mr. Rumney took the opinion of the foreman roadman, who said that he had been sanguine at first, but now regarded it as a failure, and was very strong on the boot question. He also believed that the oil had a decidedly rotting effect on the flint, with which one portion of the road is laid, but that so far it had made no bad impression on the Cherbourg quartzite with which the other section is laid. It is possible that too much oil had been applied, and that one effect was that the road was to some extent waterproofed, and the moisture prevented from sinking.



MR. STUART OGILVIE'S NEW NAPIER TOURING CAR.

A Touring Napier.

LAST week we described at some length the notable bodywork of Mr. Stuart Ogilvie's new 24-h.p. Napier car, a photograph of which we reproduce herewith. The chassis, so far as the engine and gear are concerned, is a standard Napier type, but the channel steel frame itself has been specially constructed to suit the particular conditions laid down by Mr. Ogilvie. The ignition is by the Napier electrical system, worked by a quadruple coil and accumulators, with the commutator on the dashboard within sight of the driver. Four speeds forward are provided, and a reverse; the gear wheels are of ample proportions, dead hard, and run in a bath of oil inside an aluminium case. One lever only manipulates the whole of the speeds and the reverse. Powerful strap and drum brakes are pro-

vided, two of which act on the rear wheels applied by a lever to the right of the driver. The third is operated by the driver's foot, and acts on a drum placed on the cross-shaft carrying the chain wheels.

Porlock Hill.

COMMENTING on our recent note with regard to the ascent of Porlock Hill by a Lanchester car, Mr. Arthur Baker, of Horley (Surrey), who knows the Porlock district well, points out that the coach uses the old road, six horses being required. With regard to the new road, Mr. Baker drove a 6½-h.p. voiturette up the hill several times last summer, carrying four passengers weighing more than fifty stone, at the same time towing a friend on a bicycle.

Automobiles and Elections.

MOTOR-CARS are a familiar feature in connection with Parliamentary elections in towns, and are now regarded as indispensable in contests in rural districts. Last week we mentioned the political peregrinations on his motor-car—a 20-h.p. Clement—indulged in by Mr. C. D. Rose, one of the candidates for East Cambridgeshire. For several days during the campaign his opponent, Mr. Leonard Brassey, drove from place to place in his four-in-hand. But meanwhile Mr. Rose was getting over three times as much ground, and towards the close of the contest Mr. Brassey, too, used a motor-car. In the selection of candidates political associations evidently will have to inquire as to their nominee's motoring exploits and experience.

Road and Path.

WHEN local authorities begin to give serious consideration to the conditions of the roads they will have to clearly distinguish between roadway and footpath. At present it is often almost impossible for the ordinary man to realise where one begins and the other ends. At Ascot, for instance, Mr. Granville Kenyon has found this a very real difficulty—in fact, it led to his being summoned before the Windsor County Bench, charged with driving a motor-car on the footpath. He explained that the pathway was not clearly defined and that the roadway was covered with newly-laid road metal—facts which were admitted by the policeman who proved the case. In the end Mr. Kenyon was fined 10s. and costs, and justice was satisfied.

Common Sense versus Law.

BUT the point is one worth consideration by motorists, who frequently find portions of roadway newly laid in a way well designed to impede their progress and cause damage to their tyres. Under such circumstances common sense would lead most people to see whether there was not a way round, and, if the road and path seemed one, it would be perfectly natural to traverse that a few yards. That is the common-sense view; but, then, common sense availeth little in law.

America and the Gordon Bennett Race.

IN view of the criticisms that have been made as to the conditions imposed by the A.C.G.B.I. in connection with the Eliminating Test to select the English representatives for the Gordon Bennett cup race, a summary of those governing the entries from the United States is of interest. Already the Automobile Club of America has accepted and nominated one entry for the Gordon Bennett cup race, presumed to be Mr. Alexander Winton. They are open to receive further entries, from which two will be nominated, upon the following conditions: Each entrant shall deposit with the Club the sum of 600 dols. The racing committee of the Club shall decide which of the entrants not yet accepted may compete in the cup race. This decision may be arrived at by a contest or by the committee without a contest. Any entrant who is not

nominated by the racing committee for the cup race shall have his entrance fee returned to him. Any entrant who, after being nominated for the cup race by the committee, does not start shall forfeit his entrance fee of 600 dols. If three entrants are nominated to take part in the cup race, each entrant shall have two-thirds of his entrance fee (after deducting his proportion of the expenses incurred in holding the race) returned to him, provided he starts in the race. If two entrants only are nominated, each of such entrants shall have one-half of his entrance fee (after deducting his proportion of the expenses incurred in holding the race) returned to him, provided he starts in the race.

Technical Education.

AT the Polytechnic, Regent Street, W., there has been an exhibition during the week of specimens of the work of the students in various classes. The engineering departments were strongly represented and one of the features of the display attracting much attention has been a half-finished steam automobile, the carriage work in connection with which has been executed by the students of the carriage-building classes. It is evident that these classes are proving popular, and that many interested in automobile matters are thus becoming practically acquainted with the technicalities of the motor-car.

The Sheffield Paper Chase.

THE Sheffield and District Automobile Club organised a paper chase on Boxing Day. Messrs. P. W. Fawcett and J. W. Needham were the hares, the former being mounted on a 12-h.p. Humber. The hounds included Dr. Thorne, Messrs. W. W. Clarke, A. G. Blyde, T. Davage, E. F. Coupe, J. H. Pickford, B. Hind, J. Ellis, J. W. Dewhurst, W. Hydes, W. James, E. H. Hill, E. Ledoux, B. Shaw, J. Truelove, J. T. Thompson, H. Foster (president), and J. R. Wade (secretary). The hares led the hounds a pretty run through Ecclesall, Carter Knowle, Beauchief, Dore, Fox House, Grindleford, and Calver, and finished at Baslow. Mr. Ben Hind caught them, and thus won the kit of tools given by Mr. James Barber. A return was made to Grindleford for tea, after which the party broke up. There was very good sport, the only drawback being the weather, which made the roads very slippery, and when Derbyshire roads are slippery they take the palm for awkwardness.

The Transport Motor-Spirit.

WITH reference to the new regulations of the railway companies for the transport of benzoline, petrol, gasoline, naphtha, etc., it is now understood that they have definitely refused to withdraw Clause 2 of the consignment



THE SHEFFIELD AUTOMOBILE CLUB'S PAPER CHASE—THE HOUNDS READY TO START.

Photo by]

[Mr. J. H. Lygo.

Driving to the Public Danger.

AT the inquest held at Bottisham, recorded on another page, the county coroner of Cambridge pointed out that it should be generally known that although the Act of Parliament, and the bye-law made in pursuance thereof, fixed that the maximum speed might not be more than twelve miles an hour, that did not authorise drivers of automobiles to run at that speed under all circumstances. If the state of the traffic on the road was congested, or the lights of a motor-car were dull and insufficient, or from any other cause running at that speed would be dangerous, drivers of motor-cars could only run at that speed, or even at less speed, at their own risk, and if accidents happened, and death followed, then they would be liable to be indicted for manslaughter. With this pronouncement few motorists will disagree; all we want is that the law shall be so altered so that driving to the danger of the public shall constitute an offence. Once let legislation run on that line, and few complaints would be heard.

note, although they have made some slight concessions. The liability the railway companies thus put on the senders of inflammable liquids, Class A, is without precedent, and is naturally regarded by the trade as most unreasonable and entirely unjustified by the circumstances of the case. In view, however, of the great loss and inconvenience caused to customers, Messrs. Carless, Capel, and Leonard have decided to sign the consignment notes under protest, reserving to themselves the right of taking further action.

Over Maidenhead Bridge.

IT is reported that on Saturday a trio of motorists passed over Maidenhead Bridge without paying toll. They drove their cars through the toll-gate before the collector could close it, but on the return journey only the first vehicle escaped payment. The others found the gate closed, and, so it is said, a stubborn man in charge. Ere they could recross the bridge toll had to be paid. So far as the legal movement for

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the removal of the impost is concerned it is hoped that motorists will give all the support they can to Mr. Taylor, of Eton, and the others who are working with him in the matter.

Proposed Taxation of Motor-cars.

At the annual meeting of the Warwickshire Chamber of Agriculture, Mr. R. Rutherford moved: "That this chamber considers it advisable to put a small tax on cycles and motor-vehicles (such tax to be applied to the repair of the county and district roads); also that any motor-vehicle driven at a greater speed than five miles an hour shall display a number, so that its identity can be known." He said that it was unfair that cyclists and motorists should use the roads and not keep them in repair. Therefore he suggested that cycles should pay a tax of 2s. 6d. each (workmen's cycles excepted), and motors 20s. Mr. F. E. Muntz agreed with Mr. Rutherford that motor-cars should be taxed, as they were owned by wealthy men who could afford to pay, but he objected to the taxing of bicycles. Sir H. Fairfax-Lucy moved an amendment, "That the Excise Act should be so amended that motor cars under one ton should be taxed on a graduated scale." It was never intended by the Legislature that motor-cars should escape locomotive duty.—Mr. J. J. Bourne seconded the amendment, for which six voted, while seven were against. Seven then voted for the motion and six against, so that the Warwickshire Chamber of Agriculture has decided in favour of taxation.

Horse Traffic as well

UNFORTUNATELY, in coming to such a decision the Warwickshire Chamber of Agriculture showed a lamentable lack of knowledge; or else the members failed to recognise simple facts that should be apparent to everybody. Motor-vehicles are less destructive of the road surface than traffic of any other class. There is nothing of the wear and tear occasioned by hoofs, and if the taxation of vehicles is to become a recognised thing the equitable proportion to be borne by horse-drawn traffic will be found far higher than anything that automobiles will be expected to bear.

Yorkshire Hares and Hounds.

THE paper chase of the Yorkshire Automobile Club, which has its headquarters at Leeds, was held on Boxing Day, and was a great success. The meet was at Poole Bridge at 11 a.m., and Mr. and Mrs. Jackson and Mr. Hey, on a 10-h.p. Daimler, Mr. H. A. Jones on a Pieper car, and Mr. Kirk on a 12-h.p. Gladiator were the hares. The rest of the meet formed the hounds, namely, Mr. Faiers (9-h.p. Clement), Mr. A. W. Dougill (8-h.p. Loidis), Mr. and Mrs. Walker (4½-h.p. De Dion), Mr. and Miss Armitage (8-h.p. Korti), Mr. Owen Brookes and Mr. Chippendale on motor-bicycles, Mr. H. Hey (motor-tricycle), and Mr. Albert Farnell (Oldsmobile). The hares started away at twelve o'clock, and laid the trail through Otley, Denton Park, Ilkley, Addingham, Skipton, and on to Grassington. The first car, namely, Mr. Faiers' 9-h.p. Clement, discovered the hares at Cracoe, beyond Skipton. Mr. Chippendale on his motor-bicycle was the second. The return route was through Pateley Bridge and Blubberhouses to Harrogate, where tea was arranged for at the Prince of Wales Hotel.

A Festive Gathering.

THE second annual dinner to the employees at Mr. Frank Morris' Sandringham Motor Works, King's Lynn, has just been held in the new Sandringham Motor Garage. The customary array of motor-cars had been removed from the building in favour of the more genial embellishments of Union Jacks and other flags, and a most comfortable salon was the result. Mr. Morris presided, and there were some fifty employees and friends present. The chairman was supported at the head of the principal table by Messrs. A. J. Thompson (manager), H. D. Smith (works manager), Day (driver

to the King), E. Colman, J. E. Briggs, and others. After the loyal toasts had been honoured, "The Motor Industry" was proposed by Mr. J. E. Briggs in a happily-phrased speech. He spoke of the pleasure it gave him to propose the toast, and recalled the days when the "horseless carriage" was the wonder of the day, and now they were more prominent than some of the poor hacks we saw. In responding, Mr. Morris said the industry was one he had especially at heart. It was now something like six years since he first launched out. Why should the business go abroad? They could build a car in England—and in King's Lynn—as well as any other country in the world. In conclusion Mr. Morris said the motor industry was going to be far bigger in the future, and there were greater hopes than they knew of. "The Employees" was proposed by the chairman, and the health of Mr. Morris was received with musical honours.

Motoring Prospects in New Zealand.

A CHRISTCHURCH correspondent of the "Motor Age" reports that there is every indication that within another year the automobile trade in New Zealand will be a very important one. During the past year there has been a steady increase in the interest in light cars, and especially in motor-bicycles. Already several large American firms have established agencies for their automobiles, and now France, the home of the automobile, will send over not less than three of its most prominent makes. The Darracq, De Dion-Bouton, and the Gladiator firms will open branches within a short time, and everything indicates that they will meet with prompt success. It would be advisable for some motor-bicycle manufacturers to open branches in this country, as they will certainly do as well, if not better, than in their own country. Our roads are especially well fitted for these machines. Our people also are generally quite familiar with machinery and much interested in technical matters. As to automobiles, the time is not yet ripe for the larger or heavier vehicles. What is in demand just now is a two or four passenger vehicle, giving a speed of about thirty miles an hour, and which can be placed on the market here at from £300 to £400.

THE annual meeting of the A.C.G.B.I. will be held on the 27th prox.

ON the 10th inst. the annual dinner of the Nottingham Automobile Club will be held at the "Black Boy" Hotel, Nottingham.

THE Anglo-American Oil Company have agreed to despatch petrol "under protest" in accordance with the new requirements of the railway companies.

THE German Automobile Club has sent a challenge to the A.C.G.B.I. in respect of the Gordon-Bennett cup. Germany will be represented by three Cannstatt Daimlers.

THE Wolseley and Napier Companies have both been awarded gold medals in the Elegance Competition organised by the A.C.F. in connection with the exhibits at the recent Paris Salon.

AS the various annexes to the galleries of the Agricultural Hall, Ilington, will be in use at the Automobile Exhibition, to be held there in March next, special arrangements have been made for a large electric passenger lift to be in operation during the period of the Show.

MESSRS. LAKE AND ELLIOT, of the Albion Works, Braintree, are bringing out several useful accessories for motorists, including a motor jack which can be instantly raised to reach any axle within its range. The body is of aluminium with oxidised handles and knobs. A tyre lever and petrol can opener is another useful device. This is provided with a square projection to fit Messrs. Carless Capel's cans, while one edge is formed to fit the slots in Pratt's spirit cans. A motor-bicycle stand, the width of which can be easily adjusted, is also made by Messrs. Lake and Elliot, who have prefixed the distinctive word "Millenium" to their motor specialities.

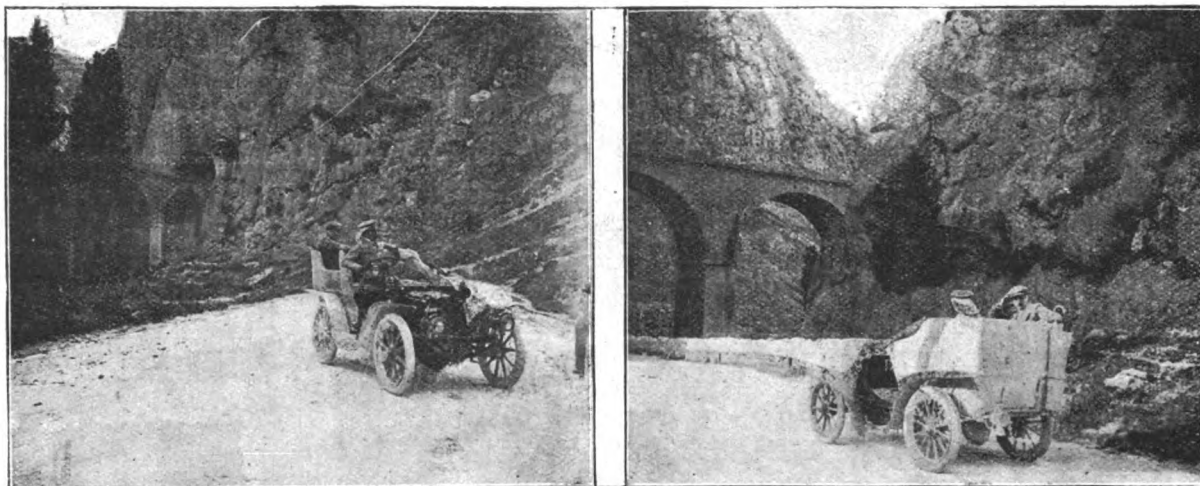
A LONDON GARAGE.

IN the country the automobile house is becoming an indispensable building in connection with all well-ordered mansions and residences. Considerations of space do not restrict the ideas of motorists and the addition of motor-car accommodation to existing arrangements adds little expense of maintenance. But in London it is different; land is valuable and the cost of sites in West End thoroughfares conveniently near the houses of owners of cars is too great to encourage any universal system of motor-houses adjoining London residences. Hence the necessity for centrally located establishments, where "all sorts and conditions of cars" can be received, stored, cleansed, replenished, and sent out again in proper trim for the park or for visiting. Enterprise and capital as well as knowledge and organisation will be necessary in the development of such garages, or they will be unable to cope with the irregularities of the services required, or to deal with the great variety of work to be done.

One of the first institutions of the kind—for institution it really is—is the Regent Street Garage, in which are stored nearly a hundred cars belonging to the nobility and the people of the West End. About eighty cars, on an average, are housed every night, their owners being charged a definite rental for such accommoda-

lators. Sand buckets are plentiful, while the fire-proof construction of the whole building should give confidence to owners sending their cars for regular storage in this garage. To the rear is a boiler-house, where extensive preparations for improvements are now being made. The petrol store is large and well ventilated in accordance with the requirements of the London County Council, three ventilating shafts being particularly notable.

Upstairs on the first floor the space devoted to motor-cars has been somewhat restricted by the recent increase of office room, but on the top storey one can learn something of the facilities provided for motorists. Cars are carried aloft by means of the three-ton lift, and the feature on the third floor is the series of wired-in compartments—private lock-ups—in which owners can store their vehicles, and only their own men are permitted to enter to attend to them. The Duke of Devonshire and the Earl Cairns are but two of the long list of titled people who have used this garage for their cars. Theatrical leaders, too, have recognised the convenience offered, and Mr. Beerbohm Tree and Mr. Lewis Waller's cars spend their nights in this garage; while until recently Mr. Frederick Harrison's car was there to be seen. But Mr. Harrison now houses his vehicle himself. At the time of our visit there were singularly few cars in. Mr. Harvey Du Cros' Napier was being overhauled,



THE PARIS-MADRID ROAD—TWO VIEWS NEAR THE FRONTIER.

[La France Aut. mobile.]

tion. Conveniently situated in a central position in the West End, the garage has an easy approach from Regent Street, and when the yard is covered in—as is the present intention of the proprietors—will be regarded with even greater favour by drivers and other users. The ground floor is of large area, nearly square in outline, and surmounting the wine cellars of Messrs. Hedges and Butler, which extend far in all directions. Their subterranean avenues and streets necessitated the exercise of much ingenuity in locating the three pits provided for the inspection of cars, and also the bed for the great lift. But difficulties exist for the purpose of being overcome, and none have been allowed to interfere with the usefulness of this splendid garage.

Calling there one afternoon recently, the scene presented to us was an animated one. On the ground floor were two score or more *chauffeurs*, mechanics, clerks, etc., busily overhauling cars, cleaning parts, checking supplies, and variously engaged, while to have a few minutes uninterrupted chat with Mr. G. Marsh, the manager of the garage, was apparently impossible until we were lifted above and beyond the reach of the busy throng below. In addition to the inspection pits there is also accommodation on the ground floor for the simultaneous washing of four cars on a properly prepared floor, allowing for efficient drainage. The whole place is lighted by electricity, and there is every convenience on the premises for the charging of accumu-

and in its private cage Mr. Charles Cordingley's 40-h.p. Mercedes—"the little red cottage," as it has been felicitously described—appeared to be calmly contemplating the "other members of the trio that constitute his "motor stud," viz., the Napier and the M.M.C. In another wired-in compartment Mr. Crompton's car awaited orders to go, and a few voituresses were being duly inspected.

The system of noting vehicles as they arrive, and not allowing them to be taken away until entry is made of their departure, is most thoroughly maintained, while the efficient repair department is not the least requisitioned of the branches of activity. A good business is done with the leading hotels, such as the Grand, the Carlton, the Metropole, and Claridge's, whose vehicles are housed at the garage, and can be despatched on receipt of telephonic instructions. Taken altogether, the Regent Street Garage presents about as complete a picture of automobile industry as is anywhere to be seen, and during the hours of night—it never closes—contains as fine an array of motor-vehicles as is brought together in the metropolis. But in the daytime the view is less comprehensive, though more animated.

THE Electric Ignition Company, of Birmingham, have just brought out a new ignition-wire terminal, which, it is claimed, cannot break or work loose.

CONTINENTAL NOTES.

BY "AUTOMAN."

ON Christmas night, at eleven o'clock, the Paris 1902 Automobile Salon closed its doors, after it had been decided who were the winners of the 5,000 prizes of the "Tombola." One hundred and forty-two lucky numbers were settled in the usual Continental style—that is to say, with the aid of a machine which is rapidly rotated until it stops at a certain number. No. 113,508 won the first prize, a Gillet-Forrest 6-h.p. two-seated motor-car, and No. 13,435 gained the second prize, a bedroom suite. The show was a record one in every sense of the word, for there were more and better cars, and certainly there was more uniformity of design. With regard to the attendance, from first to last it was a record, beginning with the formal opening by the President of the French Republic and the Ministers of State. Visited in the mornings by serious purchasers, or those in search of knowledge, in the afternoons it became filled with an aristocratic crowd, amongst whom a king, several princes,

by the crowds on the racecourse and to the strains of the German national anthem. I well remember how the French makers derided these cars and all that appertained to them, including the honeycomb radiator. They had no influence whatever on the trade of 1902, although, taking into consideration their horse-power, they ran remarkably well. What, then, has made the Mercedes car in one short year the model to be purchased and copied by nearly the whole trade? Race-winning in the first place, for of all advertising this is the best, and it is the cheapest in comparison to the result produced. The successes of Nice and Vienna established the Mercedes as a redoubtable competitor to Panhard and Mors. The throttle regulator on the admission worked by a hand lever on the steering wheel, and combined with the mechanically-worked inlet valves, did the rest.

THIS is the history of the Mercedes, but the lesson to be learned by it is never to despise your competitors; for, had the great makers given a little more attention to the products of the Cannstatt-Daimler, they would not have let the latter get such an



THE DUCHESS OF SUTHERLAND (AT THE HELM OF HER LIGHT PANHARD), WITH MR. AND MRS. FRASER LYTHE, OF ALDOURIE CASTLE, AND MR. CLIFFORD.

and innumerable dukes, marquises, and counts freely mingled. On Sundays and on Christmas Day the building was unbearable; the crowds, packed like sardines in a barrel, moved in slow and solid lines up and down the passages, and to stem the tide was impossible.

Now that the excitement is over and the doors are closed one has time to collect one's thoughts, and to see if there is any great lesson to be learned from the French show, and if so, what it is, and how best to profit by it. The most impartial observer is bound to admit that the history of the Paris Exhibition is the history of the Mercedes. I well remember when I first saw the Mercedes; it was at Chartres, on the occasion of the Paris-Bordeaux race, in May, 1901, and M. Dannat had just got his 35-h.p. Paris-Berlin model. Then, again, I saw four of them on the road to Berlin; one smashed up near Hanover and three arrived rather late in Berlin to the cries of "Deutscher Wagen"

undoubted advance. The honeycomb radiator is not new; it has been used for years by the Cannstatt Company. It is destined to replace all other systems of cooling motor-car engines, and yet twelve months ago no one took an interest in it. But, if the French makers have been a long time in learning their lesson, they have not been long in putting it into practice when once learned. The Salon just closed has shown what energy and vitality there is in the French trade, for this year has produced a complete transformation to the now established lines of stamped steel frames, magneto ignition, mechanically-operated inlet valves, and throttle governing. True it is that one still hears that the trade is going on wrong lines, and will come back to automatic valves and armoured wood frames, but then the same was said of tube ignition and tiller steering, which are as dead as Queen Anne.

THE Paris Exhibition has also brought to a close the year

1902. It may be of interest to briefly review the past twelve months, and point out the lessons which the British trade have learned, and those which they have neglected to learn. I recall with some pride and pleasure the advice which I repeated time after time in these notes to the British makers to come over to France and see what their neighbours were doing, and not be content to sit at home and imagine they were turning out the best cars in the world. To those who said their cars were superior to the French vehicles I replied, "Come over and race them on equal terms, and if what you say is true you will win, and get the world's trade, and if not you will learn a lesson which will save you from great loss in the future." Two British firms followed my advice, and one of them pulled off the Gordon Bennett Cup, made itself respected by all its competitors, and got a huge advertisement into the bargain. If it did not get the world's trade, it is because the car it entered was not powerful enough to compete with the high-powered cars of its competitors. It is, however, in a fair way to get into this coveted position if it will continue to recognise the distinct tendency the trade is taking, as exemplified by the Paris Show. A German firm has proved my argument up to the hilt, and stands to-day an easy first, even in France, for its productions command a fabulous price.

I HOPE that another bubble has also been exploded, namely, the danger of reducing the weight of cars. How often have wise heads wagged from side to side in disapproval of the lightening of cars; how often have we been told by good authorities that the racing car was only fit to run a race and then fall to pieces as the result? All this has been disproved by every succeeding race held on the Continent, and to-day we have 40 and 50-h.p. touring cars, weighing little over one ton, stronger than the old 12-h.p. models, which weighed 30 cwt. All this has been brought out by means of races, which are the only serious test of the capabilities of a motor-car. The British motor-car builder who wishes to succeed should take the latest French model, and, instead of copying it, study how he can lighten every part whilst not taking from its strength, and how he can increase the power without increasing the weight, and if he works on those lines he has splendid prospects. These are the two problems which should take precedence over all others.

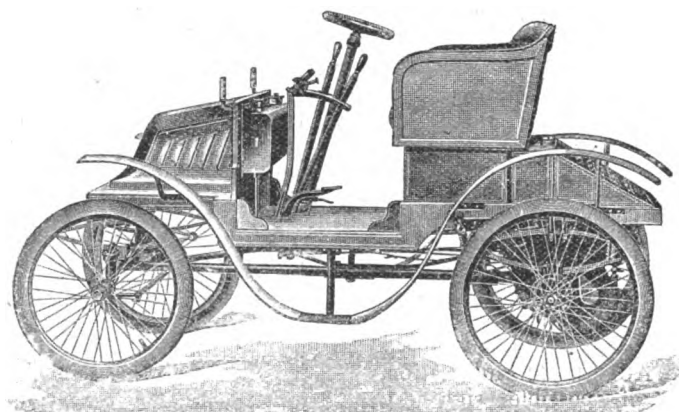
THE powers that be in England, in official automobile circles, when they have leisure from framing Parliamentary bills destined to brand the inoffensive and already-persecuted automobilist with a number which will render him an easier prey to the country constable, inspired by the prejudiced magistrate, turn their attention, it seems, towards discouraging high-powered cars, entirely forgetting that the words "high powered" are merely comparative terms, liable to change considerably from year to year. Judging from what I see around me on the Continent I think they would be wiser to let the matter alone, for whatever they decide on the subject can have no possible ultimate effect on the trade. If high-powered cars are useful they will survive, if not, they will die a natural death; but again, what is a high-powered car? Two years ago 10-h.p. was considered high power and now it is certainly a low power, and who shall doubt that the same progression will take place in future? If, however, the official circles of automobilism in England discourage what they regard as high-powered cars, they will retard what has been the great mainstay of the business—that is to say, the yearly purchase of the rich man who wants the latest improvements, in other words, the greatest powers for the least weight, and who passes on his old car into the hands of the less wealthy, and thus doubly encourages the trade. No one doubts for an instant that the intentions of the authorities are good and are meant to encourage the trade in England. The road to Avernus, however, is also paved with good intentions, and if they were to devote their attention towards popularising racing in England, either publicly on the roads, by judiciously using the Gordon Bennett race as the thin edge of the wedge, or on private tracks, they would have a precedent in the enormous trade which racing has produced in France. These are some of the lessons,

which may be learned from the success achieved here in France. The future of the British share of what is going to be one of the greatest of the world's trades depends upon how these lessons are taken to heart.

ONE of the large Swiss electrical engineering concerns, La Compagnie de l'Industrie Electrique et Mecanique of Geneva, has lately taken up the construction of electrical motor-cars for industrial as well as pleasure purposes. It is also at work on a new combination petrol-electric car, which will be put on the market at an early date. The car will be provided with a 9-h.p. petrol motor, which will drive a dynamo at a constant speed. The latter will furnish the current for the electric motors which propel the car, any excess being utilised in charging a small battery of secondary batteries.

BARON PIERRE DE CRAWHEZ, Chairman of the Sporting Committee of the Belgian Automobile Club, is presenting a prize for a competition for the best automatic apparatus to record the times in automobile races and records.

AT the recent Paris Salon a neat little voiturette was shown by Messrs. Vauzelle, Morel and Company, of Rue des Goncourt, Paris. A general view of the vehicle is given herewith. The motive power is supplied by a 4-h.p. Aster engine, located in the rear of a tubular frame, and driving through a Bozier two-speed gear direct to the rear live axle. Wheel steering on an inclined



pillar is provided, and all control levers are handily placed. The petrol and oil tanks are affixed to the dashboard, a false bonnet in front forming a convenient tool receptacle. The engine is water cooled, the circulation being on the thermo-syphon system. Band brakes on the hubs of each of the rear wheels and also one on the differential are provided.

DURING the course of the recent *Salon* some official trials were made of the time occupied in detaching and refixing the new 870 by 100 mm. Continental motor pneumatic tyres. The tests were carried out under the supervision of M. Tampier, official timekeeper to the A.C.F. In one trial, the tyre was detached, the tube taken out, and the whole refixed in position (with the exception of screwing down the holding bolts) and inflated in 3 min. 30 sec. In another trial the tyre was entirely detached from the wheel, refixed in position, and inflated, with the bolts and valve cap screwed home, in 5 min. 2 4-5 sec.

It is reported that a company has been formed in Mexico, with a capital of £40,000, for the purpose of manufacturing motor-cars in that city.

MR. F. CLARKSON was returning from London to Chelmsford the other evening in his "Chelmsford" steam car, when in driving up Widford Hill he observed the lights of two approaching vehicles. On getting quite close to them he saw a third van drawn by a pair of horses, and it was impossible to stop the car until it had collided with the off-side horse, inflicting fatal injuries.

MOTOR-CYCLING NEWS.

THE Consul-General of the United States in London, Mr. H. Clay Evans, has sent a report to his Government upon the automobile trade in Great Britain. He says that the motor-cycle trade in the United Kingdom is a matter of practically only two years' growth; but it promises to become a most important branch of the automobile business. While there is, popularly speaking, a boom in motor-cycling and there are over a score of machines on the market, the majority are of French or Belgian make, and a number that are advertised as English machines, with English names, are either imported outright or consist of Continental motors built into English frames by local companies. There are probably half a dozen machines that are really English-built throughout, and of these only three are the product of big factories that have previously made a reputation in the cycle business, and have now turned their attention to motors, owing to the popular demand. America is already represented in the market by three standard machines, all of which, he believes, compare favourably with the best English and Continental makes.

THE Committee of the Automobile Club has decided to appoint an assistant secretary who will give special attention to motor-cycling matters.

THE Liverpool Motor-Cycle Club has drawn up an excellent programme for the winter, including a series of smoking concerts and meetings at which short papers of interest to motor-cyclists will be read and discussed. On Monday next Mr. F. W. Wheeler, the Captain, will read a paper on "The Rise and Progress of the Motor-Bicycle." To-morrow's run is to Sefton.

AUTOMATIC lubrication, and if possible sight-feed lubrication, should be incorporated in every motor-bicycle to ensure satisfaction to the rider, with the minimum of trouble. During the past season the Ormonde motor-bicycles have been fitted with an automatic lubricator with successful results. For the 1903 machines a further improved sight-feed lubricator has now been devised, in connection with the automatic lubricator, particulars of which will shortly be available.

THE Fire Brigade of Charlottenburg, Germany, which has been equipped with bicycles for some time past, are now about to make some trials of motor-bicycles. On receipt of a call, one of the firemen is despatched at once on the machine to render what assistance he can, pending the arrival of the fire engine.

A TWENTY-FOUR hours motor-bicycle record was recently accomplished by Mr. H. B. James, of Melbourne. Mr. James left the G.P.O., Melbourne, at 7 a.m. on Monday, November 17th. His course lay from Melbourne to Hamilton direct, through Camperdown. When he arrived again at Camperdown on the return journey he went down to Warrnambool and back, then on to Melbourne again. In the twenty-four hours he covered 460½ miles. He was at Lara, 12½ miles from Geelong, at the end of this period. The time he was in the saddle was 19 hours 43 minutes. Continuing his ride home to Melbourne, he got back after having been away for 26 hours 35 minutes, and riding 503 miles in that time. The machine, fitted with a 2½-h.p. motor, used 9½ gallons of petrol and two pints of lubricating oil.

THE Alexandra Palace Velodrome was the scene of some interesting racing on Saturday. Maurice Fournier, the French motor-cyclist, made several attacks on track records, but as his racing machine had been damaged on the previous evening he had to ride a comparatively low-powered bicycle, and was thus heavily handicapped. From a flying start he rode half a mile in 59 1-5 sec., and 1 mile in 1 min. 49 sec. F. Chase's record for the latter distance is 1 min. 41 2-5 sec.

Now that we have just commenced a new year, motor-cyclists may be reminded that it is necessary to renew their licence to "keep a carriage to be drawn by two or more horses or mules, or to be drawn or propelled by mechanical power." If such carriage has four or more wheels, the licence costs two guineas; but with less than four wheels, only fifteen shillings. Those riders who keep a trailer would do well to take out a two-guinea licence instead of two separate licences at fifteen shillings each for the cycle as one carriage and the trailer as another, so as to be able to claim that the combination forms one vehicle. Occasionally an over-zealous policeman issues a summons for a motor-cycle and trailer exceeding a pace of six miles per hour; although the magistrates will not always follow the argument, there is much more chance of the summons being dismissed if

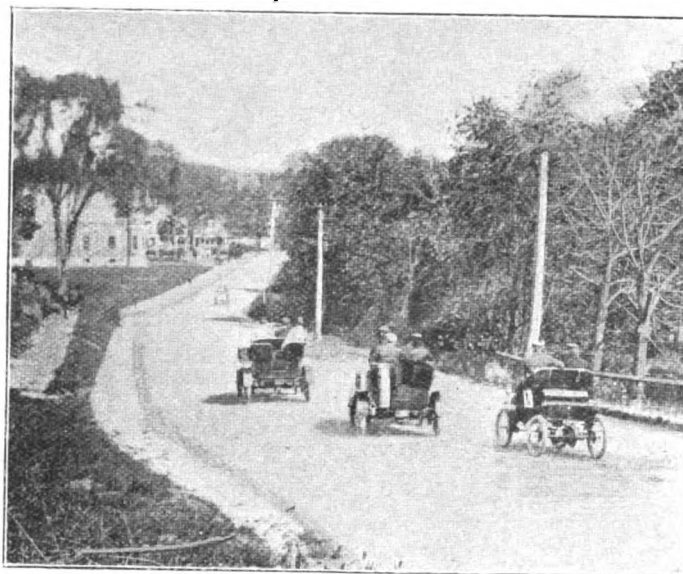
it can be shown that the Inland Revenue authorities have recognised the combination as a single vehicle which is permitted a speed of twelve miles per hour. On the other hand, those riders who are using an *avant-train* or fore-carriage in connection with their motor-bicycle have only need to take out a fifteen-shilling licence, the combination in this case having less than four wheels.

IN accordance with the recommendation made at a meeting of the makers and sellers of motor-vehicles, which was held at the Automobile Club on the 8th ult., a conference of the makers and sellers of motor cycles will be held on the Club premises in Piccadilly on Tuesday, the 13th inst., at five p.m. The

purpose of the meeting will be to consider what, if any, trial of the trustworthiness of motor-cycles should be organised during the present year.

IN the event of the engine of a motor-bicycle being taken to pieces for any purpose, before disengaging the spur wheels constituting the 2 to 1 gear actuating the cams and commutator a scratch should be made across the faces of the spur wheels to indicate the teeth which are to be in contact when re-fitting. Should this precaution have been neglected, the proper timing of the engine, etc., can be adjusted by observing the following points:—The ignition box should be held vertical with the engine. When the piston reaches the very top of the stroke the trembler should be just on the point of parting from the platinum screw, causing an explosion to take place. The makers of the Minerva also suggest that it is well to notice on slowly turning the engine round that the exhaust should commence to open when the piston is about 5-8 in. from the bottom of the stroke.

It may interest our readers to know that in connection with the Royal Agricultural Hall (Islington, N.) Exhibition, all the spaces in the Great Hall, the Minor Hall, and the Arcade have been allotted. Every bay in the Gallery has also been let as well as most of the wall and centre spaces therein.



A PRETTY SCENE NEAR NEW YORK.

[Automobile Topics.]

SOME USEFUL NOTES.

It must not be forgotten that in proportion as the temperature falls ordinary grease becomes thicker, and that it is well to add a little oil.

WITH live-axle cars be sure to always have the bevel-gear case well lubricated; plenty of grease and heavy oil should be frequently put in.

A GLASGOW motor-car driver has had a small drain tap fixed to the bottom of the float chamber, and has found this to answer admirably in cases of flooding and water in petrol.

NEVER neglect to screw down the nut which holds the valve stem on the rim; to all intents and purposes this nut answers as a security bolt, and if it is not tight the valve may be torn out.

AFTER valves have been ground in with emery in the

VERY high-powered cars can usually be started by turning over compression with the spark off, so that gas may be drawn into the cylinders, and then the switch may be put on; if this plan is adopted, there is no chance of injury through back-firing.

NEVER use a brake unless necessary, but when necessary do not hesitate to bring the car to a full stop.

If a tour is contemplated, thoroughly overhaul the car before a start is made, and do the same at the finish.

ALWAYS keep an eye upon the gear-box bearings and engine bearings. Neglect of these may cause great trouble.

IN making repairs to petrol-motors the greatest care is necessary in reassembling the parts, to see that everything is put back in



A 16-H.P. DE DIETRICH (TURCAT-MERY) CAR AND HEAVY PETROL LORRY AT THE 1902 FRENCH MILITARY MANŒUVRES AT CARCASSONNE.
(Le Chauffeur.)

ordinary way, a very nice finish can be given by running them round with putty powder.

THE guides in which exhaust valves work should be oiled frequently. This is a place where lubrication is often either overlooked or forgotten, and in some cases the guides have broken.

It is a very bad plan to slip a clutch much, in order to surmount a hill on a high speed, instead of changing to a lower one; it wears the clutch leather very considerably.

FOUR-CYLINDERED engines usually start themselves when they have recently been working, but do not forget to put the spark lever to late firing before switching on.

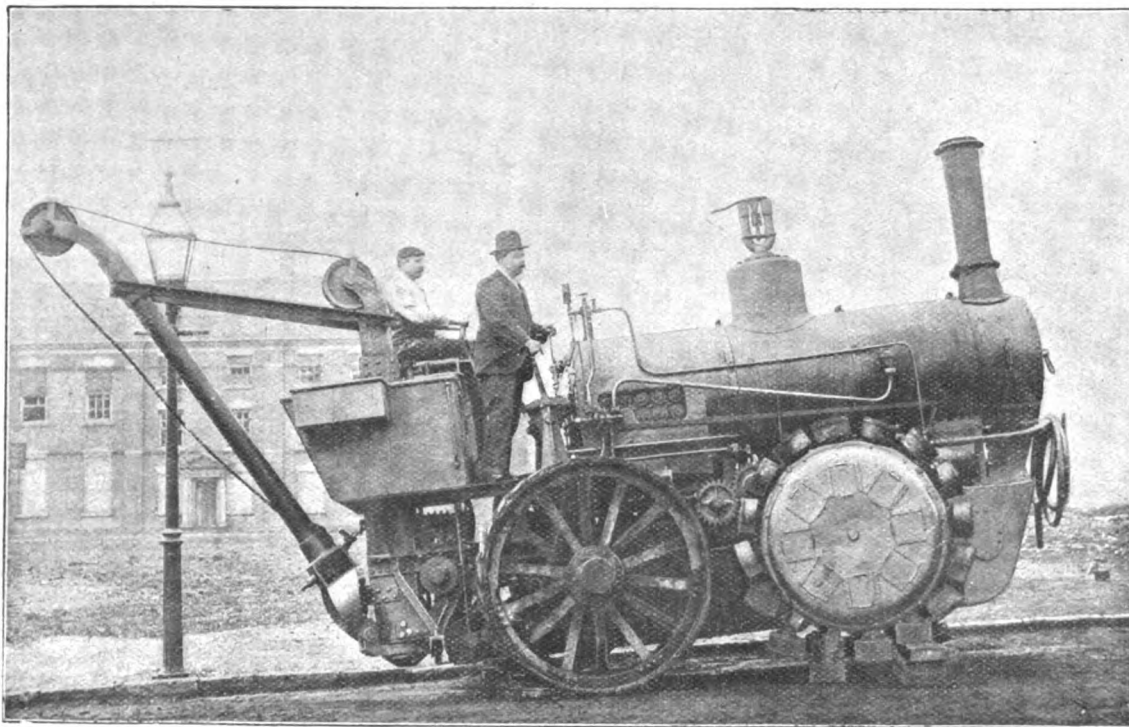
the correct position and that all adjustments are made exactly right. Particular care must be used with the ignition mechanism when making any changes affecting the timing. In such cases, before it is attempted to start the motor, it should always first be ascertained that the spark occurs at the proper moment. As is well known to all motorists, when the spark occurs too early a back fire is produced in the engine, and if the spark occurs exceptionally early bodily injury may result to the person attempting to start the motor. This point ought, remarks the "Horseless Age," to be particularly impressed upon users of machines in which ordinarily the spark is automatically retarded in starting, since they need not pay any attention to the adjustment of the spark when starting under ordinary conditions.

"A NEW SYSTEM OF HEAVY GOODS TRANSPORT ON COMMON ROADS."*

THE author of the work under notice had the superintendence of a vast amount of traction-engine haulage, and from watching the progress of the work he has, by a gradual evolution of ideas, come to the conclusion that an improved system of goods transport on common roads could be economically carried out. Certain axioms are laid down:—(1) Minimum cost of transport is of greater importance than speed; (2) mechanical means must be devised to give the maximum of road adhesion to the propelling power, and the minimum of road resistance to the engine and the wagons; (3) damage to the road must be minimised; (4) goods must be capable of being transported in any large quantities for the longer distances, and of being split up into smaller units for collection and distribution through branches and terminals; (5) the system must include a cheap and efficient means of collecting and distributing empty wagons or units, and a separate and more powerful means of collecting and distributing them when loaded; (6) rehandling of goods must as far as possible

should be spread over as large an area as possible, especially on small country bridges. The author refers to the cost of breakages and repairs to traction engines, caused by the want of springs to ease the heavy weight of the engine when it jolts over irregularities of the road. These constant repairs form a large proportion of the working cost. The life of an ordinary traction engine is only about four or five years. In the author's engine, "the gear-wheels on the road axles are mounted on the centre of the axles with a special form of universal joint inside the gear-wheels, which not only admits of both axles being steered for turning corners without disturbing the line of the gear-wheels with the rest of the engine, but it allows the axles to oscillate horizontally to an almost unlimited extent." Diagrams are given which explain the alternative positions of the four wheels of the engine, in plan and elevation. In one engine the spring movement admits of a front and back wheel on alternate sides being simultaneously raised 6in. higher than the other two.

Col. R. E. Crompton, who was employed by the Indian Government from 1869 to 1875 in carrying out a series of experiments on road traction on the Grand Trunk



GENERAL VIEW OF THE DIPLOCK "PEDRAIL" MOUNTING AN OBSTACLE.

be abolished; (7) the motive power must be separate from the wagons, and must not be kept waiting whilst the wagons are loading or unloading. The experience of ordinary railways has taught something, and it has, the author believes, not been utilised in dealing with road traffic by ordinary traction engines. The author, after giving reasons for the above axioms, describes in the next chapter an engine he patented in 1893 to drive and steer by all four wheels, which would have the effect of doubling the surface contact of the driving wheels. In the ordinary traction engine two large wheels are used for driving and two small ones for steering; the bulk of the weight of the engine is thrown on the driving wheels. "When pulling a heavy load, the winding action of the gear wheels round the road axle reduces the weight on the steering wheels, and concentrates it on the driving wheels, even to the extent of occasionally lifting the steering wheels off the ground, when it is obvious the entire weight of the engine must be on the two driving wheels." This happens when ascending an incline to pass over a bridge, when the weight

read of India, prepared a report on this engine (Diplock's patent specification, No. 19682), in which he states: "I think it is necessary in this report to dwell on the obvious advantages of transmitting the power to four wheels instead of two, as is now the case. Amongst these I need only mention the reduced wear-and-tear of the road surface due to the weight of the engine being distributed over four wheels instead of being concentrated on two wheels; and that, as the front wheels now become driving as well as steering wheels, side-skidding of these wheels is prevented, which obviates a serious difficulty well known to all users of traction engines."

The report enters into the several advantages: the symmetry of the arrangement, a complete self-contained frame, supported on swivel-end carriages; the arrangement of the central ball-socket drive, by which the axle-boxes can rise and fall in horn blocks without fear of strain on the axles, and the satisfactory working of the gearing. A great advantage is, it is pointed out, that the axles are free to swivel not only in the horizontal plane, but also to swivel round a horizontal axis when the engine is seen in end view, thus allowing all four

*By Bramah Joseph Diplock. With illustrations. London: Longmans, Green and Co.

driving wheels to take a bearing when the engine is standing on irregular ground. This will have the effect of distributing the driving power over the four wheels, and largely increase the total tractive power. Other merits pointed out by Col. Crompton are that the boiler is free from the stresses of the driving machinery, and the use of springs.

Another report addressed by Col. Crompton to the chairman and directors of Diplock's Patent Traction Engine Haulage Syndicate, Limited, in December, 1899, is equally satisfactory. The writer says: "I have never yet heard of any results approaching the figures given. The engine was able to exert a pull equal to 35 per cent. of the total weight of engine—a satisfactory co-efficient of adhesion," and the report speaks of the tests made as so satisfactory as to promise a great future for this engine.

The other chapters describe the latest engine in detail, and an ingenious mechanical arrangement or wheel called the "pedrail." The pedrail is a combination of an endless railway with a trotting machine. The wheel which is used is constructed to imitate as far as possible the structure of the horse's leg. To imitate the horse's foot (to which is attached his leg which is mounted on an ankle-joint, which enables the horse to twist to any reasonable angle to suit the surface of the road) was the aim of the inventor. A diagram shows how ingeniously the wheel or "pedrail" is arranged to meet this view. On "a railway a rail is laid down, and wheels are run over it; in the pedrail, wheels or rollers are laid down, and the rail is run over them. The principle is the same, only the railway is inverted. The sliding spoke represents the horse's leg, or lever, and each leg is pivoted by an axle-joint to its foot. By turning the railway upside down, the parts coming in contact with the road are broken up into a number of comparatively small feet, which can twist in varying directions as required." This ingenious part of the invention is fully described. The "pedrail" shows as it moves forward two or three feet alternately on the ground. The feet simply set themselves to an angle in passing over a stone that is thrown in its way. By four such pedrails the surface adhesion is so increased that the slipping of driving-wheels would be an impossibility in this system. Another diagram shows the pedrail moving up an inclined road with the feet on the incline. The mechanism, in fact, imitates the structure of the horse's leg. The pedrail rolling stock is described, and No. 2 engine, which comprises many new features, forms another chapter. Professor H. S. Hele-Shaw has written a report on a trial of this engine, which he describes as the "real solution of one of the greatest difficulties which will be met with in developing self-propelled traffic." This book is worth reading by all interested in heavy goods transport on our roads.

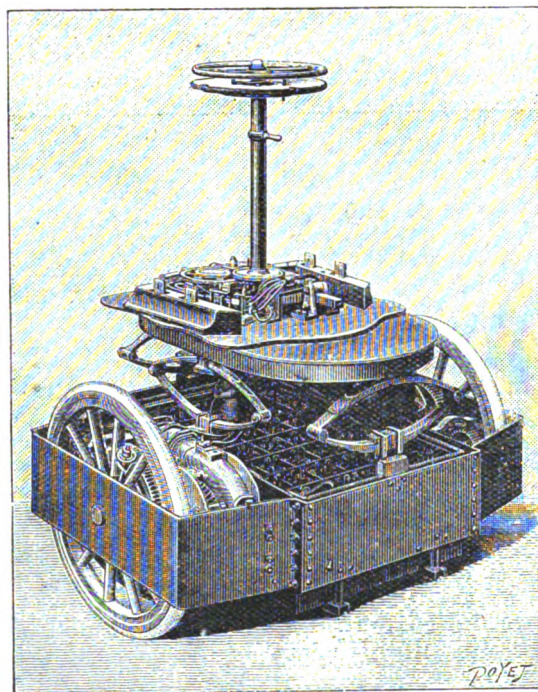
THE Cambridge University Automobile Club will shortly open a garage for the use of its members.

AS mentioned elsewhere in the present issue, 113,508 proved to be the number to win the first prize in the Tombola held in connection with the Paris "Salon." The prize was a 6-h.p. Gillet-Forest car, and the winner was M. Pangaud, the owner of a sawmill in Paris.

THE third volume of Mr. Rankin Kennedy's work on "Electrical Installations of Light, Power Traction, and Industrial Electrical Machinery" has just been published by the Caxton Publishing Company, who are to be congratulated on the letterpress, illustrations, and binding. The work is to be issued in four volumes, and that now before us takes up the survey of the several prime movers employed to convert heat energy into electrical energy. It is written for the electrical engineer, and although few of that branch of the profession are called upon to design dynamo-electric machinery, some knowledge of its design is necessary. Hence the special methods that are given by Mr. Kennedy, C.E., for various classes of machines, continuous current, and polyphase. More than two hundred diagrams and illustrations are scattered through the pages of the present volume.

THE SOLIGNAC ELECTRIC CAR.

A NEW electrical car has recently been introduced in Paris by the Société des Voitures Électriques. It has been built to the designs of M. Solignac, and, as will be seen from the accompanying illustration, it is of the *avant-train* class of vehicle, that is to say, the motor, battery, and transmission are all carried on the fore-carriage. The latter comprises a horizontal frame divided into three compartments. The central one contains the accumulators, and the side ones the wheels, the electro-motor, and two Bovet electric brakes. Each wheel is driven independently. The complete fore-carriage is connected by plate springs to a plate, which in turn is bolted to another plate below the driver's footboard. A non-reversible steering wheel is provided, this being claimed to act with the greatest ease, in spite of the weight of the bogie, which weighs with the accumulators nearly 13 cwt. Another feature of the Solignac carriage is that it does away



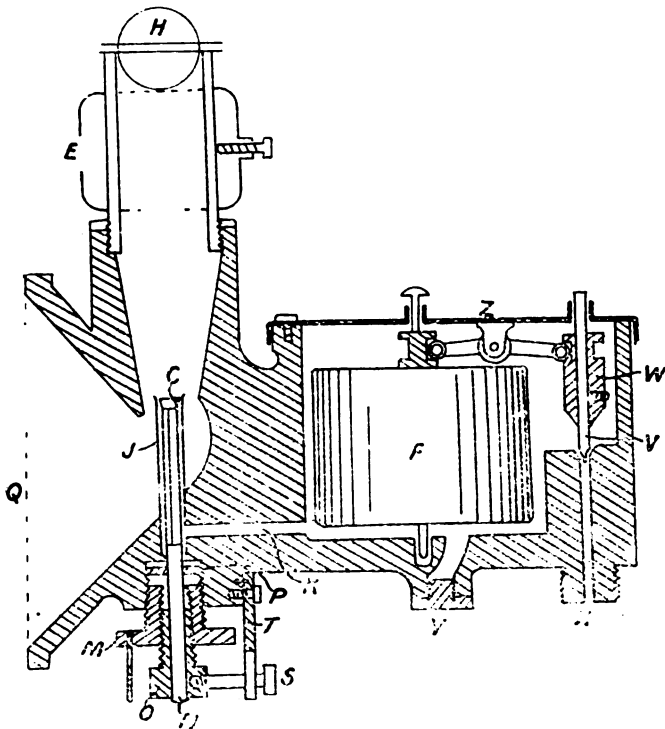
with any speed-regulating mechanism, as the speed is varied by altering the strength of the current. The carriage advances by means of a series of intermittent contacts, and by regulating these the speed is controlled. If the contacts are long and frequent the speed increases, and vice versa. If they are short and intermittent the speed decreases. This is effected by means of a wheel concentric with and beneath the steering wheel. When the lower wheel is brought close to the other by the hands of the driver the speed increases in proportion. Owing to the location of the accumulators the centre of gravity is low down, giving the vehicle great stability. The cells of the battery are suspended in the frame on a double row of twenty rubber balls, with a view of reducing the effect of bumpy roads on the same. One of the great advantages claimed for the Solignac arrangement is that the front bogie containing the driving mechanism and accumulators can be applied to any vehicle, which may thus be moved either by electricity or by horses at pleasure.

MESSRS. S. BELMAN AND COMPANY, of Pershore Street, Birmingham, have sent us samples of the "J.M.N." trouser clips of which they are making a speciality. Motor-cyclists should not omit to use clips when riding in ordinary costume. Messrs. Belman make them in two forms, the Excelsior pattern being exceedingly compact.

THE STHENOS CARBURETTOR AND ITS ADJUSTMENT.

THE Sthenos carburettor, which appeared in a form slightly differing from its present one at the 1901 Paris show, has already obtained a considerable measure of popularity; and as it differs somewhat in principle from most of the usual types, a drawing of the latest pattern, for 10-h.p. engines, with some remarks on the adjustment thereof, may be of service to those whose cars are fitted with this type of carburettor.

As usual the essential parts consist of a float-chamber, by which the petrol—or other fuel, as it is stated to be equally suitable for alcohol, a claim which the writer has not personally tested—is supplied at a constant level to a jet. These parts—the float *F*, valve *V*, and jet *J*—are clearly shown in the illustration, which, though correct in details, is not accurately to scale, and the jet is, obviously, of somewhat large proportions. It is, however, closed by a conical-ended stem (squared along part of its length to afford passage to the fuel), which can be raised, thereby opening the jet by the differential screws *M* and *O*. Of these, *M* has a



coarse thread externally, and screws into the body of carburettor, a small screw-plug and packing *P* making a petrol-tight joint for the spindle *N*. *M* has a somewhat finer thread internally, into which the sleeve *O* is screwed, the latter being clamped to the spindle by the set-screw *S*, which at the same time prevents *O* from rotating when *M* is turned, by entering a slotted fork *T*. It will be obvious that when *M* is screwed inwards, it will also drive *O* outwards (downwards), but to a less extent that it rises itself, thereby giving a very slow upward movement to the spindle and cone, and gradually opening the jet, while the reverse movement, i.e., a left-handed rotation of *M*, will close the jet and reduce the petrol supply. The black pin projecting from *M* prevents more than one revolution being given to it without removing the set-screw *S* from *O*.

The rim of the jet *J* rises about 3/32 of an inch above the cone that closes it, and enters an inverted conical passage, along which air is drawn through the gauze *Q*, and which has above it a jacket warmed by the exhaust *E*, and a throttle-valve *H*. The effect of the flow of air along the conical passage is to diminish its pressure at the narrowest part—the well-known and at first

sight somewhat paradoxical "Venturi tube effect"—and thereby to suck a charge of petrol from the jet there located, the amount being regulated by the milled-head *M*. It will be seen that this forms the only mixture adjustment, and is said not to require much attention when once correctly set, a claim fairly borne out in practice. The writer's first experience, however, was one of dirt in the carburettor, which proved to be located in the passage *K*, and was easily removed by taking off the lid *Z*, carrying the float and valve spindle *V* with it, and the judicious use of a hairpin; not, however, until he had vainly dismantled the jet, cone, and nuts, and had to discover how to readjust same. To do this *M* and *O* have to be screwed into the body of the carburettor, of course with *S* removed, leaving about two threads of each visible. The black pin on *M* must then be turned, so as to be just on the near side—in the drawing—of *S* when inserted. The spindle *N* is then pulled down as far as it will go, and clamped by the set-screw *S*. *M* can now be turned one complete revolution, and this must be done with carburettor *in situ*, trial being made of the performance of the engine with *M* in different positions. From three-quarters to a shade over one revolution of *M* may be the approximate position; but if more than the one revolution is necessary *S* must be removed without, if possible, disturbing spindle, and the black pin of *M* turned past it. Excessive opening is, of course, indicated by smelly exhaust and sooting of sparking-plugs, while insufficient gives want of power and tendency of engine to stop when throttle is nearly closed.

Another adjustment sometimes needed is that of the valve *V*. If the little set-screw in the counterweight *W* shifts, the petrol level will be too high, and the jet will flood. If, on the other hand, the petrol level is set too low—it should be very slightly below top of jet—the result will be seen in difficulty of starting, though the running when once started may be little affected. A slight adjustment of the spindle *V*, fixing it securely to *W*, by the set-screw will remedy this.

A good petrol strainer should be located under the entrance *X* with this carburettor, as dirt is peculiarly troublesome. This, if not present, is easy to supply. Care should be taken when starting not to flood carburettor too much by pressing on float spindle, as this causes more trouble than with most other carburettors. The screw *Y* with the recess above it gives facility in washing out any dirt that may collect; but it is most important to prevent its entrance.

R. W. BUTTEMER.

A REFUSE motor-wagon has been constructed for the Wellingborough Urban District Council, and is about to be delivered.

MESSRS. EVART-HALL, LIMITED, of Nottingham, are introducing a set of mudguards specially adapted for use on Oldsmobile cars.

A COMMITTEE of six deputies was received the other day at the Italian Ministry of Public Works with a petition that the Minister would consider some scheme for supplementing the local train service in the Roman province by a service of automobiles, both for mails and passengers.

AN accident insurance policy for £500 covering the risks of accident by train—including light railways, over and underground and electric railways; by tram—cable, horse, steam or electric; by omnibus and by cab, and proportionate sums in the event of total or partial disablement for twelve months, together with an exceedingly convenient pocket diary, bound in leatherette or in French morocco, is issued by Messrs. Charles Letts and Company. These diaries for 1903 contain all this and also a self-opening tablet, a patented device which instantly insures the book opening at the place in use, and on which temporary pencil memoranda may be written, a moistened linen rag, or sponge effecting their instant removal. When it is remembered that an average of 18,000 people are killed by accident during a year, it is small wonder that the insurance has proved popular. The publishers have no less than thirty-six different varieties of diaries issued at a cheap rate.

OCCASIONAL NOTES.

RAIN was falling as I drove to Euston. It persisted during the northward journey, the appearance of the low-lying country round Wolverton and Stafford flooding my mind with apprehensions regarding the "forty miles on a motor-wagon," which I had mentioned in my last contribution. After luncheon, in the cosiness of a L. and N.W. saloon, and viewed from a perspective then of some hundred miles, I concluded that it would be most unpleasant. Arrived at Liverpool, the climatic conditions were unimproved, and my anticipations grew positively dismal. I was armed with Mr. Shrapnell Smith's order for a box-seat to Blackburn, per one of the Road Carrying Company's lorries, but decided to call on him in any case. Four o'clock tea at the Company's central offices resulted in temporary abstraction, while I took the opportunity to note down the route—Aintree, Maghull, Ormskirk, Burscough, Rufford, Tarleton, Walmer Bridge, Preston, Samelsbury, Blackburn. All looked comparatively simple as I gazed at the one-inch Ordnance Survey map which adorns one wall of the room. Every main and secondary road in the county of Lancashire is clearly shown in colours, the map having been prepared by Mr. W. H. Schofield,

have on board their loads of cotton from the docks. No, neither of these is my lorry. Where is number eleven?" asks Mr. Rosenheim, the engineer, of Foreman Ambler. "Towing in number fourteen," comes the ominous reply, which makes the thirst for copy liven a little. Shortly after number eleven enters the depot on the low gear, both she and her helpless trailer under full loads. A small connection to one of the pumps had fractured three miles from home. Immediately comes the inspection by the running shed staff, and number eleven is pronounced fit for the night-shift trip to Blackburn. The day driver enters the office to hand in his records, and he of the night has already rung on duty. A reliable and determined-looking man is my judgment, as he goes down to the stores, in company with his fireman, the two re-appearing almost instantly loaded with two oilskin coats and no less than six hurricane lamps. Fourteen bags of coke are certified for, one gallon of engine oil, and sundry oddments. Meantime, number eleven has been backed by one of the depot men to the end of the shed nearest to the departure gate, but without a load. I am growing impatient, two lorries having already started with their loads of cotton. Suddenly the gate is run back, and a waiting horse-drawn lorry is discerned in the street. Sheets fly off, and the vault opens simultaneously.



A SUNDAY MEET OF THE NEW YORK MOTOR CYCLE CLUB.

[Bicycling World.]

Assoc. M. Inst. C.E., County Surveyor. Forty and three-quarter miles! I pondered. How long should we take on the road, and how should I feel at the end of the journey? Picturesque tales of how steam-pipes occasionally broke, of lorries getting off the road into ditches, of their turning over, or of their being lost, were anything but reassuring to a Londoner venturing into the wilds of Lancashire for "experiences."

FIVE o'clock found me at the depot in Vauxhall Road. These premises consist of a spacious single-storey shed with a lofty five-floor warehouse adjoining. The floor of the covered shed is of concrete, with approved slopes and gullies to carry off water from washing operations. An excellent pit, a number of telescopic extractors to the roof to carry off the fumes of each separate motor, a twenty-ton weighbridge, adequate fire appliances, and offices for garage customers, are the chief features which attract notice. Here, too, I was introduced to the special vault constructed for the storage of petrol, having a capacity of 750 gallons.

It is now 5.30. Ting-ting-ting-a-ling go the gongs of the incoming lorries returning from their day trip to St. Helen's and back. Six arrive within thirty-five minutes. Three are to go to Blackburn to-night, but only two of these are yet in. They

Petrol, by Jove! I exclaim involuntarily, with visions of premature cremation. Was I to ride to Blackburn without a smoke? And what were the odds that the ashpans would not have a share in providing a healthy conflagration? "Reject that case," shouted the foreman loader, and I returned to my wits to see a leaking tin sent back to store by the cart, case and all. Row upon row, some off the cart and some from the vault, were the cases built compactly together. "We like the load, it sits well," was the nonchalant reply to my enquiry as to what the men thought.

In half an hour all was on and double-sheeted. A spar-like pole was erected horizontally at the back, above the load, and the tail lamp secured thereto. "Petrol vapour is heavier than air, and the front lamps are never in it," was the only explanation needed or vouchsafed. Four of the hurricane lamps were suspended at the front of the lorry, and a fifth was placed on the footboard, behind the boiler, to show the gauges.

SEVEN-THIRTY, and we are off! I am ensconced on a sack on the top of the tool-box, between the driver and the fireman. As to how we went through the rain and wind, protected by cloth, leather, and umbrella coats, but none the less taking our lives in our hands, must be told "in our next." P. A. M.

HERE AND THERE.

PROGRESS is being made with the movement for securing an automobile racing track in this country.

SUBJECT to the date not clashing with any important fixture, the A.C.G.B.I. will hold a gymkhana at Ranelagh on June 13th next.

MESSRS. HUMBER, LIMITED, have now removed their head office to Beeston, Notts. All matters relating to Humber motor-cycles of Coventry manufacture should be addressed to the Coventry Works, as before, but all other matters should be addressed to Beeston.

LA SOCIETE ELECTRIQUE "HYDRA," of Paris, whose ignition batteries are largely used in France, has lately taken up the manufacture of sparking plugs. Fig. 1 gives a view of the "Hydra" plug, which is said to be unbreakable, the insulating material being mica. The plug is claimed to give a reliable spark at all rates of compression and to be free from the objectionable feature of "sooting." Fig. 2 gives a view of another new sparking plug which the London Autocar Company are putting on the market. It has been designed to overcome the

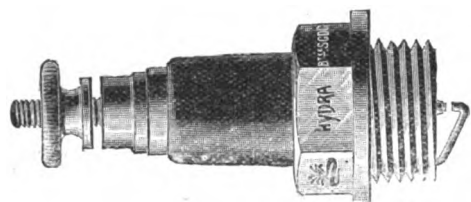


FIG. 1.—THE "HYDRA" PLUG.

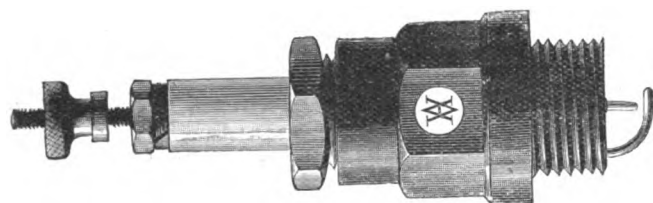


FIG. 2.—THE "L.A.C." PLUG.

trouble frequently experienced by motorists, viz., the constant sooting up, and consequent short circuiting of the current through excess of lubrication or defective piston rings. The London Autocar Company claim that the new plug affords a complete cure for this trouble, and so confident are they that a guarantee is given with each plug, which, if not found satisfactory, will be exchanged within one month after purchase, providing it has been carefully used and is not broken.

THE voluntary liquidation of the Motor Car Company, Limited, has now been closed, and from January 1st, 1903, the business of the company is to be carried on upon a reconstructed basis. Mr. R. Moffat Ford, who resigned office previous to liquidation, has again been asked to join the Board, and has accepted the position of managing director. The business of the company will consist solely of the sale and repair of Decauville cars and the representation of the Societe Decauville, of Paris, in the United Kingdom.

THE Zero Radiator Company, of Simen Street, Pittsburg, Pa., have recently introduced a novel design of radiator. None of its tubes are of a round section, and no radiating discs are employed. It consists of two header castings and flattened copper tubes. The latter are connected in pairs, so that the radiator is virtually a coil. There is but a quarter inch space between the tubes, one-eighth inch between the walls of a tube, and the width (inside) is 4 in. Between the headers each tube is 18 in. long. All the joints are brazed, the cooling surface of a twelve-tube cooler being 1,908 square inches. The manufacturers claim that the radiator is very efficient, because the water in the tube lies in thin sheets. It makes no difference how the radiator is hung so long as the currents of air can pass through the tubes without being deflected from their course.

THE police were extremely watchful on the Crawley road on Boxing Day.

AMONG those who have ordered 1903 Mercedes cars are the King of the Belgians and Prince Soltykoff.

ON Saturday last a banquet was held at the Automobile Club de France, to celebrate the recent successful *Salon*. Over 200 motorists were present.

ALTERATIONS at a cost of about £2,000 are to be made in the Mayfair stables so as to render them serviceable for the British Automobile Club's garage.

COLONEL SCOTT is in communication with the Indian Government with reference to the facilities given for the importation of petroleum spirit into India.

THE Star Motor Company have requested the Automobile Club to retain the cheque they sent in respect to an entry for the Eliminating Race to select the third British representative in next year's Gordon Bennett race.

THE first section of the experimental steel road, in Murray Street, New York, was practically completed on the 11th ult., when the last rail was laid by Major Jones. It is now in constant use by the heavy vehicles which form the greater portion of the traffic at that point.

THE Imperial Tyre and Rubber Company, Limited, have issued a neat circular with regard to their system of repairing tyres, in which they point out that they return all tyres sent for repair that, in their opinion, do not justify expenditure by reason of their condition. Their system of repairing is meeting with much favour among motorists.

THE Lord Chief Justice of Scotland (Sir J. H. A. Macdonald), who was sixty-six on Saturday, is perhaps the most variously accomplished occupant of the Bench in the kingdom. He could append to his name, says the "Westminster Gazette," as many letters as the alphabet contains, and would find it difficult to enumerate the offices he has filled or the activities in which he has been engaged since he became an advocate forty-three years ago.

AUTOMOBILISTS would be wise to periodically examine the tyres of their cars, and if required to be repaired the work should be done at the first opportunity. If the tread has been very much worn, or if the tyre exhibits signs of cuts and gashes, the fixing of a new tread will completely renovate it. The Dunlop Company have perfected arrangements for re-treading the covers of motor-tyres, large or small, only the best materials being employed.

IN addition to the magnificent display of motor-carriages and accessories at the Exhibition to be held at the Agricultural Hall, London, in March, under the auspices of the Automobile Mutual Protection Association, there will be a fine show of heavy vehicles, among the exhibitors being Messrs. Brown and May; the Yorkshire Steam Vehicle Company; Straker Steam Wagon Company; Messrs. Savage Bros.; The Hydroleum Company; Messrs. Coulthard and Company; Mann's Steam Wagon Company, Limited; Lancashire Steam Wagon Company; Brightmore Motor Company; Messrs. Foden's Limited, and Messrs. Haynes and Sons, Limited.

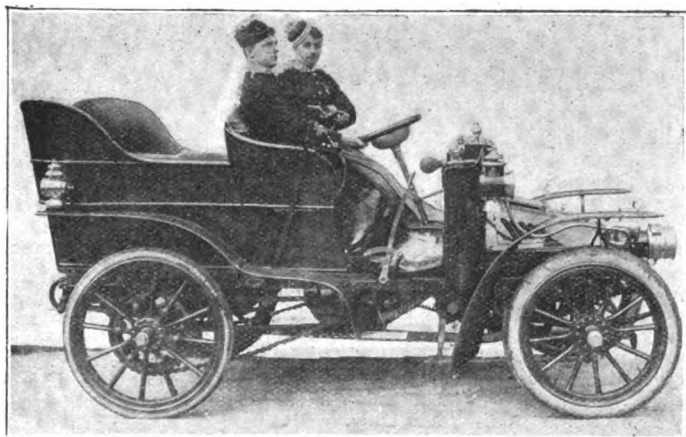
AN interesting combination of literary lore and motoring experience is presented in "Two Thousand Miles on an Automobile"—a desultory narrative of a trip through New England, Canada, and the Western States, by Mr. A. F. Eddy. The work is published by the J. B. Lippincott Company, of Philadelphia and London, and has several meritorious sketches by Frank Verbeck. Much care has been given by the author, and the index is, if not entirely novel in works of this kind, an excellent addition serving to emphasize the varied nature of the contents. The journey comprised some of the most attractive scenery of the States, and the reminiscences of American leaders scattered throughout the volume are characteristic as well as entertaining. All things considered, the automobile is said to have stood the journey well, and Messrs. Lippincott have been well advised in issuing the story of its adventures to the world.

MOTOR-CARS have been adopted for scouting purposes by the Swiss military authorities.

It is understood that the beginning of the New Year will see the issue of a goodly number of writs.

AN automobile club is in course of formation at Oran, Algeria. There is already a large number of motorists in the district.

M. LEON SERPOLLET has left Paris for Biarritz and Spain, to have a preliminary run over the proposed course of the Paris-Madrid race.



THE 10-H.P. BROOKE CAR SUPPLIED TO THE WAR OFFICE.

BARON PIERRE DE CRAWHEZ has proposed to the Belgian Automobile Club that it should next year hold a tour of Belgium on the lines of the 1902 Reliability Trials in England.

MR. CLARENCE GRAY DINSMORE is reported to have purchased one of the three special Mercedes cars the Cannstatt Daimler Company are building for the 1903 Gordon Bennett race.

THE Paris Motor-Car Exhibition closed at 11 p.m. on Christmas Day. By the following Saturday afternoon all the exhibits had disappeared, not a trace of the *Salon* being visible in the Grand Palais.

BOURNEMOUTH has many doctors, several of whom have motor-cars. The ex-mayor (Dr. Frost), Dr. W. Gardner, Dr. A. Mc Call, and Dr. H. Nankivell, are all practical motorists, the two latter favouring steam cars, Dr. Nankivell having a 6-h.p. White car, and Dr. McCall a 6-h.p. Serpollet.

At a recent meeting of the Automobile Club of America, Mr. J. Dunbar Wright delivered an illustrated lecture on an automobile tour which he made last summer through Spain, Northern Africa, and the Island of Madeira. A feature of the entertainment was the hundred or more lantern slides of camera snap shots taken by the lecturer. Views of Gibraltar, Funchal, Tangier, Granada, Cadiz, Seville, and a dozen other cities in the countries visited were shown.

MOTORISTS touring in France should get a copy of the handbooks issued by the various companies supplying petrol. Messrs. Fenaille and Despeaux, of Rue Conservatoire, Paris, the makers of the essence known as Benzo-Moteur, have sent us a copy of their handbook, which, in addition to giving a list of the places in France where Benzo-Moteur may be obtained, contains a large amount of useful information regarding the regulations relating to motor-car traffic in France.

MESSRS. J. A. WILDING AND COMPANY, LIMITED, has been registered with a capital of £15,000 to adopt an agreement for the acquisition (*inter alia*) of the business of Messrs. J. A. Wilding and Company, and to carry on the business of manufacturers, repairers, and vendors of motor-cars, motor-lorries, motor-vans, motor-cycles, and other vehicles. The first directors are Messrs. C. W. Milne, J. A. Wilding, F. C. Haste, and E. A. Nesbitt, and the registered office is at 3, Wilson Street, Drury Lane, W.C.

A MOTOR-CAR service has been suggested between Cheadle and Withington, near Manchester.

THE Llangollen District Council has expressed approval of the Yeovil Council's suggestion for the harassing of motorists.

EARLY in the new year the Beaufort Motor Company will introduce a new four-cylinder car, with mechanically-operated inlet valves, magneto ignition, and honeycomb radiator.

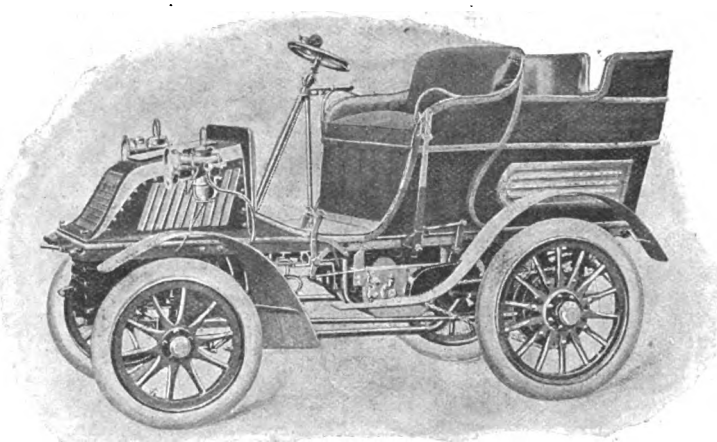
THE Post Office authorities in London are now experimenting with a White steam delivery van, supplied through Messrs. Julius Harvey and Company. We saw the van with a big load of Christmas parcels in the Battersea district the other day, and learned that it was giving very satisfactory results.

A CIRCULAR letter has been issued from the Birmingham Rim Works, Lower Loveday Street, Birmingham, announcing the death of Mr. J. T. James, and also stating that the business will be continued under the same management as heretofore, by Mr. W. S. James (brother of the late proprietor), under the style of "J. T. James."

THE H. W. Johns-Manville Company, of New York, is introducing a special sheet packing for cylinder head joints on petrol engines. The packing, which is known as Mobilene, is made from asbestos yarn, with fine brass wire inserted, the whole being woven into a very dense firm cloth said to possess great strength. It is saturated with a composition to resist the action of water from the cooling jacket, it is pliable, easily cut, and only 3-64 of an inch thick.

MESSRS. ALF. DOUGILL AND COMPANY, LIMITED, Longclose Ironworks, Leeds, have secured the sole agency for this country for the petrol delivery wagons built by Messrs. Rudolf Hagen and Co., of Cologne. They are propelled by a single-cylinder horizontal motor located in the fore part of the frame, and running at the slow speed of only 450 revolutions per minute. The transmission is entirely on new lines, consisting of reciprocating levers, by means of which any speed from zero to twelve miles per hour can be obtained. The wagons are made in a number of sizes to carry from 30 cwt. up to 7 tons. The 7-h.p. vehicle is stated to be capable of hauling a load of three tons over give and take roads on a consumption of half a pint of petrol per horse power per hour.

THE accompanying illustration shows the latest type of "Belle" car introduced by Messrs. E. J. Coles and Company. It is fitted with an 8-h.p. engine, the cylinder and water jacket being cast in one piece. The valves and their seating are so arranged that they may be taken out together, thus facilitating the grind-



ing-in operation. Larger tanks and radiators are now being fitted, while an improved form of water-circulating pump has been adopted. A hand lever controls double-acting band brakes on the hubs of the rear wheels, and a pedal actuates a water-cooled band brake on the countershaft. Three speeds forward and a reverse are provided, the car being claimed to be capable of attaining a speed of thirty miles per hour.

CORRESPONDENCE.

CARBURETTORS.

To THE EDITOR OF *The Motor-Car Journal*.

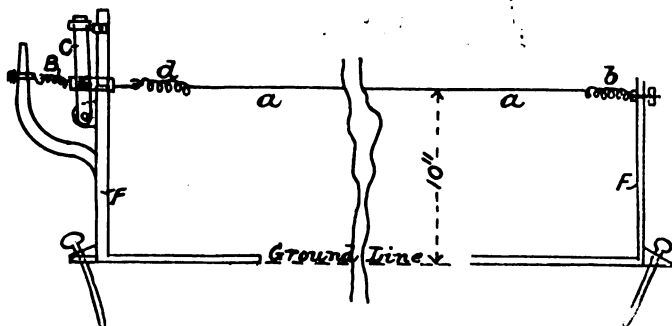
SIR,—In answer to your correspondent of last week (Mr. L. P. Mell). I have had the same experience. He will find that the valve is not sufficiently raised into its seating, in the carburettor. Either the leg of the float is bent, is too long, or the float leaks and is full of petrol. It is easy enough, if the carburettor is removed, to adjust the length of leg, and make sure that the valve closes automatically, well before the petrol overflows through the spray holes. I can usually do over 20 miles on a gallon.—Yours faithfully,

HORACE R. WILKINSON.

AUTOMATIC TIMING.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—I was sorry to read in your issue of December 20th another failure of the Mors automatic time recorder, and should be very pleased if you would publish this letter and sketch, which I hope will reach Messrs. Mors. I really think that if they follow my sketch they will not have nearly so much trouble as the breaking wire principle gives. I think the sketch will almost explain itself, but perhaps a description of its action is desirable. As a car passes, it, as it were, treads on or depresses the fine steel wire (a) to the ground; the spring (b), being the weakest, gives first



and permits the switch (c) to close, while the stronger springs (d and e) allow for any uneven working due to, say, a car coming close to the supports (f).—Yours faithfully,

E. BUDD.

THE AUTOMOBILE CLUB BILL.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—Although agreeing in every respect with the objections of your correspondent, "J. H. A. Macdonald," to the scorching motorist, I fail to see that this fact should make me a supporter of the numbering proposals.

I drive a modest little one-cylinder car, and in a way which I hope would entitle me to be classed as a "moderate" man. But I have no special wish to advertise in the highways and byways of this country the facts that I dislike the scorcher, and am a "moderate" man. And, if the "principal reason" of the numbering advocates is indeed, as stated by your correspondent, "that we desire our fellow-citizens to know that we are out of sympathy" with those who, "in a word, display a cynical want of ordinary courtesy and consideration that deserves the strongest condemnation," then, in my opinion, the case for numbering is in a bad way. In fact, your correspondent ought to object to compulsory numbering, because, as soon as it is required of every motorist by law, his carrying a number will no longer be a means of letting his fellow-citizens know his views as to scorches, roaring exhausts, and the dust nuisance.

I note that your correspondent suggests that naming cars would be an improvement on numbering; and refers to the custom of naming yachts, etc. It would be interesting to see what a village constable would make of some such "blessed word" as "Mesopotamia" on a scorcher's "roaring forty" on a dusty road. But this yacht-naming, as a supposed precedent, is fallacious. Your correspondent admits that the present speed limit for cars is "absurd." If there existed some admittedly absurd navigation law for yachts in our three-mile coastal waters—a law enforced by heavy fines on yachts, and not applicable to other navigators of such waters—how many yachts would be voluntarily named by their owners; especially if, by so doing, they were merely supplying the coastguard with means of starting vexatious prosecutions.

I can well understand the eagerness of anti-motorists to see the numbering proposals made law. But what I cannot grasp is that such a body as a Committee of the Automobile Club should be capable of endorsing them. Its members must surely keep themselves posted up with the working and the failure of the similar regulations on the Continent. They must be aware that the local authorities and their police agents welcome the numbers merely as an easily handled weapon in their war against motorists. I believe this Committee to be utterly out of touch with, and in no sense representative of, the opinions of the bulk of motorists; and that the real object to strive for should be: one law for all road-users; and where any-

one drives to the danger of other road-users, let him be made to suffer—whether he drives a motor-car, a horse, or a coster's donkey.

That any fresh legislation at present is likely to give us such a law, I am not simple enough to believe. But give the magistrates a little more time to familiarise themselves with motor-cars, and I feel confident that vexatious prosecutions of "moderate men," and heavy fines for a merely technical offence which harms nobody, will before long—signs of it are even now not wanting—be things of the past. The present law will remain on the Statute-book, but its more reasonable administration will cause it to lose all its terrors to the moderate man, and it will then only be used against the real scorcher. I take this to have been clearly the meaning of those who wrote under such headings as "Let well alone," or over such signatures as "Let sleeping dogs lie." Most laws are capable of being oppressively administered, and as long as the spirit of opposition to motor-cars pervades country magisterial benches, then, whatever be the law, the motorist, as being a motorist, and not only the scorcher, will somehow be made to suffer. Wait for time to effect a change in the views of J.P.s. Do not rush for fresh laws. The early electric lighting legislation did sufficient harm to one industry in Great Britain. Let us hope another is not now to be set back by the hasty and ill-advised efforts of the private member.—Yours truly,

"TIME WORKS WONDERS."

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am a shareholder in motor companies, and otherwise interested in the development of an industry in England which has already done so much for the foreigner; but I am not as yet an owner of a motor-vehicle, and if motor-vehicles are to be ticketed like cabs, I doubt if I ever shall be. I cannot conceive how the A.C.G.B.I. could propose such a madcap scheme. Can you not get up a petition against it? or at least demand that the Club Bill shall include a clause making numbering compulsory for all private carriages, whether moved by animal or mechanical motors? I expect that very many feel as I do.—Yours truly,

VIATOR.

ALLEGED FURIOUS DRIVING.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—Our engineer received a summons last Tuesday to appear at Pershore for furious driving of my motor-car, a 20-h.p. Mercedes Simplex. Unfortunately my mother, who was in the car with the two engineers when the policeman stopped it, was too ill to go to Pershore.

In court the policeman took his watch out and made a few paces to show how he measured the speed by the time, and that the car had gone a quarter of a mile in so many seconds. An unprejudiced person must see that it would be impossible to tell how fast a car was going by these methods. Major Evans, before whom the charge was made, gave the extreme penalty of the law—£10 and costs. It is unnecessary to say how outrageous such a fine was considering that nothing has ever happened to the car to justify such prejudice, nor warrant such a fine.

The motor-car industry of England must suffer if the best cars must be put in storage or sent abroad until the law is changed. Judges, who know next to nothing about motor-cars, do not understand that high-powered cars are bought for hill climbing and not for their greater speed. The mere fact that a car is a fast one makes any charge probable. The inducement of paying witnesses seems to me unfair. The lanes about Pershore at this season of the year are very greasy, and they wind about so that we cannot drive any faster with the new car than with an old 6-h.p. Daimler. We have been motoring for five years, and have always been most careful to stop for nervous horses, and help them go by when needed. It seems very hard that we shall be obliged to give up motoring to avoid this petty persecution.—Yours truly,

(MISS) ZULA WOODHULL.

STEAM CARS.

To THE EDITOR OF *The Motor-Car Journal*.

SIR,—Replying to the letter by "Steam" in your last issue, I beg to state that the valves of a Serpollet car, practically speaking, do not require renewing and grinding only about once in a twelvemonth, which is amply sufficient. I should recommend having this done by an expert, as, after they are on their new seats, the adjustments on the cams must be altered accordingly, and as the play of these should not be more than $\frac{1}{2}$ mm., it is imperative that a careful workman should do the work. The piston rings will last, according to use, anything from one to two years; still, to add new ones about once a year is an improvement, as it prevents steam from passing. The safety valve has no packing glands, as the writer suggests, so the tightening plug only puts pressure on the top spring, and has nothing whatever to do with the packing glands. In fact, the only two packing glands on the whole of the Serpollet car are those on the pumps.—Yours faithfully,

J. W. H. DREW.

In answer to Captain Longridge, the Endurance Motor and Cycle Company write that their letter should have read "Increase of power."

"MEDICUS" writes:—"The Oldsmobile is a car that would appeal to medical men who want a small, handy, quiet, and vibrationless car. Before purchasing one, however, the writer and others would like to know if it is reliable, and would like to hear the experiences of actual users."

NON-ACCEPTANCE OF A CAR.

At the Wolverhampton County Court, Judge Howland Roberts has heard a case in which the Star Engineering Company, of Stewart Street, Wolverhampton, sued Messrs. Wallace Brothers, gunmakers, etc., of Lincoln, for £49 18s., for non-acceptance of a motor-car made by plaintiffs to the order of defendants. After hearing the evidence, his Honour reviewed the correspondence, and said he had come to the conclusion that defendant could not cancel the order without the consent of plaintiffs, and that a definite breach of the contract actually took place on October 2nd. With regard to damages, his Honour quoted plaintiffs' letter to defendant, stating that defendant would have to either take the car or forfeit the £30 deposit. Taking into consideration also the fact that cars were getting more and more out of date every day, he held that a fair market value was £75. He therefore gave judgment for £27 8s., which was in addition to the £30 of the deposit.

AN UNATTENDED MOTOR-CAR.

FRANK JARVIS, in the employment of Messrs. Salmon, Market Place, Reading, was summoned at Wokingham for leaving a motor-car unattended in the Blackwater Road, Sandhurst, on November 20th. Police-constable Mason deposed that he saw a motor-car outside a public-house at Sandhurst. There was no one in charge, and after watching for eighteen minutes witness went into the house and saw the defendant and his companion having their dinner there. Defendant deposed that he was in charge of a motor-car business van. On the day named he was on his way to Aldershot and stopped to have dinner. He drew up his van into the draw-way outside the public-house, shut the engine off, and put a catch on so that it was

defendant. Mr. Steer pulled up right into the hedge on his right side. The car was in the centre of the road. He asked Bennett to back a bit, and give him a chance to pass, but the defendant said "No; you must go back to the crossway." Defendant could have passed all right if he had moved from the centre of the road. To make sure of his case, Mr. Steed sent for a Mr. Trevelyan, who measured the road, and found it 12 feet wide in the clear. He occupied 4 feet with his trap, but the motor-car was 7 feet wide. After they had remained there for an hour defendant backed his car, and Mr. Steer passed. The Bench convicted defendant, and ordered him to pay the costs, amounting to £1 4s.

MR. CAMPBELL MUIR was summoned before Mr. Denman at Marlborough Street Police-court on Tuesday for creating an obstruction with his motor-car by leaving it outside the Bath Club, in Piccadilly, on December 11th. Police-constable Halls said that the car stood outside the club unattended from 1.10 p.m. until 2 p.m. Mr. Muir, for his defence, called a club porter, who said that he was left in charge of the car and was watching it from the doorway. Mr. Denman said that he should deal with the case upon the evidence of the witness called for the defence. He had been treated to some "hall porters' law," and the fact that that individual "kept his eye on the car" did not affect the question at all. The defendant had no more right to occupy a portion of the public highway with his motor-car than a costermonger with his barrow or a builder with his materials, etc. The defendant must pay a fine of £2, with 2s. costs.

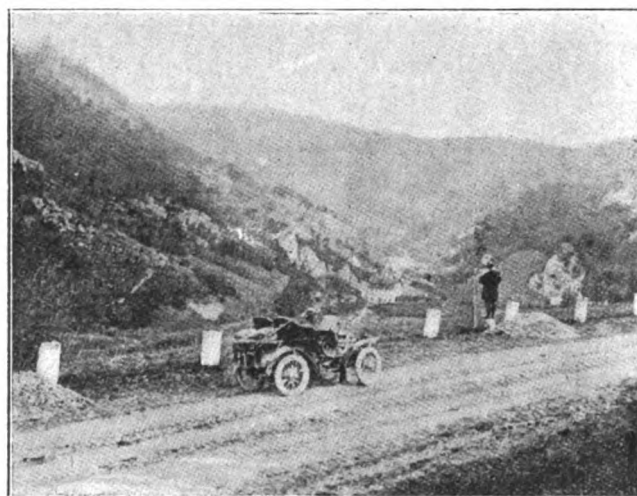
THE SUPPLY OF PETROL.

At the Brighton County Court, Judge Martineau has heard an action brought by James Miles against Henry Charles Harris, Castle Street,



TWO EXTREMES OF LOCOMOTION. A SNAPSHOT IN THE NETHERLANDS.

M. CORMIER'S TOUR OF EUROPE ON A DE DION "POPULAR" CAR.



A VIEW ON THE SEMMERING.

impossible for anyone to start it. The magistrates, in dismissing the case, considered that the defendant took due precaution to prevent anyone starting the motor, but thought it advisable that someone should always be left in charge.

PROSECUTING A HORSE DRIVER.

At Barnstaple, John Crocker, a farmer, of Umberleigh, has been charged by Captain Prideaux-Brune with wilfully and maliciously damaging his motor-car to the extent of 30s. Mr. A. F. Seldon, prosecuting, stated that on the 12th ult. Captain Prideaux-Brune was going down Butcher's Row from Boutport Street. The row was full at the time and he brought his car to a standstill behind the defendant's cart. Crocker then took the horse by the head and backed his cart into the automobile, doing the damage alleged. Mr. James, for the defence, said it would appear that Captain Prideaux-Brune thought all roads were made for motor-cars, and drove down the Butcher's Row, which was crowded with market carts at the time. When the car stopped the defendant's horse was frightened. Mr. James was proceeding to call other witnesses when the Bench decided to dismiss the case, as there was no intention, in their opinion, to commit wilful damage. Defendant was granted his advocate's fee, and witness' costs.

OBSTRUCTING THE HIGHWAY.

At Collumpton Sessions a case has been heard in which John Bennett, motor-car driver, in the employ of Messrs. Fox Brothers and Co., Ltd., of Wellington, was summoned for obstructing the free passage of the highway at Culmstock on November 19th. For the prosecution Mr. Martin stated that on November 19th Mr. Steer was driving from his residence at Prescott, and about 200 yards from Lower Cross he met a motor-car belonging to Messrs. Fox Brothers, and Co., Ltd., of Wellington, and driven by

Brighton, and William L. Duck, of York House, Coburn Road, Hove, to recover £42 7s. 2d., balance of account, for petrol supplied.

In opening, Mr. Humphrys, for the plaintiff, said the point appeared to be as to who was liable for the debt. There was no doubt whatever that the petrol was supplied, and the question really was whether defendants were responsible personally or whether they bought the petrol on behalf of a limited company called the Sussex Automobile Company, Limited. Plaintiff stated that beginning in September of last year he supplied petrol to the defendants down to October this year, and the balance of his account due was £42 7s. 2d. Defendants were carrying on business in Western Road as the Sussex Automobile Company, and with every supply witness sent a delivery note. There were altogether forty-one delivery notes, all of which were filled in to Duck and Harris or Harris and Duck, of the Sussex Automobile Company. The credit notes were similarly filled in, and witness never knew until November 5th this year that the company had been turned into a limited liability company. He then got a letter on the subject, which he at once repudiated, and said he should hold the defendants personally responsible. He had never given credit to the limited company, and did not know that it existed until November 5th. Three cheques which he received were made out in the names of the Sussex Automobile Company, Limited, and signed by Harris as director and Duck as secretary, but witness did not notice the word Limited on them.

Mr. Jacobs called the defendant Duck, who said he formerly carried on the business in partnership with Harris, but in 1901 it was turned into a limited company, which was registered on December 21st. Immediately afterwards the words "The Sussex Automobile Company, Limited," were put in three places on the shop fascia. Cross-examined by Mr. Humphrys, witness said the business was a flourishing one when it was turned into a limited company. Witness held 834 shares in the company, Harris 560 shares, and the remaining five signatories one share each.

His Honour said the question he had to determine was one of fact: whether plaintiff had notice that the business was turned into a limited company. He (the Judge) was of opinion that no formal notice of the change had been given the plaintiff, and that defendants remained personally responsible. Judgment was accordingly entered for the plaintiff for the amount claimed with costs.

MOTOR-CAR ACCIDENTS.

AN inquest has been held concerning an accident which recently occurred at Bottisham, near Cambridge, when George D. Wheaton, aged 71 years, was killed. Mr. F. W. Hutchinson, of Cambridge, the owner of the motor-car, said on the day in question he travelled from Bury St. Edmunds to Cambridge, and passed through Bottisham about seven o'clock. He slackened down to between ten and six miles an hour, and blew his horn. Whilst passing the village a man suddenly swerved on to the road and the car struck him. A doctor was sent for, but the man died before he arrived. Mr. A. J. Winship, who rode with Mr. Hutchinson, said they were travelling four or five miles an hour when the accident occurred. The police inspector stated that the deceased was a very peculiar man in his habits, and would swerve in his walk. Proceedings had been taken to get him confined in a lunatic asylum, but the Justices would not certify. The jury returned a verdict of "Accidental death."

BEFORE the Leeds Stipendiary Magistrate (Mr. C. M. Atkinson), Haydn Lee, of St. Aubyn's, Morris Lane, Kirkstall, has been charged with causing the death of Arthur Thackray (25), a tramway conductor, in the service of the Leeds Corporation. The circumstances have already been recorded. The Magistrate said the depositions disclosed a state of things fit for the consideration of a jury, and it was for the Magistrate to determine the weight to be attached to the evidence adduced on behalf of the prosecution. He committed defendant for trial at the Assizes, and admitted him to bail.

MR. TROUTBECK has held an inquest at Westminster with reference to the death of Hugh Duff, aged 72, a bath-chair proprietor, late of 7, Merton Road, Kensington. It appeared that the deceased was knocked down by a motor-brougham in Knightsbridge on the afternoon of December 15th. James Scott, in the service of Mr. Herbert Samuelson, of 19, Pont Street, Chelsea, said he was driving the electric brougham, which contained Mrs. Samuelson and two others. He rang his bell on turning out of Sloane Street, and he did not see the deceased until he was close upon him, and the splashboard struck his shoulder, knocking him down. He was obliged to reverse his gear to avoid running over him, but he stopped in three yards. The jury returned a verdict of "Accidental death."

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Horsham ...	G. B. Tydd, London	25 m. p. h.	40s. etc.
"	S. Bailey, "	23 m. p. h.	60s. "
Barnstaple ...	Capt. Prideaux - Brune, Bideford	—	£5 "
Pershore	A. E. Glantworth, Bredon's Norton	20 m. p. h.	£10 "
Aston	E. J. Banks, Birmingham	26 m. p. h.	20s. "
Hatfield	P. Danneler, Windsor	30 m. p. h.	£7 17s.
Shoreham ...	J. Homfrey, Southwick	22 m. p. h.	45 etc.
London (Marlboro' Street)	J. S. Critchley, Lambeth, S.E.	—	40s. etc.
"	V. Miller, Haymarket, S.W.	—	£2 etc.

Where no alleged speed is given it is understood to be above the legal limit.

POLICE SERGEANT BEACHER was on duty near the Sun Inn, Crawley, on December 14th, when he saw George B. Tydd driving towards Brighton, on the London and Brighton road. The measured quarter of a mile was covered in 35 seconds, and the magistrates inflicted a penalty of 40s., and 6s. costs.

SIDNEY BAILEY, who had driven a car in the same direction at 23 miles an hour, was stated by police-sergeant Beacher to have endeavoured to pass the police officers. Police-constable Trussler, who caught hold of the car to stop it, was carried along by it before it stopped. Mr. Bailey said he had no idea he would have to meet the more serious charge as to endeavouring to evade the police, as stated. The car was incapable of travelling at 20 miles an hour on the occasion in question. Fined 60s. and costs.

J. S. CRITCHLEY, 112, Belvedere Road, Lambeth, was summoned at Marlborough Street for furiously driving a motor-car in Hyde Park, so as to endanger the safety and convenience of other persons. Constable Hilton deposed that shortly after eleven o'clock on the morning of the 2nd inst., while on duty at Hyde Park Corner, he saw the defendant driving a motor-car at a furious rate down the Serpentine Road towards the Marble Arch. Upon seeing him later on, coming down the Serpentine Road, witness stopped him, and asked him if he knew what pace he was travelling at. Defendant replied that he thought he had been ten minutes "going round." Witness informed him that he had been seven minutes by the

clock going round a distance of 2 miles 5 furlongs and 51 yards. Constable Hobbs corroborated. Mr. Staplee Firth, who defended, submitted that there was no evidence before the court to support the summons, which alleged that the defendant drove so as to endanger the safety and convenience of other persons. No other persons were inconvenienced, nor had their safety been endangered. Without the necessary affirmative evidence on those points the present summons must fail. Mr. Denman said that an important point had been raised, and it would be desirable to have it settled. He would be willing to state a case for the higher courts, but considered that the point here was whether the defendant had driven at a pace which must necessarily be a source of danger to the public. Defendant, in his evidence, denied going at too fast a speed, but from the time stated by the constable he (Mr. Denman) thought there had been a breach of the park regulations, and imposed a fine of 40s. and 2s. costs.

A. E. GLANTWORTH, motor-car driver, Bredon's Norton, was summoned at Pershore for driving a motor-car at an excessive speed at Eckington on December 15th. Police-constable Stanford said defendant rode a little over a quarter of a mile (four yards over) in 45 seconds. He was driving through the village, and witness had his watch in his hand and timed him correctly as soon as he came in sight. He had not got a stop watch. Witness had marked the quarter of a mile out previously. Vincent Thornton said the motor was travelling through Eckington at the rate of about 20 miles an hour, and considering the fact that children were leaving school and were all about the road he thought this very dangerous. Defendant gave evidence, and said he was motor driver to Mrs. Martin, of Bredon's Norton, and that day the roads were very slippery, and he was driving very carefully. Mrs. Martin was in the car. She was very nervous and he had to be careful. He denied that he was driving more than about 12 miles an hour. Alfred Tracey, motor-car driver, in the employ of Miss Woodhall, of Bredon's Norton, and who was in the car with defendant, said they were not going more than 12 miles an hour through Eckington. The Bench inflicted a fine of £10 and £1 5s. costs, or a month.

MR. VICTOR MILLER, of No. 6, Bury Street, Haymarket, was summoned before Mr. Denman for furiously driving a motor-car on December 12th in Hyde Park. Constable Strowger said that the defendant dashed over the crossing leading from Knightsbridge into the Park at a furious pace, one of the lamps of the machine being jerked out of the socket. He pulled up directly he got over the crossing. Complaints had been received by the police concerning the speed of cars at that spot. Mr. Denman said he did not suppose there was a spot in London where it was more essential to exercise the greatest possible moderation in speed than at the place mentioned. The defendant would have to pay a fine of £2, with 2s. costs.

THE Bavarian Automobile Club will hold a six-days endurance contest during the coming summer.

THE Motor-Car Insurance Company, Limited, has been registered, with a capital of £100 in £1 shares.

MR. W. E. MOSS has consented to accept the Hon. Secretaryship of the Liverpool Self-Propelled Traffic Association, and a special meeting of the Council will be held on the 14th inst., to confirm the election. Mr. Moss is a partner in the firm of Messrs. Davies Benachi and Company, cotton merchants, Liverpool.

THE value of the exports of motor-cars and parts from the United States during October last is returned at £24,524, as against only £11,146 during October, 1901. For the ten months ending with October the exports attained a value of £194,122 as contrasted with £52,506 in the first ten months of 1901.

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COMMENTS.



ROYAL interest in automobilism continues to find expression in additions to the motor stud at Sandringham. The King has recently ordered from the Daimler Company a second 22-h.p. car, which Mr. Percy Richardson, the London manager of the company, informs us is intended for the use of the beaters. Hitherto a lower powered car has been used for this purpose when shooting has been indulged in over the Sandringham estates. Hence the fact that His Majesty is now obtaining a 22-h.p. vehicle is proof of his confidence, not only in the utility of the automobile in connection with sport but also of his belief in the excellence of the Daimler Company's design and construction. Facilities for the conveyance of cartridge boxes will be provided on the car, which will be delivered to its Royal owner in the early days of February.

An M.P. on Numbering.

SUPPORTERS of Mr. Scott Montagu's Bill should be happy, for they have found a sympathetic friend in Sir John Dorington, M.P. Writing to the Winchcombe Board of Guardians that gentleman says:—"I shall support some restrictive legislation. I think it would be best to eliminate any reference to actual speed—it is always very difficult to prove—and insist on conspicuous means of identification and much heavier penalties for 'furious driving.' It is easy to see that Sir John's "conspicuous means of identification" is another way of urging a system of numbering that is objectionable to the great majority of motorists.

The Gordon Bennett Race.

FROM official sources we learn that an attempt may be made at the beginning of the next Parliamentary Session to secure the passing of a special Act, legalising "a specific race on a specific day" in this country. Care will be taken to suggest a road in some sparsely populated district, and the excessive care which the promoters of the attempt propose to adopt should soften the heart of even Surrey magistrates, or, as the London correspondent of the "Manchester Guardian" suggests, cause Hampshire constables to come from behind the hedges. It is pointed out that if the race is held in the United Kingdom it will mean a revenue of quite twenty thousand pounds to hotels and others engaged in trade along the line of route; but, more than that, it will prove a permanent incentive to the industry, and, as such, any attempt to secure the race for this country should have the cordial help of all Parliamentarians.

America and the Gordon-Bennett Cup.

COMMENDABLE promptness has been shown by motorists in the United States in responding to the decision of the Automobile Club of America to compete for the Gordon Bennett Cup. Within three days from the time when the Club declared itself a competitor the necessary complement of three contestants had applied for the privilege of representing

the Club and had posted the money necessary to obtain recognition. The three who have announced themselves are Mr. Alex. Winton, Cleveland; Mr. L. P. Mooers, Cleveland, and Mr. H. S. Harkness, New York. Two others—Mr. Percy Owen, New York, and Mr. C. W. Matheson, Grand Rapids—had, when the mail left, signified their intention of applying for the honour. The Race Committee of the Club has formally accepted the application of Mr. Winton and nominated him as one of the entrants to represent the Club in the race. In view of the probability of there being half a dozen candidates for the team of three, the Race Committee has, states the "Motor World," under consideration a plan to select the two remaining cars by means of trial races. Mr. Winton will drive, not the "Bullet" or the "Pup," but a special Winton car. A Peerless racer is being built for Mr. Mooers, but the details concerning it are not forthcoming yet. The car which Mr. Matheson will drive, if elected, is the product of the recently-formed Matheson Motor Car Company, of Grand Rapids. It is said that it will have four cylinders and develop 150-h.p.

The Balfours as Motorists.

APPARENTLY all the Balfours are lovers of the motor-car. Those who attended the last Club trials at Dashwood Hill (which have apparently been stopped by the foolish conduct of a member of the Club on that occasion), will remember that Mr. A. J. Balfour was not only an interested spectator but also to some degree a participant. The difficulties under which he took his *al fresco* lunch on that occasion convinced us all as to his interest in motoring, and has led some to hope that he may not be loth to afford facilities for the introduction of the proposed Bill for legalising the Gordon Bennett Race in this country. Last week Major Kenneth R. Balfour, M.P. for Christchurch, showed his interest in motoring. On Friday he was married at St. Margaret's Church, Westminster, and later in the day left for Devonshire, whither he and his bride set forth on a motor-car, intending to spend their honeymoon in an automobile trip through Devon and Cornwall. But all the members of the family are not equally fortunate in their experience, for last week Lady Frances Balfour was thrown out of her car in East Lothian, owing to a nasty skid, and received a severe cut on her forehead. She is, however, making satisfactory progress.

Municipal Works.

THE latest municipal authority to consider the adoption of the automobile in connection with its street cleansing work is the Bolton Town Council. At a recent meeting of this body suggestions were made that a motor-wagon should be provided for the use of the sanitary department, and at its last meeting the Council appointed a committee to report as to the advisability of the innovation, and also to gain information. Only the other day the Wellingborough Urban District Council had delivery of a motor-wagon which was ordered some five or six months ago, and its early trips should prove useful in deciding the Bolton sub-committee as to a favourable report to their Council. It is gratifying to see the interest that some of the northern towns are taking in the matter, and as soon as a dozen or so of

them have adopted motor-wagons the conversion of the rest of England should not be long delayed.

Motor Cars as Railway Feeders.

It is reported that a motor-car service from Flamborough town to the railway station of that place will be inaugurated during the coming summer. We understand the town is three miles distant from the station, so that the need for such provision is easily apparent. In thus feeding the railways the automobile will play an important part in the future, and there are scores of places so distant from their railway stations that residents as well as visitors will welcome any efforts to connect them by a regular automobile service. In the New Forest, for instance, the town of Lyndhurst is quite $2\frac{1}{2}$ miles from the station, and, although there is the ordinary horse-drawn 'bus service, there should also be room for a motor-car innovation. Such instances might be multiplied, but private enterprise will probably find them out during the next two or three years, until the railways themselves have to recognise the important part played by motor-cars in the development of their traffic.

An Egyptian Emergency.

"QUADRICYCLING in the Sahara is not an absolute success," says Mr. McMillan Hamilton, who has lately returned from a pleasure trip to Egypt and other ancient countries of universal interest. The sand is so loose and deep in places that the wheels will not take hold. The accompanying picture will show the plight in which Mr. Hamilton and Dr. A. J. Walker, of Cairo,



"STALLED" TWENTY MILES OUT OF CAIRO.
[Automobile Topics.]

found themselves when endeavouring to travel from the Gizeh to the Sakkara pyramid on a motor-quadricycle.

The Recent American 500-Mile Reliability Trial.

THE official report of the Contest Committee of the Automobile Club of America on the 500-mile Reliability Contest, in October last, has just made its appearance. It comprises an introduction, a few general observations on the contest, recommendations for future events, a detailed account of the performance of each car, the causes of stops in percentages, a table of speed averages, and a list of awards and certificates. In the introduction the Committee states that it desired to carry out the contest as nearly as possible under conditions similar to those an individual would meet in touring over the country. "The chief difficulties were on account of ignition and tyre troubles. The tyre question is so important a one that we suggest

the advisability of holding a special tyre contest, giving suitable awards to those manufacturers who shall succeed in producing the best tyres for road use. The results of the contest show that giant strides in all those qualities which go to make for endurance and reliability have been made during the brief year since the last contest. We consider this a matter for mutual congratulation, and believe that the day is not far distant when the signet 'Made in America' will stand for all that is highest and best in automobile construction throughout the world."

A Busy Year.

FROM our "Continental Notes" some idea may be gleaned as to the activity of motorists during the first half of the present year. Competitions, congresses, and exhibitions will occupy much time, and only the most cosmopolitan of men are likely to see a third of the important events that will take place. Every affair will prove a great advertisement for manufacturers; hence the eagerness with which they anticipate the season and, by competition among themselves, cause the list of events to be lengthened almost inordinately. Meanwhile, British makers are preparing for our own national events, and although little is heard of what they are doing, it may be safely said that they have practically decided as to the main lines of their efforts for the Reliability Trial in September next.

Dogs and Motor-Cars.

AT the annual meeting of the Darlington, Durham, and North Riding Chamber of Agriculture, the chairman, Mr. C. E. Hunter, referred to the report which advocated the advisability of agitating for every dog to wear a collar and for every motor-car to be labelled with a number. He did not think they would gain much from those things, and suggested that it would be worth their while to consider whether they could not utilise the motor-car to their advantage. He believed automobiles were capable of being adopted in connection with the conveyance of produce, and that they might prove one remedy for the high railway rates charged for the conveyance of goods over short distances. Sir Thomas Wrightson, M.P., endorsed the chairman's suggestion as to the use of motor-cars. He had no doubt they would be valuable means of checking the high railway rates. If agriculturists would combine to procure motor-cars they would not, he suggested, find them too expensive; they would suffer no delays in transit of goods; and they would be able to show railways they could not charge what they liked.

Co-operative Ownership.

THE suggestion of Sir Thomas is certainly one that should be seriously considered by every agricultural organisation throughout the country. Farmers are scarcely likely to venture on motor-car ownership unless they can find work for the vehicles all the year round. The individual cost, too, would prove a deterrent to their adoption. But with joint ownership, under the control of a representative committee, there is hope that every village may be able to have a local rival to the railway company, and that the automobile may be generally employed to the profit of British agriculture and the prosperity of the nation.

Steam Wagons in London.

ATTENTION is being called to the great development that has lately taken place among the chief distributing and manufacturing firms of the Metropolis in the adoption of steam wagons. Somewhat unwieldy in appearance, these plough their way through the traffic to the wonderment of country visitors and the consternation of cabmen hurrying with fares to the station. In the West End their presence is being regarded with ill favour by Society people, whose horses are not so accustomed to these utilitarian vehicles as to the lighter passenger automobiles. It is hoped, however, that sentiment will not

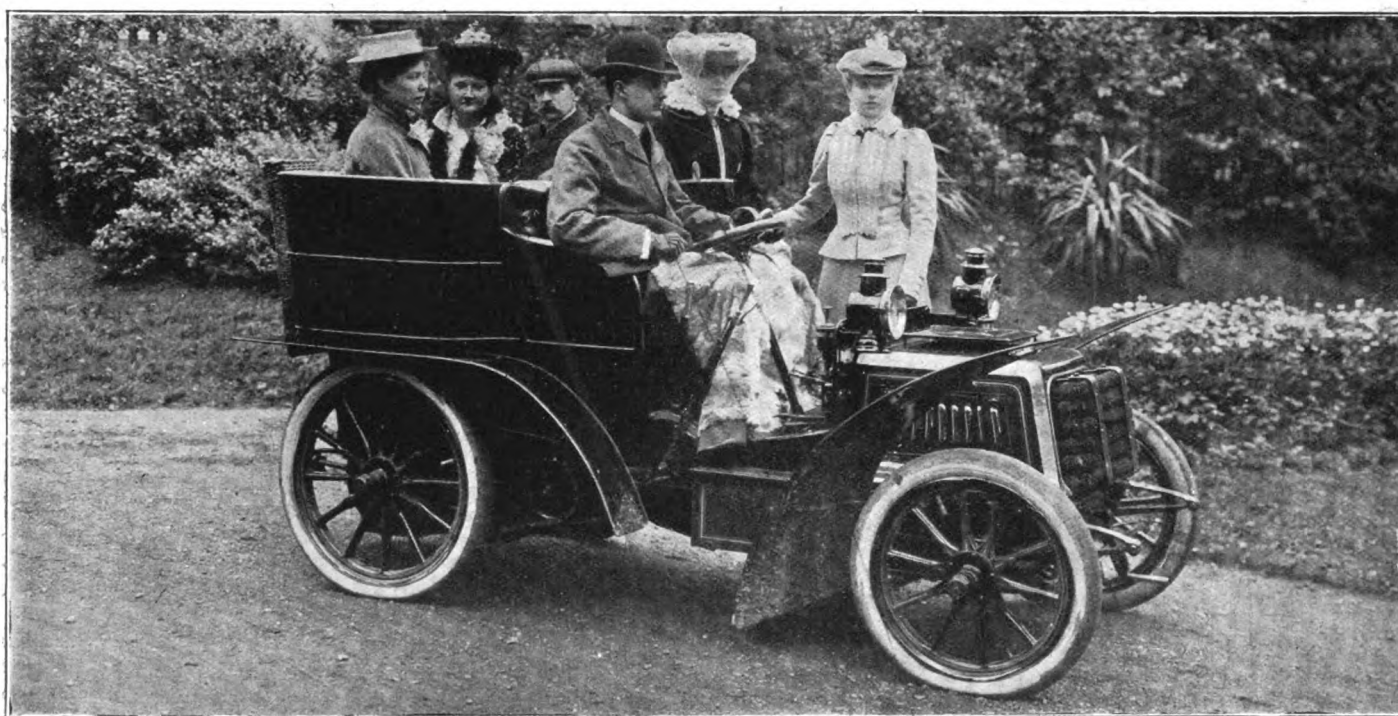
be allowed to suggest repressive legislation or restrictive by-laws; for it is their novelty rather than anything else that seems so startling.

Motoring in the Snow.

THERE has been a severe snowstorm in Midlothian and the roads have been almost completely blocked to horse-drawn traffic. The storm gave no warning of its coming and in a very short time the whole locality was covered with snow, heavy drifts giving uneasiness to some of the shooting parties that were unprepared for such emergencies. Lord Rosebery and his guests formed one of the parties, and they beat a hurried retreat from his shooting lodge at the foot of the Moorfoot Hills to Dalmeny—a distance of twenty miles. His Lordship, with his son, Lord Dalmeny, led the way in his motor-car with his guests in carriages bringing up the rear. Although they encountered the worst part of the storm the company were but slightly inconvenienced, glad, however, to have narrowly escaped being "snowed up."

Praise from the Chancellor.

WHEN bestowing praise upon the rural magistracy in a speech at Helmsley (Yorks) on Tuesday, the Lord Chancellor (Lord Halsbury) might have added to the force of his remarks by making a qualification so far as automobile cases are concerned. He said he "had had fifteen years' experience as chairman of quarter sessions, and could testify to the careful and impartial manner in which the law was administered in the counties. 'The Great Unpaid' had been subjected to much hostile criticism from time to time. His tenure of the Chancellorship had brought him many complaints, but the majority of them had proved to be groundless. So careful, in fact, was the administration of justice by the county justices, and so great the popular confidence, that even litigants on the losing side were never unhappy or discontented when they felt that they had had a fair and impartial hearing." Either the Lord Chancellor believes magistrates are infallible or he takes a very otiose interest in their doings. A little consideration of the motor-car cases that come before the Surrey Bench would show him that J.P.'s are not always impartial, nor are unwilling litigants on the losing "never unhappy" or "discontented."



H.R.H. THE CROWN PRINCESS OF ROUMANIA WITH THE HON. C. S. ROLLS ON THE LATTER'S 10-H.P. PANHARD. LADY LLANGATTOCK IS SEATED IN THE TONNEAU.

[Photo by]

[Argent Archer.]

The Steel Road in New York.

SOME trials of the tractive power required to haul a vehicle were made on the 17th ult. on the experimental stretch of steel roadway in Murray Street, New York, recently illustrated in these columns, under the direction of Gen. Roy Stone, Chief of the Bureau of Road Inquiry of the U.S. Agricultural Department. The trial consisted in having a four-wheeled cart, weighing 3,700 pounds, drawn up the road by a number of men, who applied their efforts to a rope attached to the cart, a spring scale being inserted in the rope. The gradient is said to be about 5 per cent. On the Belgian block pavement an average tractive power of 160 pounds was, states the "Horseless Age," required, but on the steel track the average was only 100 pounds. It was found that the tread of the vehicle was slightly too wide for the gauge of the track, causing it to run against one or the other of the two outer ridges at every turn, so that the completion of the trials was deferred to a later period.

Furlous Driving.

MR. W. H. ASTELL was summoned to appear before the Horsham Bench on Saturday last, for having driven a motor-car at Crawley at a greater speed than twelve miles an hour. It was impossible for him to appear, but he sent an account of the incident, in which he said that "Some time ago I arranged my car so that with the levers in a certain position it ran at a speed of 11½ miles per hour. It was a mechanical impossibility for it to exceed this speed. Knowing we were being timed, I placed the levers in this position passing through Crawley, and they remained so up to the time we were stopped by the police. Knowing this I was naturally extremely indignant at the charge. Unfortunately since the date I so arranged my car I have had a new gear fitted which has fractionally raised the speed, and from a careful series of experiments which I have made, I find that it is possible with the levers in the same position for the car to travel at twelve-and-half miles per hour, but not to exceed it. This,

therefore, may have been the speed at which it was travelling. I say 'may,' as out of ten trials only twice have I found it to do the mile under five minutes. Therefore, good case as I have, I do not care to commence by swearing what may be a lie, the charge being exceeding twelve miles per hour. Would you allow me to respectfully submit to your Bench that these charges of going at speeds which are known to car-owners to be absolutely false, and the farce of timing which was here adopted, create in the person charged a sense of injustice and indignation, and which tend to make drivers somewhat lax in their duties to other users of the road; they will cause car owners to travel faster than ever; if one is to be charged with going twenty-three miles per hour when going twelve, it is a natural conclusion to go the twenty-three, the cost is the same and the fun greater." The result of the case was that Mr. Astell was fined.

When the Road is "Up."

OUR comment last week with reference to the course to be pursued by motorists when travelling along roadways that have been newly metalled receives emphasis from a further prosecution for motoring on the footpath. This has occurred at the East Grinstead Petty Sessions, Mr. Loftus Sulter being summoned for driving his motor-car on the footpath at that Sussex town. A boy was called by the police to prove the offence, and the constable said he had measured the wheel tracks and found that the wayward motor-car had travelled 105 yards on the footpath. There was no evidence that anyone was alarmed or that any damage had been sustained by the footpath. It was shown, however, that the road was "up"—a circumstance which led the motorist to offend against the letter of the law. He was fined 10s. and costs 7s. 6d. But surely in such a case magisterial discretion should have been brought into play.

Motor-Car Insurance.

IN these days of insurance against all sorts of undesirable contingencies the special needs of the automobilist are not by any means neglected. Two at least of the leading accident insurance companies make quite a special feature of motor insurance, and Lloyd's, of course, do not exclude this risk from their almost unlimited purview. Several risks have to be considered by the motorist who wishes to safeguard his pocket in all eventualities. The risk of fire, explosion, or self-ignition is reckoned, according to the "Pall Mall Gazette," at some fifteen shillings per cent. on the value of the car, and loss by burglary, larceny, or theft at one-third of that amount. To safeguard oneself in the event of accidental damage to the car by collision a premium of four per cent. on its value is necessary, and this is subject to the proviso that no damage of less amount than fifty shillings will be made good. The personal risk to the driver is evidently regarded as trifling, for the ordinary personal accident policies cover motoring risks as well as others. In addition to all these risks, there is the question of public liability, or "third party" risk. That the motor-car is not, in actual fact, the dreadful car of Juggernaut which it appears to the distorted vision of certain provincial J.P.'s and others is amply proved by the fact that for the sum of £8 per annum one can purchase the privilege of damaging the persons of His Majesty's lieges to the tune of no less than £5,000 in any one year. Clearly the insurance companies do not regard the aforesaid lieges as in imminent danger from the "roaring forties" and other fearsome wildfowl of the highway.

The Metric System.

MR. C. R. GARRARD has been lecturing before the Coventry Steam Engine Makers' Society on the Metric System. He said he was engaged on the plans for a large automobile works in London covering five or six acres, and the only English units used were the money and the weights of incoming raw materials and fuel. Apart from that they were working entirely on the metric system, including the screw threads. The

works would have the Earl of Shrewsbury as chairman. The coming of the automobile was the opportunity for Britishers to adopt the metric system throughout, threads and all. The Automobile Club of France standards were almost universally adopted by all the Continental makers, and the parts of cars were already being standardised, thus facilitating the repair and interchange of parts.

Roads in the West.

◆ IN the West of England, which should be one of the most pleasant touring districts in the country, the roads are in a shocking condition. Of course, there are good stretches here and there, but, generally regarded, the surface is decidedly bad. Mr. T. W. Stainthorpe, A.M.I.C.E., complains that "the roads in lovely Devon are in a wretched condition. A large percentage of the annual expenditure on maintenance is absolutely wasted so far as sound and durable results are concerned. The appointment of any Tom, Dick, or Harry who lacks proper training by the highway authorities results in muddy and slippery roads in winter, dusty and disagreeable travelling in summer, and additional and unnecessary expenditure in maintenance." Our contemporaries in the West all testify to a similar state of things in Cornwall and Somerset, and we would suggest that local motorists should join in the discussion that is now going on, so that the responsible authorities may be roused to action.

A Show at Leeds.

◆ "A NICE little exhibition" will be the verdict of those visiting the Motor and Cycle Show now in progress at the Coliseum, Leeds. The Hall, although fairly large, is, as a matter of fact, inconveniently crowded with exhibits, while the attendance has been of a first-class character. Mr. Rowland Winn shows half a dozen cars, including a 12-h.p. Gladiator, a 10-h.p. Ariel, a 7-h.p. Panhard, a 4½-h.p. Renault and an old and a new pattern 6-h.p. De Dion; Mr. Rice has two cars on view, a two-seated and a four-seated, fitted with 9-h.p. single-cylinder motor and live axle. Messrs. Dougill and Company, Limited, show a Loidis single-cylinder car and a Hagen delivery wagon, which latter is attracting considerable attention. On a number of other stands motor-bicycles are shown.

LORD DALMENY has joined the Automobile Club.

ON the Alexandra Palace indoor track, on Saturday last, Maurice Fournier rode one mile on a 4½-h.p. motor-bicycle from a flying start in 1 min. 40 2-5 sec., beating F. W. Chase's record for the track by a second.

TO-DAY (Friday) a general meeting of the Cycle Engineers' Institute will be held at the Technical Institute, Coventry, when Mr. B. A. Hunt will read a paper on "Important Features in the Scientific Designing of Motor cycles."

A NEW sub-committee of the Automobile Club has been appointed to consider the affiliation of provincial clubs. This will consist of a representative of each of the affiliated clubs, Major Lloyd, Mr. R. W. Wallace and Mr. Mark Mayhew.

AT the first annual dinner of the Motor Cycling Club, to be held on Wednesday next, discussions will follow on classification in handicapping, efficiency tests, the organisation of motor-cycle clubs, fore-carriages and trailers, and the value of pedals.

AT a meeting of the judges of the Tyre Trials of the A.C.G.B.I., it has been decided that the awards cannot be made until the tests on the British Association apparatus have been completed. The purchase of wheels and the hire of a car to expedite the carrying out of the necessary tests have been authorised by the executive committee of the Club.

MR. HOUSE, of the North of England Motor-Car Company, Bradford, will shortly be holding an auction of cars, which will be sold without reserve. On the same occasion he will have an exhibition of a number of the new vehicles he recently purchased in Paris. At the Agricultural Hall Exhibition, in the galleries, three complete cars and a beautiful chassis will be shown by this concern.

THE PARSONS NON-SKIDDER.

SO many reasons for the skidding of pneumatic tyres on greasy roads have been advanced, that to say exactly what is the direct cause of such action is difficult. Probably the main reason for the great tendency of pneumatic tyres to skid, when fitted to heavy cars more particularly, although the same reason would be applicable in the case of lighter vehicles, would be found to be that the surface of the tyre in contact with the ground is so large as compared to a solid tyre that a film of mud really remains between the surfaces which should be in contact, and, acting as a lubricant, prevents adhesion. In this respect solid tyres are not by any means free from blame (although of course less prone to skidding than pneumatics), especially in the case of a heavy car.

Leaving out of the question the result which might be obtained by a differential device, the position of the centre of gravity of the vehicle, the effect of front or rear drivers, or the application of additional mechanical devices, etc., the problem has been attacked in the case of the "Non-Skidder" devised by Mr. Harry Parsons, of the City and Suburban Electric Carriage

two or three consecutive revolutions. With this end in view, it is of the utmost importance that though the Non-Skidder should fit the tyre nicely, it must not be so tight as to cause visible impression on the tyre by any chain. The degree of slackness really regulates the amount of creep. If the Non-Skidder is tight, creeping will not take place, and the tyre may be marked by the chain bearing always on the same spot. Perhaps the best description would be to say that the tyre lays down a non-slipping path, and runs upon it.

In the course of severe tests—such as S curves and right-angle turns on greasy roads—no single case of a skid when using these Non-Skidders has, we understand, been known. It should be remembered that at the point of contact with the road each chain is, so to speak, swallowed into the tyre; the latter has thus a large area of direct contact with the road between any two chains so that the whole of the weight is not taken by the chains. It is claimed that resilience is not effected in the slightest, whilst the speed at which the Non-Skidders may be run has no limit up to that of the car to which they are fitted. The extra weight of a Non-Skidder is about 4 lbs. As regards the fear of extra wear upon the tyre, it may be stated that some dozens of

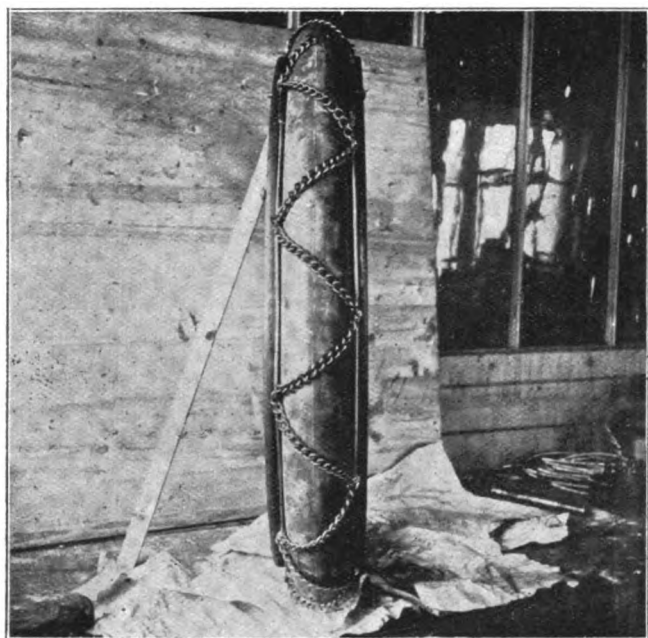


FIG. 1.—FRONT VIEW OF "NON-SKIDDER" FITTED TO SOLID RUBBER TYRE.

Company, Limited, right at the point which experience would seem to prove to be the weak spot, namely, that of contact of the wheel with the road. Its essential feature is that it is not in any way attached rigidly to the tyre, but is, so to speak, suspended, and fits loosely upon it.

The device itself, although capable of construction in numberless ways and of all varieties of material, consists in its approved form of two flexible wire hoops, one on either side of the wheel—the hoops being connected together by steel chains passing zigzag from one to the other, around the tyre. The hoop on the inside of the wheel is endless, whilst the hoop outside has a right and left-hand coupling, affording means for adjusting the arrangement nicely to the wheel. The diameter of the hoops is such that they cannot pass over the periphery of the wheel in use, and the whole combination centres itself in running, and cannot come off even in the case of a deflated tyre. The chains are each a separate piece, and after excessive wear any chain is easily slipped out and replaced with a new one without disturbing the others. The effect in running is, we are informed, that the Non-Skidder creeps round the wheel so that, regarding for the moment one chain only, this would never press the tyre in the same spot in

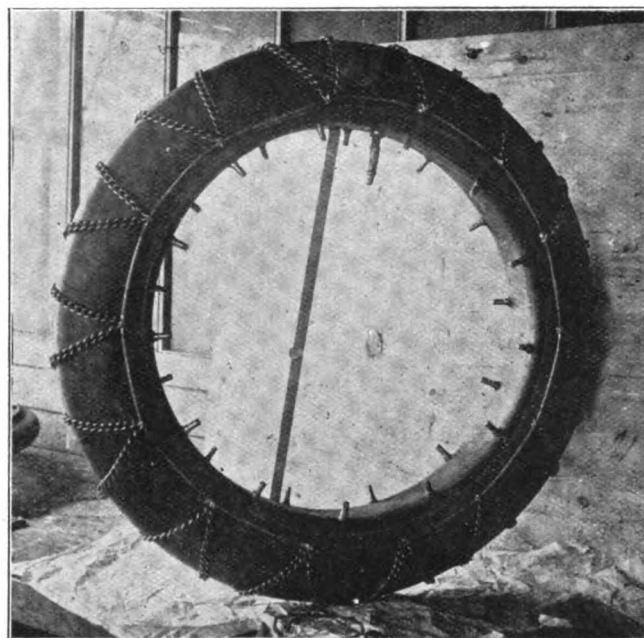


FIG. 2.—SIDE VIEW OF "NON-SKIDDER" FITTED TO A COLLIER PNEUMATIC TYRE.

wheels with Non-Skidders have now been running for many hundreds of miles, over every description of road, and in not a single case has the tyre shown any sign of the device having been fitted. If the Non-Skidder becomes loose after use it can be taken up a little at the coupling provided. One of the advantages claimed for the arrangement under notice is that it can be fitted to any make and size of tyre irrespective of whether new or old, and without any alteration whatever.

We understand that a syndicate, having the close interest of Mr. Henry Edmunds, Mr. Paris Singer, and Mr. W. J. Crampton, is being formed to place the device on the market. Referring to the illustrations, Fig. 1 shows a Non-Skidder fixed to a solid tyre on one of King Edward's cars, which he now has in use at Sandringham; while Fig. 2 shows it applied to a Collier pneumatic tyre of the standard pattern.

REFERRING to the article in our last issue on the Sthenos carburettor, Mr. J. A. Ryley, of 23½, Martineau Street, Birmingham, informs us that he has been appointed sole wholesale representative for these carburettors in Great Britain.

CONTINENTAL NOTES.

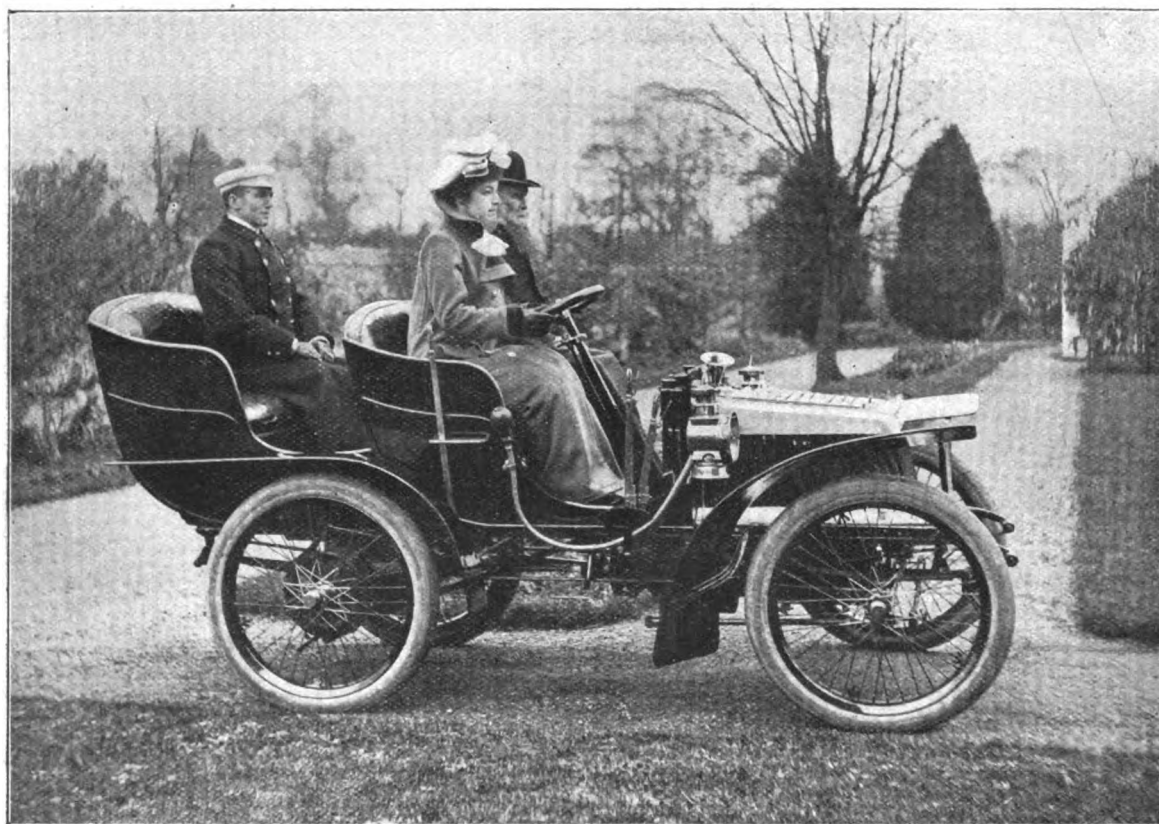
By "AUTOMAN."

THE banquet which was held on Saturday, December 27th, at the A.C.F., was a fitting apotheose to the Paris Exhibition. It was the first function of the kind in the new "Salles des Fetes," which is a miniature theatre built over the garage at the rear of the Hotel Pastoret. The orchestra stalls which usually cover the floor of this room were removed for the occasion, giving place to long tables leading up to the footlights, and accommodating upwards of three hundred guests. The chair was taken by M. Michel Lagrave, who is the official representative of the French Republic in connection with the Exhibition of St. Louis of 1904. M. Rives gave the following interesting figures relating to the number of paying visitors to the Paris Automobile Exhibitions:—In 1898, 81,400 visitors; in 1899, 83,700; in 1900, 88,900; in 1901, 130,600; and in 1902,

Paris Exhibition. I counted 127 of them altogether, so that everybody went away satisfied and well supplied with advertising ammunition, though the unsuspecting public will be confused when attention is called to the fact that almost all the principal makers obtained "the gold medal."

THIS time last year automobile road racing was in a bad way, and its future quite uncertain owing to the interpellation in the French Chamber made by M. Gautier de Clagny, on the occasion of the accident to a child in the Paris-Berlin race. Wiser counsels have, however, prevailed, and now M. Gautier de Clagny has entered the fold and become a member of the A.C.F. The year 1903 is opening up with a monthly budget of automobile events, which becomes almost difficult to follow. On January 11th the Pioule Cup races take place. This is a competition for a race of 100 miles around Pioule.

FROM 7th to 16th of February the Belgian Exhibition will be



MR. J. B. DUNLOP ON HIS NEW 12-H.P. ARGYLL CAR, WITH MISS JEANIE DUNLOP AT THE HELM (see page 869).

197,454. These are the most eloquent expressions of the wonderful development of the industry in France, and also show how wise it has been of the Government to gradually take the industry under its protecting wing. The exhibition, opened officially by the President of the Republic, was visited by seven Cabinet Ministers, but in order to emphasise the importance of the event a real surprise was prepared in official circles and announced by M. Lagrave amidst thunders of applause. M. Loubet sent a messenger during the banquet saying that he intended to sign pardons for all automobilists condemned to prison for furious driving anterior to the date of the banquet. M. Lagrave also announced that Messrs. Max Richard and Louis Krieger would be decorated by the Government with the "palmes academiques." Towards the end of the dinner a theatrical performance was given.

GOLD medals, silver-gilt medals, silver medals, bronze medals, and diplomas were distributed with pepper-pot impartiality at the

held at Brussels in the "Palais du Cinquantenaire," organised under the patronage of the A.C.B., and with a special section to deal with alcohol. This is the only Brussels automobile show to be held this year. On February 9th there will be a competition in Paris organised by the A.C.F., with the object of comparing the different time-keeping systems. Ten days later comes the fuel consumption trials organised by the *Auto-Velo*, and then the Pau Week. March opens with a trial of silencers under the organisation of the A.C.F. The competition has for a basis the axiom that a good silencer should stifle as completely as possible the noise of the exhaust, whilst reducing the power of the motor as little as practicable, and be small, simple and light. The silencers entered will all be tried on a slow-running, one-cylinder engine which drives the laboratory of the A.C.F. The dimensions of the cylinder of this motor are—140 mm. diam. by 160 mm. stroke, and there are from 400 to 500 explosions per minute, the gases being compressed to four atmospheres. Entries should be in by February 15th, and the entrance fee is twenty francs.

Amongst the prizes is one by M. Darracq of 1,000 francs in cash. March ends up with the Berlin Exhibition, from 8th to 22nd; the Vienna Exhibition from 16th to 30th; the Criterium of heavy traction, organised by *La France Automobile*, and constituting a caravan from Paris to Nice.

THE Nice races begin on 28th March and go on until April 5th. It is there that we shall see for the first time the really new models, which were kept back from the Paris Exhibition for competitive reasons. At some date in March to be fixed later there will be held a new and original competition, organised by the *Auto-Velo*, and run at the Parc des Princes velodrome, over a distance of sixty-two miles. It is for motor-bicycles, and will be called the "quarter of a litre" Criterium. The name indicates the size or rather the internal volume of the cylinder. One litre (nearly a quart) contains 1,000 cubic centimetres, and the competition is for motors whose volume, taking the square of half the diameter of the cylinder multiplied by the stroke and multiplied by 3.1416, does not exceed 250 cubic centimetres or one-fourth of a litre. In thus limiting the size of the motor, the competition will bring into relief the most efficient combination and be a useful lesson to both manufacturers and customers.

In May the Paris-Madrid race will attract attention. Nothing is as yet decided and the official authorisations are not actually given, but they are said to be given unofficially, and it is a sign of the times that a Spanish Automobile Club has just been formed in Madrid, with two counts, eight marquises and three dukes on its committee, and the King of Spain as honorary president. The chosen route will be no doubt from Paris to Bordeaux, though the start will probably be made from d'Orsay instead of Saint Cloud, in order to miss Ville d'Avray and Versailles. The second day's run will end at Burgos, and the third at Madrid.

It is generally expected in France that the Gordon Bennett cup will be run in connection with the Paris-Madrid race—few people credit the possibility of its being run in Ireland. Stockholm and St. Petersburg will have their motor shows in May. June will be a red-letter month for automobiles, and will, no doubt, be a month to remember. The A.C.F. is inviting all the world to a congress and a fete. The congress should properly have been held this year at Lyons, but Lyons has waived its rights in favour of the parent club, and Paris will be the meeting-place. The committee of the A.C.F., mindful of the reception they have had in Berlin and Vienna, and of the reception they will receive in Madrid, will, we may be sure, leave no stone unturned to make the fete in connection with the congress worthy of Paris. The first six months of 1903 will, it will be seen, be busy enough from the motorist's point of view, and there will be, of course, many other events that are not yet even thought of. The second half of the year will begin with the Ardennes race, for which there are already twenty entries, though the date is not yet fixed. Hill-climbing trials galore will, no doubt, finish up what promises to be a brilliant road racing year, if nothing unforeseen turns up to spoil it.

AUTOMOBILE carriages for ordinary railroads are largely occupying the attention of the French manufacturers. The object aimed at is a high velocity with a minimum of weight, for as is well known the speed on the railroad is only limited by the weight of the locomotive on the one hand in comparison to the strength of the track, and the radii of the curves in relation to the length of the train. In an automobile carriage the weight can be enormously reduced, as also the length, so that the existing tracks can be used for a much higher rate of speed. Another advantage is that there is no need to keep the engine under steam as in the case of the locomotive, and much less labour is required to drive the motor train. A few days ago I met M. Leon Serpollet, and got from him a few particulars with regard to the carriage which he is making for the Paris, Lyons and Mediterranean Railway, commonly known as the P.L.M. The P.L.M. is the railway which most English people use in going to Nice for the

winter months, and by the quickest train it takes twenty-four hours to do the journey, and of the twenty-four hours four are spent in reaching Calais, leaving twenty hours to cover the distance of 860 miles, that is to say an average speed of forty-three miles per hour, including stops. M. Serpollet, from experiments he has made, is convinced that the motor railway car will be able to average seventy-five miles an hour without any difficulty, including stops, so that the time occupied in making the journey from Calais to Nice will be reduced by more than nine hours. The first train is to run only on the Paris-Marseilles section of the railway, but if the experiment is successful it will be followed up, no doubt, by other auto-trains. The boiler will be of 250 h.p., and the motor will have six cylinders. Both will be placed in front of the car, where the motor-man will be located. The carriage will hold thirty passengers and will have an observation compartment at the back. The experiments in this direction will be watched with great interest by the travelling public, especially by the rich, for it will open a new field for them, and enable them to travel in special trains surrounded by every comfort and at no very great expense.

AN interesting detail of the "Belgica" cars exhibited at the recent Salon in Paris by the Societe Franco-Belge de Construction Automobile, of Brussels, was the automatic device adopted for the lubrication of the motor. The diagram herewith gives a general view of the arrangement, the regulator being shown

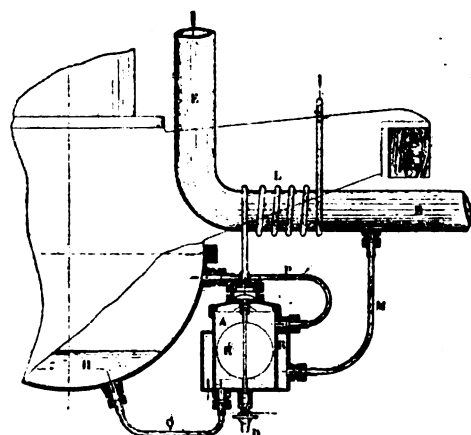


DIAGRAM OF THE BELGICA AUTOMATIC MOTOR-LUBRICATING DEVICE.

- | | |
|---------------------------------------|--|
| A. Float-feed chamber. | M. Pipe leading portion of exhaust gases round float-feed chamber. |
| C. Crank chamber. | O. Oil feed to crank chamber. |
| D. Drain cock for float-feed chamber. | P. Air pipe. |
| E. Exhaust pipe. | R. Exhaust jacket space round float-feed chamber. |
| H. Oil in crank chamber. | |
| I. Oil pipe from oil tank. | |
| K. Float. | |

in section. The lubricating oil is carried in a tank inside the motor bonnet so that it is kept as fluid as possible. A pipe leading from the oil tank to the regulator is turned five times round the exhaust pipe E of the engine and delivers the oil into the float-feed chamber A through an opening which is opened or closed, as necessary, by a float-controlled needle valve therein. From the bottom of the float-feed chamber the oil passes to the underside of the crank chamber by the pipe O, so that as soon as the oil level in the latter falls below the desired point the level of the oil in the float feed-chamber correspondingly falls, the needle valve drops, and a further supply of oil flows into the float-feed chamber and thence passes to the crank chamber until the necessary level is restored. The oil in the oil float-feed chamber is kept in a fluid condition by means of a jacket through which a portion of the exhaust gases is caused to circulate. The system is applicable to all motors with closed crank cases and is stated to have given excellent results in practice.

THE COLES UNDER-CARRIAGE FOR MOTOR-CARS.

THE other day we had an opportunity of inspecting a model of a pivoting under-carriage and spring attachment for motor-cars recently devised by Mr. Frederick S. Coles, of Balham, S.W. The object of the arrangement is:—First, to reduce the strain on the frame or under-carriage by

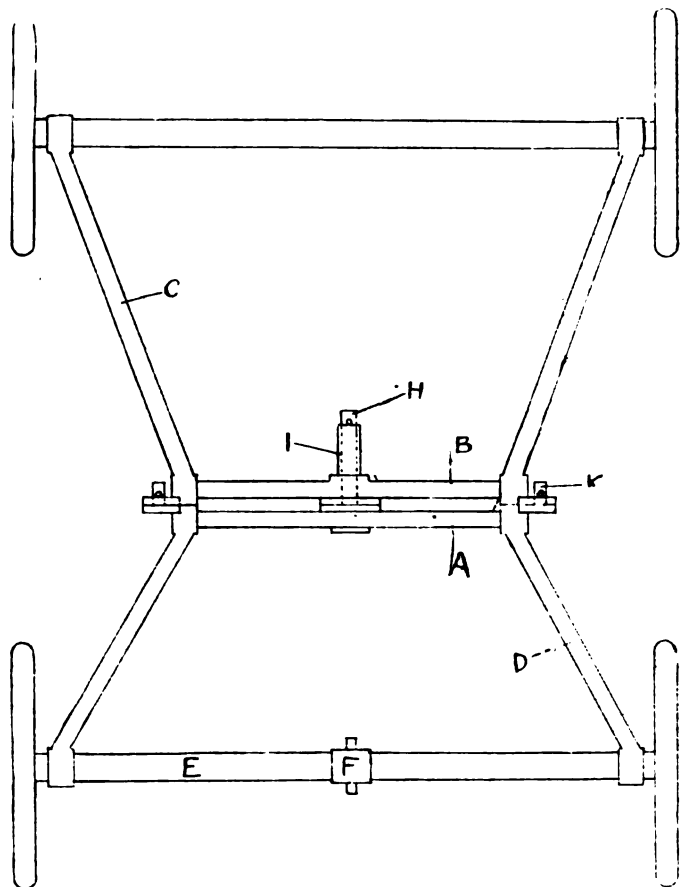


FIG. 1.

allowing the wheels to freely follow any unevenness of the roads and to lessen the liability to overturn the car; second, to reduce the vibration of the top frame, or body, of the vehicle to a minimum, and thereby to ensure easy riding; and, third, to reduce

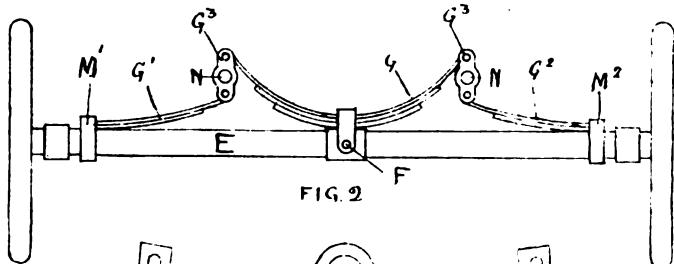


FIG. 2

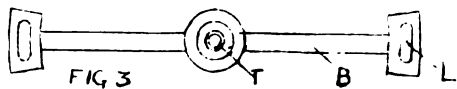


FIG. 3

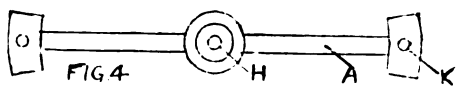


FIG. 4

FIGS. 2, 3, AND 4.

the wear of the motor, gearing wheels, and other parts. Referring to the illustrations, Fig. 1 is a plan of the frame, or under-carriage; Fig. 2 is an elevation of the front axle and springs E; Figs. 3 and 4 are elevations of the pivot bars A and B, while Fig. 5 shows the model car with one front wheel riding over an obstruction. The under-

carriage is constructed in two parts, one portion having a bar A provided with a pivot H; this pivot works in the boss I, formed on the bar B, which bar forms part of the other portion of the frame. The centre pivot may, if necessary, be made so that a shaft can run through the centre for the transmission of power from end to end of the whole frame. At each end of the bar B there is a slot guide L, in which works studs K on either end of the bar A. The studs and pivot pin are secured by nuts to prevent end movement between the two parts of the frame, but which will allow each pair of wheels to describe a sufficient arc to adapt themselves to the irregularities of the road. To the axle E the spring G is attached by means of the pivot F, thus allowing the spring to swing freely. The ends of this spring are connected to links G^3, which carry the car or body by means of suitable rods or bracket-irons connected at N, thus forming a good parallel motion as the other ends of the links G^3 are connected to light controlling springs G^1 and G^2.

The frame is simple in construction, and appears to meet the requirements of a practical and easy-running under-carriage for motor-vehicles. The principal points of advantage claimed for the arrangement are: End rigidity and full support for the body by the frame between the axles, whilst allowing the wheels to freely follow the uneven roads, thus eliminating, on the one hand, all undue dragging and jolting motion of the wheels, with conse-

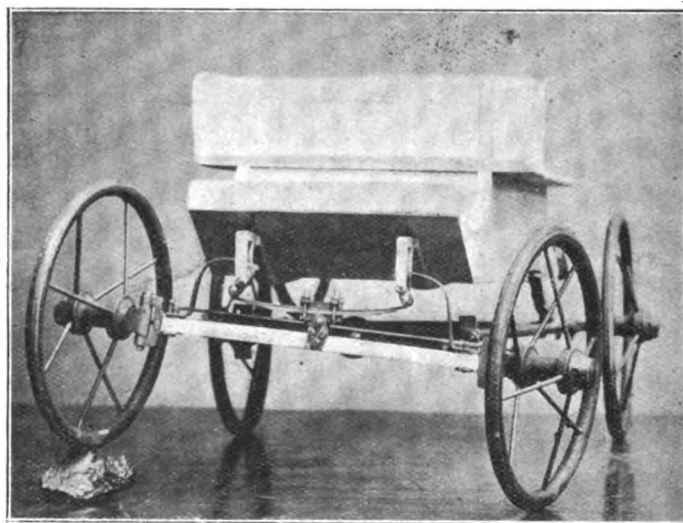


FIG. 5.

quent slipping and extra wear of the tyres, which takes place when the axles are held directly by the springs to the upper frame or body. In fact, the suspension of the latter is equivalent to a three-point spring support, and whilst the single front pivoting spring supports almost the whole front load it does not influence the "angling" of the upper frame with respect to the back springs, thus avoiding the twists, strains, or shocks on the body which occur in the ordinary arrangement of springs. For the back axle the ordinary double elliptic springs are used. Either tube, channel, or angle steel can be employed in constructing the pivoting frame, and naturally the details may be varied to suit different designs of cars.

THE Igel Engine Syndicate, Limited, has been registered with a capital of £50,000. Included in its object is the building of motor-cars.

THE British Consul at Buenos Ayres has been informed that there is a good local inquiry for motor-cars, preferably electrical vehicles. Already many European and American firms are represented in Buenos Ayres, and the India Rubber, Gutta Percha and Telegraph Works Company, Limited, of 140, Calle Reconquista, Buenos Ayres, is willing to supply British inquirers with information on the subject.

MOTOR-CYCLING NEWS.

HEREWITH we illustrate the chain-driven motor-bicycle recently introduced by the E. M. Bowden's Patents Syndicate, Limited. As will be seen, the frame of the machine is of a special design; it is arranged to accommodate motors of various widths of crank case from 2½ in. to 3½ in. wide, by the use of a patent adjustable cradle placed behind the crank bracket. There

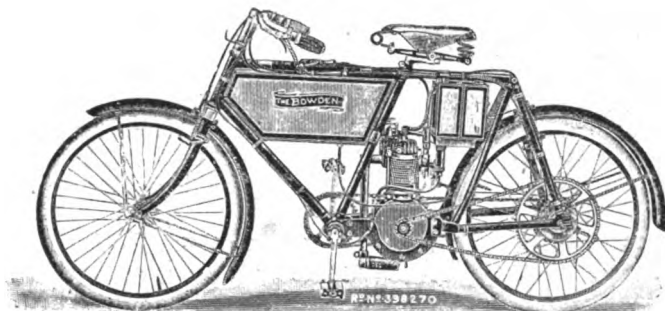


FIG. 1.—THE BOWDEN CHAIN-DRIVEN MOTOR-BICYCLE.

are several other novelties in connection with this machine. The throttle is of new design, being a tubular piston worked by a Bowden wire, and actuated by a twist handle on the right hand side of the bar. The oiling arrangement for the motor is also a new departure, it being a transparent tube with a double valve, which shuts alternately to motor or oil tank. Sufficient

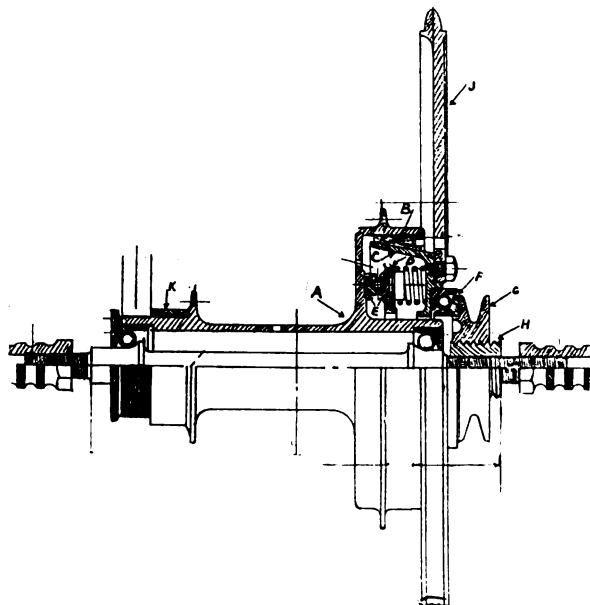


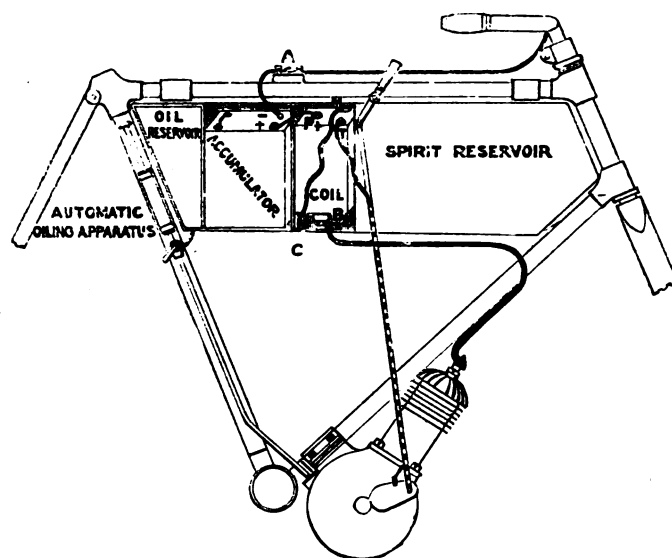
FIG. 2.—THE BOWDEN FRICTION CLUTCH.

- | | |
|---|---|
| A. Hub shell. | G. Grooved pulley actuated by Bowden wire, which, when rotated on H, forces clutch against springs and so releases the drive. |
| B. Fibre friction ring secured to A. | H. Adjustable collar with coarse thread on which G works. |
| C. Metal friction cone fastened to large chain wheel J. | J. Large chain wheel fastened to C. |
| D. Washer carrying six compression springs. | K. Adjustable collar for varying pedal drive from 2¼ in. to 2½ in. |
| E. Ball races to take pressure of springs against A. | |
| F. Ball races to take thrust of G when throwing clutch out of gear. | |

tank capacity for petrol and lubricating oil is provided for a 200-mile run. A new ignition circuit breaker is arranged in conjunction with the rear brake, the slightest movement of the left hand brake lever breaking the circuit, thus doing away with the

usual twist handle. A twist handle on the left hand side of the handle bar works the advance sparking; in fact, the motor can be entirely controlled without moving the hands from the handle bar. The power of the engine is transmitted to the rear wheel by means of a chain and the Bowden friction clutch contained in the rear wheel hub. A section of the clutch is shown in Fig. 2. Not only does the clutch do away with the dangers of chain breakages, etc., due to jerky impulses of the motor, but it enables the rider to disconnect the engine from the road wheel at will, as in descending hills. The clutch is controlled by a small lever on the top tube of the frame and a pair of Bowden wires. The latter are connected to either side of the periphery of a grooved disc which traverses a worm cut upon the axle. When one wire is pulled, the disc travels away from the hub, and towards the fork ends; when the other wire is pulled, the disc travels away from the fork ends and towards the hub. Between this disc and the hub the clutch is fitted, the outer half of the clutch being formed inside a large chain-wheel (over which the chain travels, connecting it to the small chain-wheel on the engine shaft), whilst the other half of the clutch is attached rigidly to the hub of the road-wheel. It will also be noticed that the frame is so designed that the chains pass inside the stays, thus avoiding, it is claimed, all side strains and twist of frame.

As a large number of motor-bicycles fitted with the Minerva motor are in use, the diagram reproduced herewith, showing the correct way of connecting up the ignition wires,



should prove useful. The positive (red) terminal of the accumulator is connected by a short wire with the terminal marked P (+) of the coil, and the negative (black) terminal of the accumulator is connected with the handle passing through the safety interrupter marked A on the diagram. The terminal T on the coil is connected with the platinum screw of the contact breaker. The terminal M is connected by a short wire to the metal of the box through a screw C. The terminal B on the other side of the coil is the one by which the high-tension current passes, and is connected by a thickly insulated wire to the sparking plug.

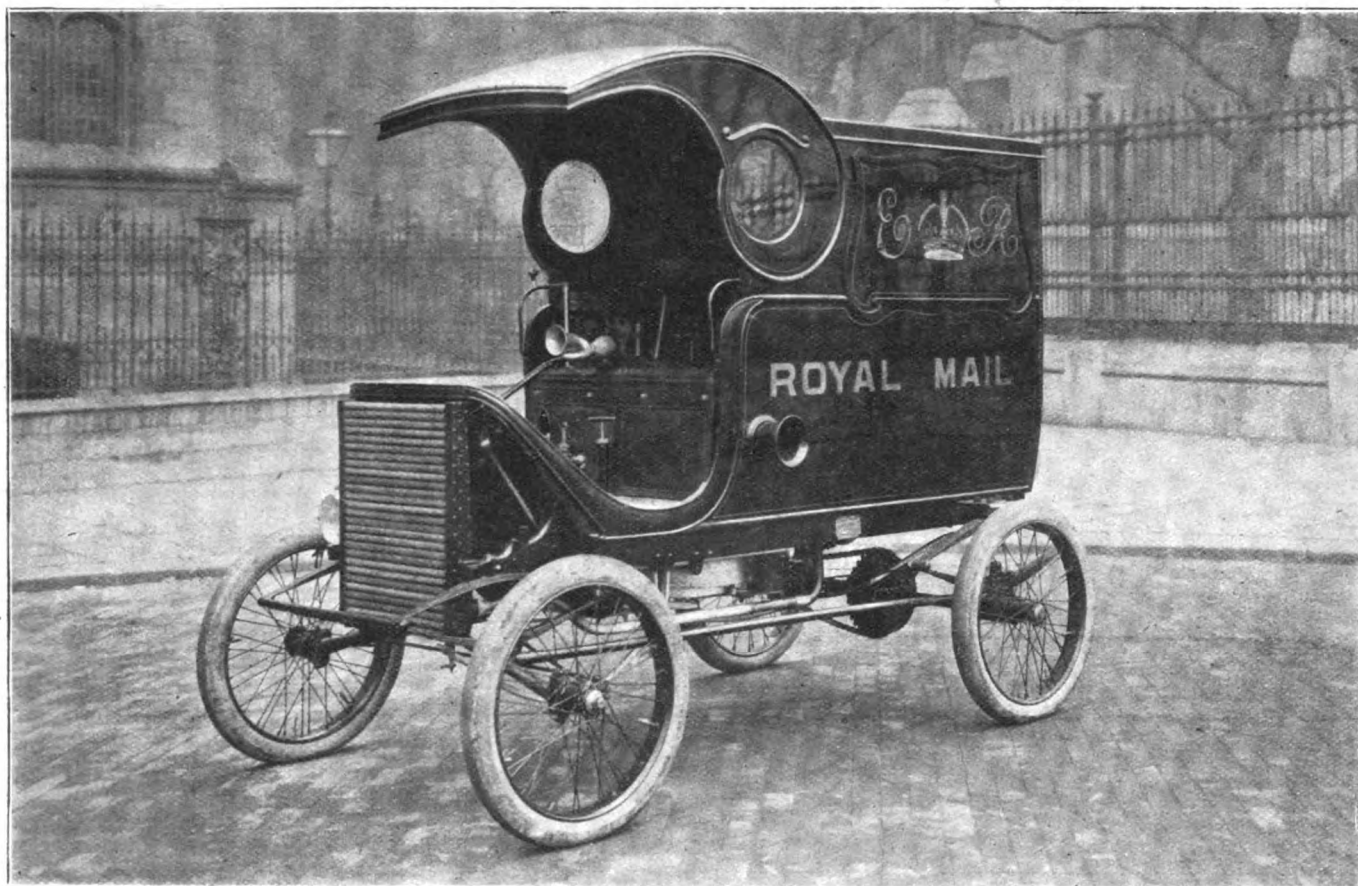
THE Liverpool Motor Cycling Club will hold a run to Chester to-morrow (Sunday).

THE annual general meeting of the Motor Cycling Club will be held on the 28th inst. On Saturday, March 7th, the opening run for the spring season will be held, the destination being Brighton.

OCCASIONAL NOTES.

THE novelty, not to say apprehension, of being on a vehicle carrying eight hundred gallons of petroleum spirit—for that was our load—quickly wore off. The Vauxhall Road Depot, from which we had started, lies practically in the centre of Liverpool, and it was exactly four miles to the Sefton Arms, Aintree, where we plunged into darkness, leaving both tram-lines and dwellings astern. Never shall I forget that plunge. The lorry slowed down from six to about three miles an hour, and my high opinion of the driver gave place to a sense of trepidation. The man was steering by the line of the off-side kerb, or the hedge, where there was no foot-walk, the object of the extra hurricane lamps being now apparent, as their beams shone out obliquely against the sides of the road. On the near side the fireman kept watch between his intervals of stoking. Ever and anon he shovelled coke upon the concave top of the boiler casing,

slush on the mile of macadam just traversed is as heavy as anything until we get to Rufford. This is interesting. Perhaps we shall stick altogether or go through the crust later on. No, we had not yet been in low gear. The coke is none too good, and quickly forms heavy clinker, in consequence of which we have wasted fuel and steam by having the blast going from the instant we left the setts. I ply the driver with questions, and am quickly reassured as to his ability. The darkness is no longer so oppressive, though the rain is pitiless. The "spark arrestor," a clumsy and cumbersome contrivance of wire gauze, having two layers of 64-mesh to the inch, is removed and stowed away, now that we are in the country. One can readily see how it interferes with the draught on the fire. Clunking over, watering follows. The suction hose is uncoiled, a lid by the roadside lifted, and the rose dropped, to all intents and purposes, into the ground. I unhitch one of the hurricane lamps to assist inspection, the driver meantime explaining that this is one of the company's watering



THE WHITE STEAM DELIVERY VAN EXPERIMENTALLY EMPLOYED BY THE GENERAL POST OFFICE. (See next page.)

where it dried slightly before being dropped down the central shoot by the lifting of the round lid. He was shovelling and lifting as for dear life, and the engine was pulling hard. To keep 200 lbs. of steam was evidently a tussle, whilst less than 150 meant the low gear. The macadam was shocking. The mud squelched and oozed under the six-inch drivers, which had been tripping gaily when we remained on the excellent Liverpool setts. Suddenly the car jumped forward. We were on setts again, and climbing a canal bridge. Bump, bang, smack go the springs on the stop-blocks, and my liver is already less sluggish. These holes in the roads are anguish, but the driver apologetically assures me that he now knows most of them, and avoids them to ensure his bonus for the condition of his w gon.

WE are at the Old Roan Inn, five miles from the Liverpool depot and seven times that from our destination. Time occupied, one hour and three minutes. I am informed that the mud and

stations. Serious troubles and difficulties over the taking of water from canals, streams, and troughs have been solved by the putting in of large tanks underground, securely lagged against frost, and kept full by ball-valve regulators. The supply is by meter, and these tanks are stationed at selected points every few miles on the roads served by the wagons. But woe betide the stranger who seeks to help himself, for the local police and residents are on the *qui vive* to earn the reward which is offered for the detection of any wrongful consumption of the supplies.

NINE O'CLOCK finds us on the road again, prospects being more cheery. We are averaging a mile in eleven minutes—subject to what the driver tells me as to the location of the milestones. Steam is maintained at full pressure, and sparks fly generously enough to cause me to pull down my cap. I watch these sparks; I positively hang my vision on nothing else. Thank goodness they die at once! Two only fall on the sheet in quite a long space

of time; the rain and sheets will save my skin. I feel that I could no more get the driver to replace the spark-arrester than I could drive the wagon myself. There is evidently an aversion to them. Leaving Aughton Church on the right, we climb a long hill, barely scraping up on the high gear, and almost run down into Ormskirk without using steam. There is a reunion at the Talbot Hotel, where Nos. 1 and 8 are found watering, etc., and it is 10.40 p.m. as we bring up the rear of a miniature procession past the Clock Tower and along a dangerously narrow street. The men drive hard. It is six miles to supper. The elements appear to favour us, relatively, for the rain ceases and the roads are less heavy. The crust, may be, contains 30 per cent. of water against 60 further back; but we must be thankful for small mercies when on iron tyres carrying a total weight of over eight tons. I do not want to say that we cover a mile at eight an hour. All the same, we take only fifty-two minutes to travel the six miles to the Hesketh Arms, Rufford, where we arrive some minutes ahead of the cotton lorries. All is darkness, but the men are at home. Their baskets and cans are brought forth, as introductory to an adjournment into a comfortable stable, the key of which is discovered from some hiding-place. There is masonry in the air, but I appear to be a welcome visitor. My sandwiches and a bottle of brandy—brought as a precaution—are partaken of. The “pros and cons” of how far the Blackburn men will get that night are discussed, which reveals the fact that my driver alone is going through, the other two Liverpool drivers having to change when they meet their charges from the other end of the service. This system of relief at some intermediate point is being tried as an experiment, the advantage being that each set of men retrace their own bit of road, and get back to their own homes.

HERE is one. A Blackburn man arrives shortly after midnight, his lorry (No. 7) snugly packed with four tons of baled cloth for shipment to Calcutta. Not a single trailer is out this weather, so the loads are small per unit, but forty tons of this shipment are coming forward, spread over three days. My trusty steed, No. 11, stands by until one o'clock, while I watch the departure of the other three—two to Blackburn, and one to Liverpool. We have been warned to “low-gear it” under the trees through Rufford Wood, and get safely through. A mile on, near Sollom, we are in difficulties. The road has become heavier and heavier, we are below the level of the surrounding country, which I am told is a moss, when, with a crunch and a knock, we stop dead. The four-way cock, plus low gear, is futile. We are going down on the near-side wheels. We are turning over, possibly. I dismount with more haste than decorum, into mud over my boot-tops, to gauge the angle of inclination and to look at my watch. It is 1.28 a.m., and we are stranded in the wilderness.

P. A. M.

THE WHITE STEAM DELIVERY VAN.

AS exclusively announced in the last issue of the *Journal*, the General Post Office authorities are at present making some trials of a White steam delivery van, of which we are this week able to publish an illustration. The vehicle is one of the White Company's standard delivery vans intended particularly for the light retail trade, the total of the load, apart from the driver, not to exceed 500 lbs. The weight of the vehicle is about 15 cwt. The carrying space in the body is 42 in. long by 44 in. in height by 32 in. in width. The road wheels are 30 in. in diameter, and are fitted with 3½ in. Clincher tyres. The wheel base is 6 ft. 9 in. by 4 ft. 6½ in. The engine and steam generator in the car are the same as in the regular White Stanhope; the arrangement is, however, different, the engine being at the rear of the steam generator.

MESSRS. FOTHERGILL AND COMPANY, LIMITED, is the title of a company registered with offices at 53, Victoria Street, S.W., to carry on business as builders of motor-cars, etc.

KNOW YOUR VEHICLE.

IT may not have occurred to some that there is almost as much individuality in a motor as in a horse, but it is a fact which cannot be too highly appreciated. One will show a crankiness in running that will puzzle its builders, and another will run so smoothly and uniformly that it will prove a delight to its owner. Nearly every machine has its weak points, and it is the duty of the driver to find these out and to favour them just as he would a high-bred roadster who possesses some slight defect which otherwise does not affect his standing as a good animal. The amateur and the novice always start and stop a vehicle by a series of short jerks, which is a strain to the mechanism; in fact, many drivers, no matter how much experience they have had, never overcome this novice-like method, simply because they do not understand the nature of their iron steed. If half the accidents and breakdowns to motor-cars could be classified, it would be found that a great majority of such misfortunes were due either to poor driving or to the neglect of some slight derangement. Creaking springs and groaning mechanism are the most common accompaniments of ill-kept motor-cars as they proceed along the public thoroughfares. Oiling does not suffice for this, and the incompetent driver waits for a favourable opportunity to send the vehicle to some repair shop, there to discover the cause of all the noise. A man with a fair knowledge of the construction of his motor-car could, considers the “Automobile Magazine,” find out the cause of the noise in five minutes, and remedy it as quickly. The neglect which ignorance allows to progress means eventually a bill for repairs that astonishes the man who has to pay it. It also means the shortening of the useful life of the car by many months. A fractured axle is more often due to unskilful driving than to faulty construction. When driving over a hard, rough road the axles are strained to their utmost, and if the driver does not know how to negotiate obstructions he is in a fair way to break something. He may proceed in this careless way a dozen times without meeting with accident, but the thirteenth time he may pay for all. Each successive strain has tended to weaken the axle, until finally a slight extra burden cast upon it causes the mishap. It would be hard to convince one ignorant of the reasons for this that he was the sole cause of the unpleasant experience, and that nothing save his faulty operation of the vehicle was to blame for the breakdown. Such experiences rarely happen to the expert motorist who knows the principles on which his machine is constructed, and has gone below the mere surface instructions in his driving of a motor-car.

THE General Auto-Car Insurance Company, Limited, has been registered with a capital of £100.

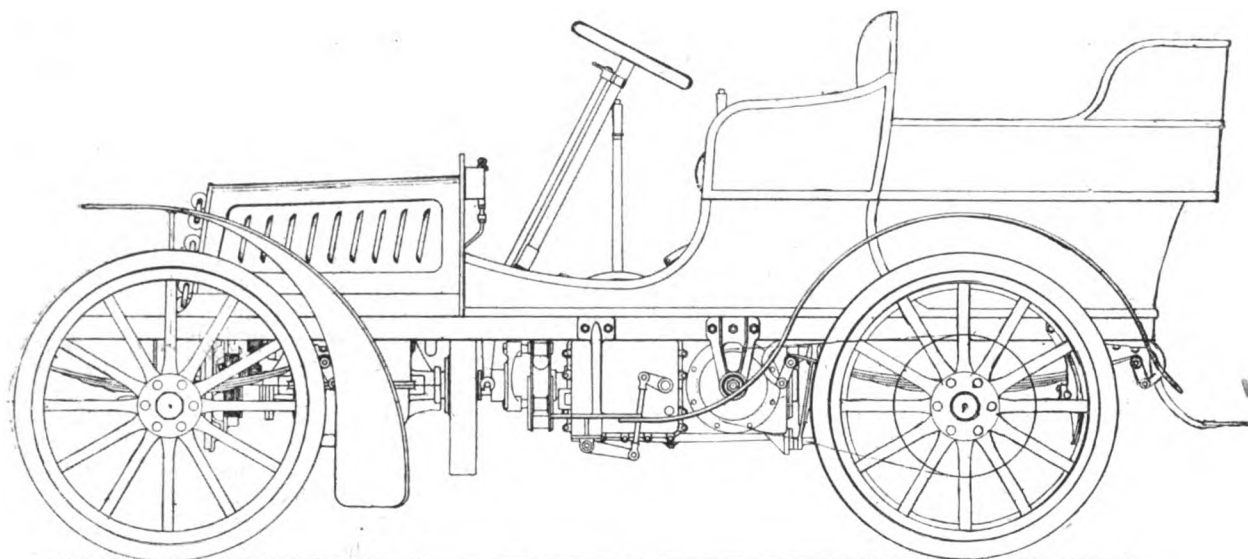
MR. B. BINGHAM, an enthusiastic motorist, of Cheltenham, has devised a motor-starting arrangement for use on his Argyll car to obviate the chances of injury due to back-firing. Its leading feature is a spring which takes up the force of the back-fire.

THE Duke and Duchess of Devonshire, on Saturday, drove over to Buxton from Chatsworth in a motor-brougham to inspect several additional attractions which have been provided in the town, of which his Grace is Lord of the Manor.

THE Leeds Watch Committee has decided to recommend the City Council to make representations to the Government upon the desirability of easier and better identification of motor-cars and cycles, and for that purpose to make alterations in the law bearing on the subject.

THE Motor Manufacturing Company, Limited, have sent us a copy of their preliminary catalogue for 1903. The contents very briefly describe their five types of cars. In addition to the 8-h.p. single-cylinder, 7-h.p. double-cylinder, and 12-h.p. four-cylinder M.M.C. cars, two new types have been introduced, viz., 10-h.p. and 20-h.p. The latter is a four-cylinder car having three speeds forward and reversing gear, and irreversible-wheel steering of an improved type.

The New Albion 12-h.p. Petrol Car.



THE Albion Motor-car Company, Limited, of Glasgow, who have hitherto confined themselves to cars fitted with horizontal engines, are for the 1903 season bringing out a new 12-h.p. car with vertical motor. As will be seen from the accompanying illustration, the vehicle, in general outline, follows the now well-established lines of automobile-engine in front under a bonnet, clutch and gear-box. At the same time, however, a number of special features have been introduced. The motor is of the two-cylinder vertical type, having cylinders $4\frac{1}{2}$ inches diameter by 5 inch stroke. It is fitted with mechanically-operated inlet valves and an improved system of magneto ignition, the features claimed for which are simplicity and reliability. The engine is governed on the inlet by the Murray patent governor, which combines the features of the accelerator and the throttle lever on the present Albion cars, and carries out their combined functions automatically. The governor is of the centrifugal type and gives a wide range of speed in the motor, from about 250 to 950 revolutions per minute, and can be set to govern the motor from full load to running light at 250 revolutions per minute, or at any intermediate speed between this and 950. In other words, at whatever speed the governor lever is set, the car will maintain this steady speed up and down hill and on the level without any attention on the part of the driver, provided the hill is not too steep for the engine to take on that speed. The lever controlling the governor is mounted immediately below the steering wheel, so that the driver can instantly change the setting of the governor. It is claimed that the arrangement entirely overcomes the objections to the ordinary methods of varying the speed of a centrifugal governor. Relief cams are provided which make the starting of the engine a simple and easy matter.

The power is transmitted to the gear-box by a leather-faced friction clutch of ample dimensions, and also through an improved form of spring drive, the function of which is to introduce a flexible connection between the motor and the gearing, so that no shocks can be transmitted from one to the other. This point is a very important one, as it saves both the engine and gearing from abnormal wear, and helps to make the running of the car smooth and silent. The change gear box contains the necessary gearing to give three speeds ahead and one reverse speed, the top speed being a direct drive from the engine to the bevel gear on the cross shaft. The gear case is mounted on the three-point suspension principle, which prevents any twisting of the frame

or binding of the bearings in the gear case. The lubrication of the gear case and the cross shaft is automatically carried out, the oil being continuously circulated to the various bearings and returning to the bottom of the gear case. The changes of speed are all actuated by one lever, and it is so arranged that the driver can change from any one speed to another without passing through any of the intermediate speeds. From the change gear box the power is transmitted to the rear axle by side chains, the latter being fitted as close to the body as possible and well protected from mud and dust.

On the rear end of the gear case is fitted a double-acting water-cooled brake actuated by a pedal, while the hand-brake acts on the inside of steel angle rings fixed to the rear wheels. The tonneau is very roomy, and the whole car is luxuriously upholstered. It will also be observed that the wheel base is long, thus giving an easy riding motion. The car illustrated is fitted with solid rubber tyres, but pneumatics can be supplied if desired.

MESSRS. HENDERSON AND COMPANY, coachbuilders, of Glasgow, have had a busy year making various kinds of motor-car bodies.

At a meeting of the Institution of Civil Engineers, on the 13th inst., Mr. H. J. Joel will read a paper on "Electric Automobiles."

A CORPS of twelve men and officers have been told off by the German War Office to make some trials with a passenger motor-car and two goods wagons in the snow in the Hartz Mountain district.

MR. HANBURY, the President of the Board of Agriculture, has had a mishap while trying his new motor-car on the Ilam Hills, Derbyshire, the vehicle being upset while going down a steep descent.

THE Oppermann Electric Carriage Company, Limited, has acquired extensive premises in Arlington Street, Camden Town, which are now being fitted with the necessary machinery for turning out electric cars at the rate of one per week.

MOTOR-CARS were more largely used in the East Cambridge election than in any previous contest in this country. That Newmarket was the largest town in the constituency makes the innovation the more suggestive as to the value of the automobile in such work.

IN HERTFORDSHIRE.

FOR the London motorist, tired of the vagaries of Surrey J.P.'s and the watchful vigilance of the police of that lovely county, Hertfordshire may be suggested as an alternative. It is a district of quiet beauty and historical association; while its excellent roads and winding lanes present no difficulties to the trusty automobile, although some of the older towns have awkward twists and turns. "Hearty, homely, Hertfordshire," as genial Charles Lamb called it, is a delightful touring ground. To the east Hertford, Ware, Buntingford, Braughing, and Priory



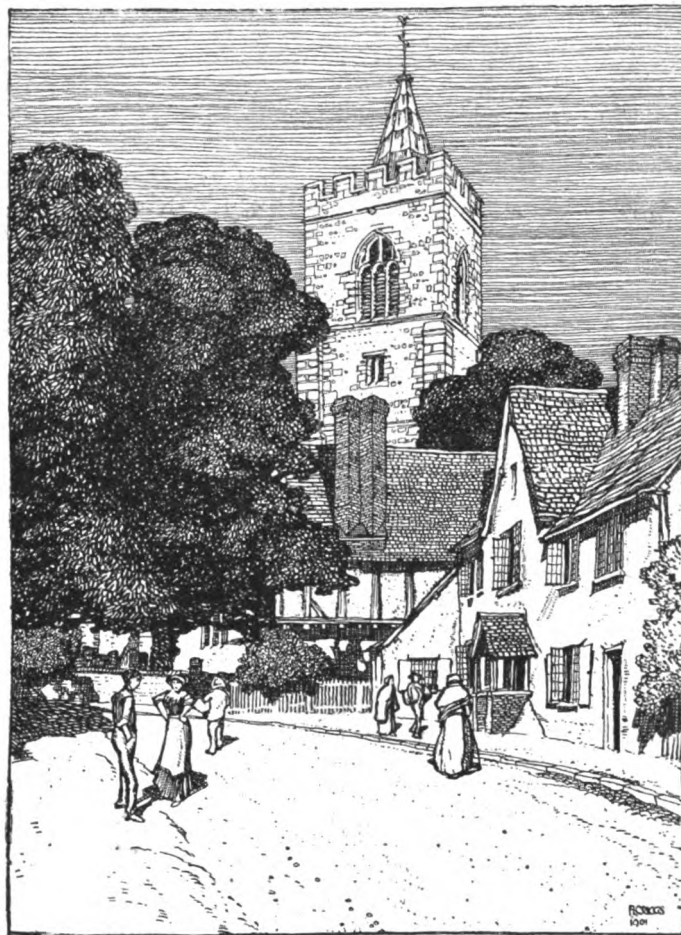
COWPER'S BIRTHPLACE, BERKHAMPSTEAD.

present their charms; while in the north Baldock, Wilbury Hill Camp, Hitchin, and Stevenage are attractive centres. In the south-west corner of the county the motorist can spend a pleasant day, starting from any convenient point reached from the counties of Bedford, Buckingham, or Middlesex. With such a book as that on the "Highways and Byways in Hertfordshire," which Mr. Herbert W. Tompkins, F.R.H.S., has written, and Messrs. Macmillan and Company, Limited, have published, the journey can be made all the more interesting and instructive. This work is one of the best of the kind that has come to our notice. The illustrations are good, and the descriptive matter both accurately and entertainingly written; specially noticeable being the chapters on St. Albans, Berkhamstead, and the Baldock region.

With Mr. Tompkins' book in hand a pleasant motor-car trip for an afternoon can be made from almost any point and we would suggest one that can be easily traced on the excellent map accompanying the volume, and starts from Rickmansworth. This stands in a valley of streams, the Colne, the Gade, the Chess, and the Grand Junction Canal threading their course through its immediate vicinity. On towards Sarratt "the road twists and turns in a most surprising fashion. Sarratt should be one of the healthiest habitations in Hertfordshire. Most of the houses are detached, and there seems ample room for everything and everybody. The place affords as pleasing a contrast to the congested London suburb as heart can wish. The broad green common that stretches from end to end of the village is swept by a most delightful breeze, and I throw myself on the cool turf, beside the drumhead well, with the feeling of the Indian chief who struck his spear-head in the ground at an approved spot, exclaiming, 'Here we rest.' It was said in old times that he who bought a home in Hertfordshire paid two years' purchase for the air; the youngsters who are chasing butterflies across the green, or throwing bread to the geese upon the pond, look as though disease never crossed their doorway. As you pass up the village, keeping the common on your left,

you will notice that before the doorway of the Old Boot there stand four lime trees in a row, and that before the Red Lion, a few steps farther on, four lime trees stand 'four square.' The trees are of great age, and several generations must have come and gone since the two neighbours, perhaps in a spirit of friendly rivalry, planted these limes before their doorway and watched them grow. Let me go down to the little Norman church. The tower has a roof unlike that of any other church tower in Hertfordshire. It is a 'saddle-back' roof, and runs north and south, whereas the nave, as customary, runs east and west." This may be taken as a fair specimen of the easy style of this pleasant guide.

King's Langley has associations with Piers Gaveston. At Abbots Langley is a church of great antiquity, portions of the structure being as old as the memory of Nicholas Breakspear, who was born in the vicinity of the village at the close of the eleventh century. The two Langleys are as closely associated with Hertfordshire minds as Scylla and Charybdis. Journeying on to Chipperfield is a fine old manor house, "so spacious and so inviting that you can hardly observe it and keep the tenth commandment." Berkhamstead is one of the most considerable towns on the itinerary, and notable as the birthplace of Cowper. From the east end of Great Berkhamstead to the west end of Northchurch—where the parents of Maria Edgeworth lived a century and a-half ago—is one long street of shops and residences. The church at Northchurch has some good brasses, and attracts many artists, who go to sketch its low and massive embattled tower. Journeying on, Hamstead will be found a quiet little



A SCENE IN RICKMANSWORTH.

village with ancient almshouses—not far off the main road from St. Albans to Dunstable, the old road, changed by the Romans from a rude track for man and beast into a wide and durable highway. Westward is Harpenden village and common. Its church was a chapel of ease to Wheathampstead prior to 1859.

Wheathampstead will have to be passed through on the way to St. Albans, and the lych gates of St. Helen's Church there will warrant a passing glance. And then to St. Albans. "Perhaps the best view of the city," says Mr. Tompkins, "is that which lies spread out before you from the footpath between St. Stephen's Church and the village of Park Street." The old Abbey Church carries us thoroughly back to old English days, and the general aspect of the place will delight those who love the historical when combined with the picturesque. Through Colney to Watford the journey is nearly complete. Watford is the busiest town in the county; in 1891 its population numbered 17,000; now it is nearly 30,000 and—here is another instance of the practical character of much of the information in this excellent guide book—has, at the north-west end of the High Street, a sign-post with four arms as well covered with information as we have seen anywhere. Mr. Tompkins quotes all the distances set forth thereon, "if only," as he says, "to encourage other towns to erect sign-



A VIEW NEAR MARKET WEIGHTON (YORKS.)

boards of such exemplary completeness." This is the information thus set forth—and other towns might be spurred to similar enterprise:

	Miles.		Miles.
St. Albans	8	King's Langley	4
Hatfield	14	Hemel Hempstead	8
Hertford	20	Berkhamstead	11
Rickmansworth	3	Uxbridge	11
Amersham	11	High Wycombe	17
Chesham	12	Reading	36
Stanmore	5	Redbourn	12
Edgware	7	Markyate Street	16
London	15	Dunstable	20

THE Danish Automobile Club proposes to organise a race between Copenhagen and Stockholm, to be run off in May next.

THE Express Motor and Vehicle Manufacturing Company, Limited, has been registered to adopt an agreement with Mr. T. Clark, and to carry on the business of manufacturers of and dealers in motor carriages. The office is at 180, Stockport Road, Manchester.

SOME pigs frightened a horse at Lincoln on Tuesday. The animal dashed on to the pavement, where its wagon overturned a child's perambulator. The little one, who was thrown out, fell under the wagon wheels and was killed. Had a motor-car been within sight the driver of it would probably have been held responsible for the accident.

SOME USEFUL NOTES.

THE fuel tanks of both petrol and steam cars should be made with the greatest possible amount of care to prevent the slightest chance of leaks. They should preferably be located a considerable distance from the motor, so that if a leak does occur the petrol will run directly on to the ground.

By carefully following the instructions issued by the makers of the various types of cars in use to-day, good results can be secured, and if care is taken to keep the vehicle and parts clean and up to "concert pitch" the mechanism will not only run well, but will last longer than a dirty and neglected vehicle ever can.

Do not omit to keep the dustcap on a Michelin valve. Nearly all these valves leak more or less, but the dust-cap will stop the leakage, as it has a rubber washer inside.

WHEN reversing, be very careful not to put in the forward gear before the car has stopped travelling backwards; several people do this, but it is extremely bad for the gear.

IT is a very good plan to fix light leather guards inside the front wheels; most cars splash a good deal of oil up from the engine, and the oil bespatters the wheels and tyres.

A THICK piece of rope has often been suggested to put on a rim in place of a burst cover when everything else fails, but there is usually some difficulty about securing the rope; a very good method of effecting this is to measure the rope round the rim to get the length, and then to unite it by a short splice. The short splice will take up about three inches or more of the rope, and it will then have to be forced on, but when this is done it will not readily come off.

IT should be remembered that cars with low-compression engines and trembling coils do not need a very small spark-gap. Panhards and similar cars work very well with a spark-gap of about one and a quarter millimetres.

NEVER continue running a car when a suspicious squeak or knock is heard; many pounds' worth of damage may be done in this way; investigate any unusual sound at once.

THE great secret of hill-climbing is not to change speed too late; change on to the third speed while the car is still running at a fair speed on the fourth.

SIDE-SLIPPING is an occurrence which largely depends upon the design of the car, and the capability of the driver. Never select a car which has a body projecting far over the chassis; it will be certain to slip badly, owing to the unequal distribution of weight resulting in bad balance. If one is travelling slowly, very slowly, on treacherous surfaces with a properly designed vehicle, there is no fear of side-slip.

IN pressure-fed cars, where the lubrication is pressure-fed and magneto ignition is used, it is always advisable to let off the pressure when the car is stopped; otherwise the oil is liable to get on the igniters and cause trouble in starting.

IF one aspires to fit a gas-throttle to a car, where such is not already fitted, it will be found that a much better one will be made if it works in conjunction with the ignition; that is, when the engine is slowed down by the throttle, the ignition is also retarded. It will be found that, with this arrangement, the engine will pick up much better when the throttle is opened.

IF solid tyres are decided upon, make sure of two things: (1) that the springs are good and thoroughly adapted for their purpose; (2) that the speed of the car is not much more than twenty miles an hour.

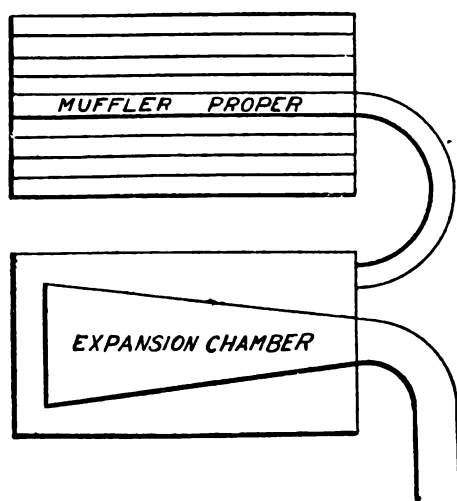
HERE AND THERE.

THE York City and County Garage has been opened in Stonegate, York.

THE Weston Motor Syndicate is the new title of "Weston Motors."

THE next quarterly 100-miles Trial of the A.C.G.B.I. is to be held on the 24th inst.

A NOVEL feature of the vehicles now being turned out by the Pan-American Motor Company, of Mamaroneck, N.Y., U.S.A., is the silencing arrangement illustrated herewith. It may be mentioned that the motor is a four-cylinder one and that the general arrangement of the car is on Panhard lines. To silence the exhaust two cylinders attached to the frame of the car towards the rear are employed. According to the "Horseless Age," the forward and smaller one of the two acts as an expansion chamber and the other one as the silencer proper. The former consists of a cylindrical chamber with an interior con-



centric "horn" or sheet metal cone. The smaller end of this horn is fastened to the head of the expansion chamber, and has the exhaust pipe from the engine communicating with it, while the larger end is just sufficiently less in diameter than the inner diameter of the cylindrical chamber to leave a liberal passage all round. The exhaust gases pass through the horn and back on the outside thereof, and then by a pipe to the silencer proper. The latter consists of concentric tubes, the exhaust being led into the inner one and passing through perforations in the tubes into the successive concentric spaces and out into the atmosphere.

WE wonder what is the record as regards the life of a sparking plug. According to a French contemporary, La Société Cannoise d'Automobiles, of Cannes, has had one in use for four years, and, like "Charlie's Aunt," it is "still running."

THE Antwerp Automobile Club is searching for a straight road on which motor-car mile and kilometre record trials may be run off. A road on the estate of Baron de Caters, at Westwezel, near Antwerp, is suggested as being suitable.

THE Continental Caoutchouc and Gutta Percha Company is manufacturing two new sizes in Clipper Continental motor tyres, viz., 100mm. tyres, which fit the same rims as the 90mm. size, and 125mm. tyres, which fit the same rims as those used for the 120mm. size. Both these new tyres are of a stronger type than the 90 and 120mm. tyres.

MR. J. W. STOCKS intends driving a 6-h.p. De Dion car to Glasgow and back in four days, averaging 200 miles per day. The other day he drove the car from London to New Holland via Lincoln—a distance of 177 miles—the only incident being the failure of a temporary lamp bracket. The low gear was used but three times on the outward journey—the first time being at the hill just north of Grantham, the second time at the hill out of Lincoln past the Cathedral, and the last time at Elsham Hill, north of Brigg.

THE New Automobile Company, Limited, has been registered with a capital of £10,000.

TRADE reports from Coventry tell of a buoyant spirit in the local motor trade, with good prospects of employment during the year.

MESSRS. HUMBER, LIMITED, are bringing out a 20-h.p. car for the 1903 season; the engine will be fitted with mechanically-operated inlet valves.

THE Sloan Electrical Company, Limited, of 15, Fore Street Avenue, E.C., has been appointed agent for the Hydra Werke Electrical Company, Limited, of Berlin, for its dry batteries for ignition purposes on motor-cars, etc.

THE annual meeting of the Progress Cycle Company, Limited, was held at Coventry last week, Mr. W. E. Dalton presiding. The chairman announced that the directors had arranged for a debenture issue of £6,000 to enable the company to develop the motor branch of the company.

FOR the forthcoming season Messrs. John Child Meredith, Limited, are introducing a new vibrator on the G.O.M. coil, which will make 450 ruptures per second or 27,000 per minute. They are also introducing a new accumulator which is claimed to be impossible to spoil by short circuit. The accumulator can, it is said, be charged or discharged at any rate without fear of injury, and without getting warm.

ON page 860 we are able to reproduce a photo of Mr. J. B. Dunlop, the inventor of the pneumatic tyre, on his new 12-h.p. Argyll car, Miss Jeanie Dunlop being at the wheel. According to the "Irish Wheelman" Mr. Dunlop has fitted the car with an improved silencer of his own design, which renders it exceedingly quiet in running. Another new feature is a carburettor designed by Mr. Dunlop, junr., its weight being only seven ounces. In shape it takes the form of a rectangular chamber $2\frac{1}{2}$ inches wide and one inch deep outside measurement; the spraying nozzle is practically in the centre of the float, is automatic in action, and both the quality of the mixture and the quantity of petrol reaching the spraying nozzle are properly proportioned to the speed of the motor. If the engine is running above the normal, the quantity of air and petrol taken in are both increased, and when it is running below the normal they are both reduced.



OFF TO THE MEET.

[Das Schnaufferl, Munich.

THE Board of Trade have received a Customs circular which has been recently issued by the Government of India, under which the import duty in India on petroleum, having its flashing point at or above 150 degrees Fahrenheit, is reduced to 5 per cent. *ad valorem*, provided it is proved to the satisfaction of the Customs collector that it is intended to be used exclusively as fuel.

THE motor-car figures incidentally in the "House" Annual for 1903 which Mr. W. A. Morgan has compiled and Messrs. Gale and Polden, Limited, have published in the interests of the "Referee" children's dinner fund. Miss Marie Corelli ushers in one of the characters in her story on a motor-car, and Mr. Fred Burdett has a story wholly devoted to an automobile run. Other well-known authors also contribute to this interesting volume.

THE "Collier" tyres for motor-cars are about to be introduced into France, Belgium, and Germany.

MESSRS. L. R. OSWALD and J. R. EVANS have opened motor-repair shops in Golden Lane, Stephen Street, Dublin.

THE annual dinner of the Automobile Club of America will be held on the 24th inst., at the Waldorf-Astoria, New York.

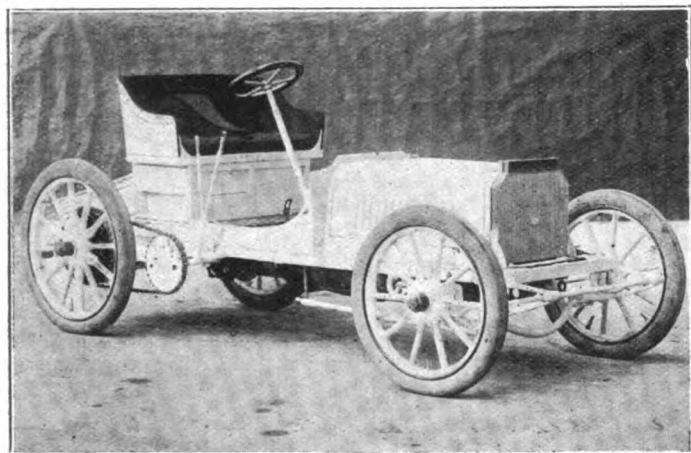
MOTOR-CARS belonging to the Cambridge Autocar Company, Limited, have played a part in the recent Parliamentary election.

THE stock of the Bexhill Motor Car Company will be sold by auction by Mr. Charles Friswell, on the premises at Bexhill, on Tuesday next.

AMONG the firms in India dealing in petrol are Messrs. Turner, Hoare and Company, of Bombay, and the Assam Oil Company, Clive Street, Ghat Street, Calcutta.

IS Surrey reforming? The other day the mayors of Guildford and Godalming rode to a civic function at Richmond on a Dennis motor-car. Sergeant Jarrett did not call upon them to stop.

HEREWITH we illustrate one of the 1903 model Peugeot cars, in racing trim. Messrs. Friswell, Limited, the agents in this country, inform us that it is fitted with a four-cylinder motor developing 24-h.p. The engine is built in accordance with



the latest practice, having mechanically-operated inlet valves, throttle governor, and magneto ignition. It will also be noticed that the honeycomb type of radiator has been adopted. Four speeds forward and a reverse are provided, the control being by means of a single lever.

AT the Leeds Coliseum, a cinematograph exhibition is being shown, in which the garden party of the Yorkshire Automobile Club, at Mr. H. R. Kirk's residence, last summer, figures conspicuously.

THE Automobile Club is offering a reward of £25 for the identification of the driver of a motor-car who recently drove off from Reigate after assisting a dying man into a house. The man had been fatally injured through his horse shying at the automobile.

FROM the Motor Car Company, Limited, comes a catalogue dealing with Decauville cars, for which the company acts as British agents. It is splendidly got up, the cover being an excellent example of printing. Detail drawings and descriptions occupy much of the space.

M. LOUBET, the French President, has pardoned all convictions against motorists for offences committed prior to midnight on December 27th. One day's imprisonment is the usual penalty. But the offenders are allowed to work it off whenever it suits them within a certain number of months. As everybody puts off the evil day until the last moment, M. Loubet's clemency affects a large number of motorists.

IMPORTS OF MOTOR-CARS, MOTOR-CYCLES, AND PARTS THEREOF.

THE Board of Trade figures for the month of November relating to the imports of motor-cars, motor-cycles, and the parts thereof, have already appeared in our columns. Below, however, we give the official details showing the importations from the different countries of origin.

BELGIUM.

Antwerp	Goo'le	Motor car	1	£
"	Harwich	"	1	207
"	"	" parts	—	160
"	Liverpool	" cycles	4	1156
Brussels	London	" cars	2	128
"	"	" car parts	—	470
"	"	" cycles	7	500
Ghent	Manchester	" cycle	1	276
"	"	" car parts	—	18
Ostend	Dover	" " "	—	300
"	London	" cars	1	6
"	"	" car parts	—	160
"	"	" cycles	6	114
Total imports from Belgium for November, 1903				£5,820

DENMARK.

Copenhagen	Hull	Motor-cycle	1	£
Total imports from Denmark for November, 1903				£50

FRANCE.

Boulogne	Folkestone	Motor cars	28	£
"	"	" car parts	—	9,346
"	"	" cycles	10	1,839
"	Goo'le	" cars	2	410
"	"	" car parts	—	1,200
"	London	" cars	38	60
Calais	Dover	" car parts	—	6,350
"	Leith	" cars	2	54
"	London	" " "	5	350
Dieppe	Newhaven	" " "	71	1,122
"	"	" car parts	—	35,442
"	"	" cycles	16	2,610
"	"	" car parts	—	605
Dunkirk	Hull	" cars	—	36
"	Leith	" " "	2	500
Havre	Liverpool	" " "	—	400
Marseilles	Liverpool	" " "	1	400
Rouen	Hull	" " "	1	1,760
Treport	London	" " "	4	250
"	Manchester	" " "	1	1,000
Total imports from France for November, 1903				£63,934

GERMANY.

Bremen	London	Motor-cars	13	£
Hamburg	"	" " "	1	3,884
Stettin	"	" " "	1	200
Total imports from Germany for November, 1903				£4,284

HOLLAND.

Amsterdam	Hull	Motor-car	1	£
Flushing	Queenboro'	" " "	1	210
Rotterdam	Grangenorth	" " "	1	375
"	Harwich	" car parts	—	475
"	London	" cars	20	90
"	Middlesboro'	" " "	2	4,020
Total imports from Holland for November, 1903				£5,670

UNITED STATES.

New York	Glasgow	Motor-cars	2	£
"	Liverpool	" " "	3	200
"	"	" car parts	—	545
"	London	" cars	11	210
"	"	" car parts	—	2,876
"	Southampton	" cars	22	657
"	"	" car parts	—	3,470
Total imports from the United States for November, 1903				£9,639

CORRESPONDENCE.

A SUGGESTION *RE* HEAVY MOTOR VEHICLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In glancing over the descriptions of several heavy motor vehicles—steam and electric—that have recently made their appearance in the United States I have noticed that the vehicles have, among other advantages over horse-drawn lorries, the ability to furnish self-contained power to assist the loading and unloading. Here is a matter which has not been given the attention it warrants by builders of heavy motor-vehicles in this country. The loading and unloading of freight is as important as its transit, and the fact that any form of heavy motor-wagons provides means for accomplishing this more rapidly than it can be done with the simple forms of hand mechanism which are used with horse-drawn vehicles will, if properly set before commercial houses, have as much influence as anything in promoting the general adoption of the motor-wagon for freight haulage.

A heavy steam-wagon equipped with power windlasses and other apparatus for handling the loading and unloading of heavy goods has two distinct and indisputable advantages that urge its general adoption. It will haul goods faster, farther, and cheaper than the horse-drawn lorry, and it will load and unload the goods more rapidly and more safely than is possible by the latter.—Yours truly,

BLACKBURNIAN.

THE AUTOMOBILE CLUB BILL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Mr. Norman D. Macdonald seems to think that those who are in favour of means of identification are "mad to get out on the roads to rush around in hot blood, regardless of the twelve miles an hour nightmare." It is exactly the opposite. Those who favour the providing of means of identification consist to a large extent of automobilists who object to the conduct of men who now "rush around" in a manner that is dangerous, discourteous, and offensive to other users of the road.

He asks whether we "cannot wait and go more slowly, till the sense of the nation asserts itself." But the question is not what we will do. It is whether certain automobilists will cease to use the roads at railway-express speeds. If Mr. Macdonald will arrange to get all automobilists who now drive at speeds of 35, 40, 45, and 50 miles an hour to "go more slowly," we shall be most grateful to him.

He should remember that at whatever reasonable speed other automobilists may go, the general public will class them with the worst offenders on the road, and ultimately deal with them accordingly.

Although your correspondent, "Time Works Wonders," thinks he sees a clear meaning in such signatures as "Let Well Alone," and "Let Sleeping Dogs Lie," he does not tell us, what I ask again may be told to us, who are the dogs, and what is it that is "well," and therefore to be left alone. In the meantime I can assure him that it is absolutely certain that things will not be left alone, and that he will find that the Government will deal with the matter in next Session, not because automobilists desire it, but because the conduct of many automobilists is creating a pressure on the Department from justly-incensed members of the public, which cannot be ignored.

The automobile press and many of its readers may shut their eyes to this if they will, but I trust they will not do so much longer, as the consequences cannot but be evil.—Yours truly,

J. H. A. MACDONALD.

IS MOTORING FOR THE FEW?

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Allow me, through your columns, to protest against the idea entertained by many people, and even by some motorists, that the sport is one to be indulged in only by the wealthy, and that it is presumption on the part of anyone who cannot afford to keep a mechanic to attempt to maintain a car.

In the Badminton motoring reminiscences, an authoress is very hard on a presumably mythical village parson—that never-failing butt—because he has the audacity to buy a 3-h.p. Benz Ideal without keeping a mechanic to superintend it; in the exuberance of her imagination she even declares that he was surprised to hear that water was not an efficient substitute for petrol as a motive power. Now if a man spends, say, £80 on a second-hand car, how can he be expected to also lay out £2 a week, the interest on an investment of £2,000, for expert assistance? If he could afford the latter, he might surely spend £800 on his car. Even in these go-easy days, the charge of one 3-h.p. motor-car, used in occasional leisure intervals, will hardly constitute employment for a man; and surely a man of mechanical tastes and fair theoretical knowledge of motors may be pardoned if he attempts, with occasional expert assistance, to overcome the difficulties inseparable from motoring. When the demand for small cars at £150 is so great, each buyer must be expected to do small repairs himself. I trust that many with "neither poverty nor riches" may, with the aid of the hints in your excellent journal, and the various technical works on the subject, venture to join the ranks of automobilism, undeterred by the cavils of the few or the jeers of the *profanum vulgus* on the occurrence of a hitch.—Yours, etc.,

W. COOMBE.

THE GORDON BENNETT CUP.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Judging from the attitude the Automobile Club is adopting in drafting the rules for the eliminating tests for the Gordon Bennett Cup, I fear it is permitting itself to be laid open to the suggestion that it is inclined to be biased in favour of one particular firm. Out of the three cars which are to represent England in the great race, the Committee have, I take it, decided that the Napier is allowed to enter two out of three without trial. This certainly presents the appearance of unduly favouring the winner of last year's race, especially as the Automobile Club was careful to point out that it must not be taken as a precedent for future occasions. If it is not to be the rule for the future, what argument is there in commencing with so doubtful a precedent?

I do not stand alone in holding a firm conviction that it would be infinitely fairer and more satisfactory if the second and third places in the representation should be open to competition.

I understand that the Star Engineering Company is the only other firm that has paid its £5.0 to compete in the eliminating tests against the Napier. Now having regard to the fact that the issue is of national importance, surely all trade considerations should be secondary. The object of the Automobile Club should be, and I hope will be, to ensure that England shall be represented by the three best cars in the great race, but if the club persists in the arrangements as at present submitted, is there not a possibility that the only other entrant in the eliminating contest may be second to the Napier it has to meet in the tests (which one naturally concludes will be the best of the three Napiers), whereas it may possibly be superior to the other two against which it will not be permitted to compete.

I have not the slightest personal interest in the matter, but having formed the opinion that the Cup holder must be a good sportsman, it occurred to me that the few minutes spent in writing this letter would not be wasted in making the suggestion that the two Napiers should compete in the eliminating tests, and so ensure the popular desire that on the day of the race England shall be represented by the very best cars available.—Yours truly,

U. STRATTON.

THE LESSONS OF THE PARIS SHOW.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It is generally granted that grave obstacles surround British motor manufacturers if they are to regain lost ground and overtake, let alone outstrip, our Continental rivals. It is not my purpose to write here of these obstacles, but so grave and growing a danger has made its appearance lately, that I feel no great apology is required for drawing straightforward attention to it. In a recent article on the Paris Motor Show, a racing man wrote of "The lessons to be learnt, etc.," but on careful perusal it is not evident what those lessons are, unless it be that manufacturers and agents, or, rather, agents and manufacturers, are admonished to "pull together." The rest of the article deals with certain phases of construction which are identified with the Mercedes design and an expression of self-satisfaction on British manufactures as they appear to-day against Continental.

It is my purpose within the narrow scope of this letter to endeavour to show that some of our British papers are unwittingly injuring the British manufacturers by leading them to believe that we are occupying a position in motor manufacture which we do not hold. It has been said that "all the French makers are being lured on in the direction of complications because of the Mercedes." Can it mean that this advice to British makers is "be careful that you do not do likewise?" Let us inquire whether the advice is sound. The outstanding features of the Mercedes copied by the leading French makers are, roughly speaking, three in number. (1) The *Chassis Embouti* (pressed steel under carriage of channel section). (2) Mechanically-operated inlet valves. (3) Multi-tubular radiator of special design and construction. As to (1): The new steel frames are a very great advance indeed on the old L section iron and wood frames; they are lighter, stronger, and, when sufficient quantities have been produced out of the tools for making them to cover the cost of those tools, will be greatly cheaper than the old style. (2) Making a comparison between mechanically-operated inlet valves and the valves worked by suction there is still only one valve, one spring, one washer and one cotter. The only possible disadvantage (?) is the adding of a cam to a shaft which is already in existence, so that by mechanical operation it is possible to get a positive time of opening and closing irrespective and independently of any of the conditions which may cause the suction induction valve to vary its work from time to time. When, over and above this advantage, the means to run an engine extremely slowly without bringing it to a standstill is added, is it difficult to find a reason for changing? (3) The Mercedes type of radiator, or something similar, and which is not at present generally fitted in this country, is more efficient than the radiators which we are still requested to adhere to by our friends. The proof as to whether this advice is sound is a short one. No radiator ordinarily fitted in this country will keep the water cool enough so that a car does not require refilling for say 500 miles, whereas it is claimed that the other type of Continental radiator will do very much better than this. Any way, it will be readily granted that the last mentioned is at least as efficient as the other, and there is no argument about the one fact that it does not require a great water tank somewhere at the back of the car with all its attendant complication of pipes to and from. Moreover, such a tank and its contents are very heavy, while the Mercedes radiator requires no separate tank, being in itself tank and radiator combined.

I am conscious that in approaching this matter I am performing a thankless, though self-imposed task, and I expect to be greeted from certain quarters with howls of derision. I am, however, encouraged to go on in the belief that the purchase of British motor-cars depends so much on broad-minded intelligence that there is more prospect of the British upper classes being weaned from cars of foreign manufacture, if they become conscious that there is at least a section of British makers who are alive to our shortcomings and who are willing to learn from those who can teach, and to copy, if need be, from those who at present lead, instead of feeling all the time that by supporting home industries they are being called upon to put up with the defects which may, and at the present time do, exist through drawing our cloak of insular exclusiveness around us, and falling into the good old British error of holding our enemy too cheaply. It is all nonsense to argue from a visit to the recent Paris Exhibition that we are regaining lost ground; it was only too painfully evident that we are doing nothing of the kind, and that we are farther behind than ever.

One personal explanation is necessary before I close. I am sure to be accused of calling "stinking fish," especially as I am interested in the sale and manufacture of an English car, the name of which it is not necessary to mention here. No claim has ever been made for that car that it is perfection, and no claim is now made that the car at present embodies in its construction the technical points which have been touched upon above. I may say, however, that after deliberation I am determined to avail myself of some of the improvements which I saw at the Paris Show.—Yours faithfully,

CHAS. SANGSTER.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Kingston ...	*W. Batchelor, Kingston	—	£2 etc.
" ...	*J. E. Barker, Kingston	—	"
Barnsley ...	*T. G. Reville Hathersage	35 m. p. h.	40s. "
London (Marlboro' Street)	A. Peard, Soho, W.	—	£3 etc.
Horsham ...	*W. T. Clark, Surbiton	29 m. p. h.	£1 "
" ...	*J. Tribe, Wandsworth	22 m. p. h.	£1 "
" ...	H. Sidney, Northumberland	36 m. p. h.	40s. "
" ...	W. Astell, Twickenham	22 m. p. h.	40s. "
" ...	C. E. Curtis, Wandsworth	21 m. p. h.	20s. "
" ...	G. Baker, Horley	20 m. p. h.	40s. "
Hull	W. Newcombe, Hull.	—	20s., etc.

Where no alleged speed is given it is understood to be above the legal limit.
*Motor-cycle cases.

In the case against T. G. Reville, at Barnsley, police-constable Davis said he saw the defendant flash past on a motor-tricycle at a speed of 35 to 40 miles an hour. Police-sergeant Newrick thought he was going 30 to 35 miles an hour. Tested as to his idea of speed the sergeant said he was a cyclist, and had ridden at a speed of fifteen miles an hour on the road, but he added that was before he joined the force.

At the Kingston County Bench, Wallace Batchelor and J. E. Barker, of Acre-road, Kingston, was summoned, at the instance of the Duke of Cambridge, the ranger of Richmond Park, for driving light locomotives there on December 20th at a greater speed than twelve miles an hour. Frank Gadrell, a park-keeper, said the defendants were racing on motor-cycles along the main avenues between the Kingston and Richmond Gates. Defendants denied that they were going more than twelve miles an hour. Batchelor said they were only testing the motors, and as they were not allowed to do it on the highway he thought it should be permitted in Richmond Park. Defendants were fined £2 each, or fourteen days' imprisonment in default.

ADOLPHUS PEARD, 20, of French nationality, living in Old Compton Street, Soho, was charged, before Mr. Kennedy, at Marlborough Street Police Station, on Saturday, with furiously driving a motor-car in Hyde Park. Constable Hawkes deposed that the prisoner drove a motor-car at a "terrific pace" over the crossing at Albert Gate, Hyde Park, and he (the witness), some ladies, and nurse girls had to jump out of the way to avoid being knocked down. After going about 20 yards he stopped, in response to his (the constable's) signal. When asked for his name and address, he replied, "Me won't give name and address, me belong to Lord Beresford." Through Mr. Fahrni, who interpreted the evidence, Peard said that owing to the slippery state of the roads he had to travel on the second speed, which was rather fast, owing to fear of the car skidding. Mr. Kennedy: He had better stop at home, then. This is a dangerous crossing. He must pay a fine of £3, with 5s., the cost of the interpreter's fee, or, in default of distress, go to prison for a month.

At the Horsham Petty Sessions, George Baker, auctioneer, of Horley, who pleaded not guilty to covering a quarter of a mile in 46 secs., or 20 miles per hour, said he knew when he was approaching the "happy hunting ground of the police," and he shut the engine down and had his foot on the brake the whole journey. When he saw the police he said, "You

have not got me to-day, Sergeant." The officer replied, "Yes we have. You were going 20 miles per hour." Witness was perfectly astounded. He questioned the accuracy of the watch. The Chairman said the Bench were of opinion that defendant was travelling at the rate stated. No doubt he was trying to go slowly. He would be fined 40s. and costs.

THE EDINBURGH AUTOCAR COMPANY.

A GENERAL meeting of the Edinburgh Autocar Company has been held for the purpose of having an account laid before the shareholders showing the manner in which the winding up has been conducted and the property disposed of. Mr. W. A. Middleton, C.A., liquidator, who presided, reported that the cash balance in bank and in hand at the date of liquidation was £154 3s. 4d. The cars in hand—seven in number—realised £965. The whole charge was £1,359 5s. 9d. A first dividend to creditors of 4s. in the £1 had been paid on claims amounting to £3,016 17s. 9d. At the close of the account there was a balance of £476 15s. 11d. The statement was adopted.

NO LIGHT.

J. G. BULTEEL, of Sefton Park, Stoke Poges, has been summoned at Slough for not having a light on the off side of a motor-car in the Stoke Road, on December 14th. Defendant said the lamp was alight a few minutes before he was spoken to by the police. He had only just come through Slough, and the lamp was burning then. The chairman said he would be fined 10s. inclusive.

WE hear that the Leeds Forge Company, of Leeds, is taking up the manufacture of stamped steel frames for motor-cars.

At a recent meeting of the Automobile Club of America, Mr. G. O. Shield gave a lecture, illustrated with lantern slides, on "Snow Slides in the Canadian Rockies," and also related some of his big game hunting experiences.

A RUMOUR is current in New York that the Winton car which will compete for the Gordon Bennett Cup will have four-cylinder engines and that they will be of the vertical type.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

VOL. IV.]

LONDON, SATURDAY, JANUARY 17, 1903.

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COMMENTS.

BARON HENRI DE ROTHSCHILD had a warm welcome from those who attended at the Automobile Club on Friday, the 9th; but it would have been more gratifying to the organisers of the event had the attendance been larger. As it was, several notable faces were absent, and we could not refrain from contrasting the scene with some of the gatherings that took place in past years at the old rooms in Whitehall Court. Perhaps the sense of novelty in the new surroundings had not sufficiently worn off so far as the *habitués* were concerned. Anyhow, the evening was well spent, and the Baron must be felicitated on the excellence of his paper, his delivery, and his English. His amiable manner and quiet humour were alike delightful; and the readiness with which he

responded to an invitation to give his views on certain points was much appreciated.

Himself a Victim.

PERHAPS it was hardly to be expected that he would be drawn into a reference to the Bill which the Club has fostered with regard to the labelling of motorists—like so many auction lots—but more's the pity. In view of the fact that on the same day he was reading his paper he was being fined and sentenced to imprisonment for alleged contravention of the Parisian motor-car regulations, he would probably have been able to have declared against numbering—as have so many of his French *confreres*. Anyhow, he did utter a word of warning against reckless driving that, coming from so distinguished a motorist, should re-assure the public as to the humane character of those who ride on vehicles propelled along ordinary roads by other than animal power.

The French Industry.

THE figures he gave concerning the commercial altitude reached by the French automobile industry were not new—but their frequent reiteration is necessary in seeking to convince the utilitarian Britisher as to the worldly wisdom of encouraging automobilism. Whereas the importation of motor-cars into France only rose from £15,520 in 1900 to £31,200 in the first ten months of last year, the exports rose from £290,360 in the former period to £1,062,040 in 1902. In Paris there are fifty-three firms manufacturing under-frames and motors, while in the provinces there are seventeen. Twelve thousand cars were made last year and 45,000 workmen were employed in their construction. There are, however, three times that number engaged in other departments of the industry.

Basis of Calculations.

In reading the foregoing figures it should be remembered that the value is calculated on the basis of 10f. (or 8s.) the kilogramme (of 2·2046 lb. avoirdupois), which is often greatly inferior to the selling price. Thus, a car weighing 500 kilos. would cost 5,000f. (or £200), and one of 750 kilos., 7,500f.

(or £300), and so on. The cars weighing 1,000 kilos. and the racing vehicles are often sold on the basis of 15f. to 20f. (or 12s. to 16s.) the kilo.

Motoring and Health.

HAVING practised as a medical man in France, Baron Henri de Rothschild was able to speak as an authority when he recommended a moderate enjoyment of automobilism as a powerful aid to good health. Taken in moderation, motoring can banish insomnia, revive jaded spirits, lessen the danger of nervous breakdown, and generally act as a "tonic" upon the system. But the violent driving in which many Continental motorists indulge for several hours at a stretch is inimical to healthy spirits and good mental order. Fortunately, in England we prefer catching sight of the country as we speed along, and the intervals of refreshment provide a break in the monotony of long and wearying rides.

The Midland Club.

ON Saturday the Midland Automobile Club held its first annual dinner at the Grand Hotel, Birmingham. Mr. J. Broughton Dugdale, the president, was in the chair, and after the health of "The King" had been honoured, proposed "The Midland Automobile Club." The object of the Club was for social enjoyment, and the mutual exchange of ideas between users and makers of motor-cars. At this time of the year they did not make such use of their cars as in the summer months, but it was the time when they endeavoured to correct some of those little failings they had noticed in the past; it was the time when they went about seeing what the world was doing in the matter of motor-cars. There were many present that evening whose faces he saw at the Paris Exhibition, studying what our competitors across the Channel were doing. He thought they would agree that our French neighbours took the lead in the matter of originality, while we showed them the way so far as good workmanship and strength were concerned. It was the desire of every member of the Club that he should make no enemies on the road. In the county of Warwick they were not so much troubled as to speed limit as motorists in other counties; but, assuming that there was a speed limit, he took it that the right speed at which one should travel on the road was, not the highest speed at which safety could be secured, but the speed at which there would be no annoyance to any other person using the road. This was what they should encourage as a Club concerned in the welfare of automobilism. Another thing which was to be aimed at was silence in the driving of motor-cars.

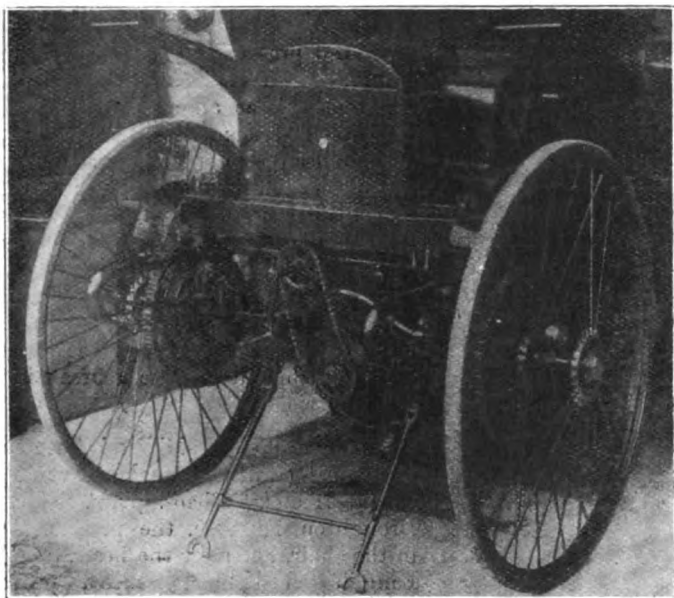
French v. English.

WITH the toast was associated the name of Mr. Frank Lanchester, who, in replying, said they had got through their first season successfully, and they might consider they had a long and useful life before them. Mr. C. Vernon Pugh proposed "The Visitors," coupling with it the name of Mr. Shrapnell Smith. Referring to the chairman's remarks anent the Paris Exhibition, Mr. Pugh said that what struck him as remarkable about it was not the originality of the French makers, but their faculty for copying, and he returned with a very high opinion of the exhibits of the English makers. The other toasts were

"The Press" and "The President," the latter being submitted by Mr. J. D. Siddeley. During the evening the medals won in the hill-climbing competitions at Gorcott Hill and Weatheroak Hill were presented.

Sprags.

IN turning over some papers the other day we came across the interesting photograph reproduced herewith. It represents one of the early Peugeot cars which formed the pioneer stud of Sir David Salomons, Bart. The photo was taken in 1895; at that period the Peugeot Company employed *cliquets* or ratchet wheels on their cars to prevent them running



back on a hill, owing to the motor stopping or the driving missing the gear in changing speeds. At that time no other maker used a device of the kind. Sir David met with a slight accident due to melting snow on a steep hill when the "*cliquet*" did not act. As a result he devised the arrangement shown in the illustration to avoid such troubles in future. It was the first application of the *bequille* or sprag to a motor-car and resulted in its adoption by French motor-car builders universally. It is curious to observe that though this was the first attempt, the system is better and safer than that one now usually sees.

Motor-cars in Sleet and Slush.

NEW YORK has just passed through a severe sleet storm lasting for several days, which greatly impeded traffic of all kinds. One morning a few days ago the streets were completely covered with a layer of ice an inch or more in thickness. The elevated electric railway system was completely paralysed and the tramcar traffic much delayed. A few days later, when the streets were covered with several inches of snow and still very slippery, double teams were generally employed on all horse-drawn wagons. This occurrence reminds us, remarks the "Horseless Age," that horse traffic is not nearly so immune to weather conditions as is usually supposed. Extreme heat and extreme cold both impede such traffic, sometimes rendering it almost impossible. Whatever may be said in regard to the limitations of the automobile in cold weather, the average motor-car in use on city streets is at present much more independent of blizzards and sleet storms than the horse. This has been quite conclusively proved on one or more occasions during each of the last several winters. Again, in the late storm, when horse traffic was much reduced, in quantity as well as in speed, motor-cars could be seen running about at their usual speed and in the same numbers as customary at this time of the year without apparent difficulty. The electric cabs continued their service and were

patronised more than usually, owing to the uncertainty of horse cab service under such conditions. No doubt many of those who still regarded the motor-car as a fad and a toy somewhat changed their opinion when they saw these vehicles glide along as on a summer's day under conditions that proved almost fatal to horse traffic.

Where to Slow Down.

NOTICE boards, indicating where slow speeds are necessary, are to be placed on certain portions of the Portsmouth road by the Automobile Club. In granting permission to this innovation, the Surrey County Council has shown a wisdom that may some day permeate the members of the county bench. Messrs. A. Harmsworth, Campbell Muir, and C. Johnson have been appointed a sub-committee to make recommendations as to the points where the provision of such boards is desirable, and we understand that suggestions from local motorists will be welcomed, while members of the Club living in the neighbourhood of the Portsmouth road will be co-opted on the sub-committee.

Ireland's Welcome.

THERE is no doubt that a hearty welcome would be given to automobilists should it be found practicable to run the Gordon Bennett race in Ireland. Already the County Councils are bestirring themselves with a view to the improvement of the main roads, and at a meeting of the Westmeath County Council a resolution has been unanimously adopted to the effect that "should the International race of 1903 take place in Ireland, and a route be selected embracing any portion of the County Westmeath, this Council will gladly facilitate the promoters in every way in its power." Mr. W. P. Kelly, who proposed the motion, said it had been suggested to him that it would prove of great advantage. Though it might so happen that it could not be held in the vicinity of Mullingar, still it would be an advantage to the whole country, no matter where it was held.

Railway Policy.

ALTHOUGH the dealers in motor spirit have agreed "under protest" to conform to the regulations of the railway companies with regard to the carriage of petrol, the matter must not be considered as finally closed. We have received a report of the conferences held between the trade and the companies, together with the reply of the latter to the former, and cannot fail to recognise how unsatisfactory has been the result—according to the view of those engaged in the business. But the companies, must not be too severe, for the automobile industry is a growing one, and the day is approaching when it will probably rival the railway interests of the country. To make that progress difficult may be a policy that is good for a season; but it cannot be to the ultimate interests of the shareholders.

Electrical Automobiles.

At a meeting of the Institution of Civil Engineers on Tuesday evening last, Mr. H. F. Joel, Assoc. M. Inst. C.E., read an interesting paper on the subject of "Electrical Automobiles." The rules of the Institution preclude us from publishing the paper *in extenso*, but we give an abstract of it in another part of the present issue. Those interested in the question of the electrical propulsion of motor-cars should endeavour to obtain a copy of the paper, as it contains in a condensed form a vast amount of useful information. Especially does this remark apply to the appendix, which gives, in tabulated form, particulars of early and recent electric vehicles; the great progress made during the five years 1896-1901, in the use of electricity for propelling carriages on roads; recent examples of long distance runs on one charge; the results of tests and trials; and a comparative statement of the working costs of various methods of propelling road-vehicles—including a London horse-drawn "growler," and petrol, steam, and electrical carriages. The table showing the progress

of the latter is exceedingly interesting. For example, Mr. Joel shows that whilst in 1896 the weight of a battery to give 2-b.h.p. for six hours was 21 cwt., it is now only 7 cwt., the efficiency, too, having increased from 70 to 90 per cent. Motors have been reduced in weight, as has also the total weight of the vehicle, while the annual cost of maintenance and the charges for current have been materially reduced—all points in favour of an impetus being given to the use of the electrical motor-car.

University Clubs.

ALREADY we have chronicled the formation of an automobile club in connection with the University of Cambridge. Now comes news of a similar development at Oxford, and as the name of Mr. W. L. Creyke, who purchased M. Serpollet's famous car, renaming it the "Easter Egg," is associated with the matter, its progress should be rapid. In thus popularising the automobile at the great Universities good work will be done and we wish well to both clubs. Possibly an inter-University automobile race meeting will be one of the results of the new enthusiasm thus being awakened at Oxford and Cambridge.

Educating our Rulers.

DURING the last few days the Automobile Club has issued to members of the Houses of Parliament, and of the County Councils, a Blue book containing speeches by Sir Francis Jeune, K.C.B., the Rt. Hon. the Earl of Onslow, G.C.M.G., and the Rt. Hon. Henry Chaplin, M.P., at the Club's dinner in 1901. The results of the brake trials at Welbeck Abbey a year ago and the memorial of manufacturers of motor-cars to the County Councils some time ago are also given. Thus continuing its educational work, the Club is rendering useful service in demonstrating to influential people the absurdity of the legal limit—necessary, perhaps, at the time it was adopted, but which has since proved a means of handicapping the development of the industry.

A Legal View.

LEGAL authorities are awakened to the difficulties under which motorists travel, and the "Law Times" thinks "that the time has come when the limit should be largely extended or abolished altogether in the case of light locomotives, provided due safeguards were forthcoming." Then our contemporary, unfortunately, advocates the "identification of motors by means of a number." But it is not altogether in favour of the official view urged from Piccadilly, for it describes the proposal of the Automobile Club to give a right of appeal to the High Court in the case of a conviction as "such a drastic innovation upon the whole of our criminal procedure that it is hardly likely to become law." In fact, it is, according to our contemporary, "in no way desirable. An appeal lies to quarter sessions upon the facts and to the High Court upon the law, and this should be sufficient even for the most ardent motorist."

The "Globe" Against Numbering.

WRITERS in the general press are now joining in the crusade against the labelling of motorists, and the "Globe" writes:—"The supporters of the proposal to number all motor-cars are wont to point to the fact that the system has been adopted in France, where, of all countries in the world, the automobile movement most flourishes. It is, therefore, instructive to note that the editors of the 'Auto Velo' and 'La France Automobile,' the two most influential automobile journals on the Continent, have both declared that the system has proved a failure. In an article in the *Motor-Car Journal*, M. Georges Prade, the editor of the 'Auto Velo,' after describing the system and the frequent injustice that it entails, sums up the situation by saying: 'Thus it is that numbering in France has had the result of making reasonable law-abiding drivers suffer and scorchers go scot free, with the result that numbers of the former have decided to give up motoring rather than subject themselves to such trouble, risk, and annoyance.'

Motor-Car Imports and Exports.

THE returns now available relating to the British imports and exports of motor-cars and cycles during December last show a decrease as regards the imports, and, on the other hand, an increase in the case of the exports. To deal first with the imports, 170 cars and cycles were imported into this country last month, the value of the same being returned at £57,292. The value of the "parts thereof" is given as £5,181, so that we get a combined total of £62,473, as compared with £91,462 in November last. Some of these imports were only of a temporary character, being re-shipped to foreign destinations. Thus last month the re-shipments comprised thirteen vehicles, amounting in value to £5,376, and £1,072 of parts, bringing down the net imports in December to £56,025. During the whole of the past year the imports of foreign automobiles and parts into Great Britain reached a net total of no less than £1,045,689, representing over 3,700 cars and cycles. As regards the exports of automobiles of home manufacture, the shipments during the past month amounted to the respectable total of eighty-three vehicles of a value of £29,747. Of parts, the exports attained a value of £3,648, making a combined total for December of £33,395, as compared with £15,635 in November last. It is satisfactory to find that during the past year no less than 414 British-built motor-cars and cycles were exported, their value being roundly £155,000.



WHAT HAPPENED IN THE INTERVAL?
Das Schmaufert, Munich.

Eastern Counties Automobile Club.

SIMULTANEOUSLY comes the news of the formation of an automobile club for the Eastern Counties, and the decision of the Essex County Council to urge upon the Government the necessity of giving immediate attention to the present state of the law with regard to automobiles. We regard the formation of the East Anglian club as a matter of necessity and importance. Hitherto there has been no local organisation to watch the interests of automobilists in the counties east of the Metropolis: but now we hope the new society will watch the proceedings of local bodies and do what is possible to convert the prejudiced attitude of many county people into a recognition of the advantages of the motor-car. The inaugural meeting of the proposed new Club was held at the Great White Horse Hotel, Ipswich, and upon the resolution of Mr. E. C. Sayer, seconded by Dr. Moseley, it was decided to form the Eastern Counties Automobile Club and to confine the membership to motorists in Norfolk, Suffolk, Essex, Cambridgeshire, and Huntingdonshire.

The Preliminary Meeting.

AT the preliminary meeting Mr. F. L. Bland presided, and Mr. W. T. Pretty, in pointing out the utility of the proposed new Club, said it might do much useful work in looking after the roads—in which direction there is much room for improvement in the Eastern Counties. Among those who wrote express-

ing agreement with the project and regret at inability to attend the meeting were Mr. Stuart Ogilvie, J.P., the owner of the splendid touring car recently described and illustrated in our columns; Mr. Lindsay Scott, Major Carthew, Major Howey, Rev. H. Wilkinson, Dr. Whitwell, and Dr. Rowe. Mr. J. R. Egerton consented to undertake the secretarial work of the club, to which we wish all success. Local motorists interested in the matter should address him at 80, Christchurch Road, Ipswich.

The Lessons of the Paris Show.

was a time when Mr. Sangster was more sceptical as to the future of the motor-car than he is to-day. Unfortunately, considerations of space prevent us giving publicity to all these letters, which necessarily cover the same ground; but Mr. Bidlake's reply, published on another page, serves to confine the subject to its original limits.

Horses' Loads and Gradients.

A CASE heard at Greenwich, in which two carmen were summoned by the police for cruelty to horses, is not an isolated one. The Rev. A. E. King, vicar of Sydenham, said he passed two coal drays on an incline at Forest Hill. The drays were overloaded, there being, he calculated, three tons of coal on each. The horses were greatly distressed, and they appeared to be too exhausted to pull the loads up the incline. One dray had broken down, and the horses in the other were being severely beaten about the neck. Mr. John Bell, F.R.C.V.S., said he knew the horses well and considered there was nothing improper in loading them as described. They ought to be able to draw four tons, and three tons would be an easy load. The gradient at the place in question was 1 in 20, and they ought to take a load up 1 in 14. The question of the capacity of horses for drawing heavy loads has rarely been considered in ordinary distributive methods. In such heavy work there is ample scope for the automobile; and its general adoption will prevent the possibility of such incidents in the future.

Look After Your Car.

periods of keen frost. The constant care to drain tanks, pipes, radiators, etc., of the last vestiges of water when the car is put away for the night—all have been omitted for a long time. But now that Jack Frost is about they will have to receive attention again, and it will be the part of wisdom to make preparations in ample time. As regards the prevention of burst pipes, etc., glycerine added to the water in the proportion of about 20 per cent. is the preventive against freezing chiefly recommended, while chloride of calcium has also its advocates. The latter is a solution of calcium chloride in the proportion of 5 pounds dissolved in each gallon of water. There is no danger of clogging the pipes with this salt if pure water is added for that evaporated.

The Church and the Car.

VERILY the possibilities of the motor-car are endless. In the United States popular evangelists employ the automobile when on revivalist tours; English bishops have reached distant churches in good time by its aid, and army chaplains have preached from behind the steering-wheel of a motor-vehicle. Now the motor-car is suggested as likely to solve some of the difficulties of the Church in the sparsely-populated and poorly-conditioned rural districts. Often the livings are poor, and horse and carriage are beyond the imagination of the incumbent. But with the

motor-car, what will he not do? Here is a hint to a new way of helping the clergy.

Petrol Motors for Industrial Purposes.

A NOTICEABLE feature of the recent Salon in Paris was the growing use of petrol motors for industrial purposes, such as driving dynamos, pumps, and small workshop plants. For such purposes the petrol motor is especially adapted, and we consider that more attention might usefully be devoted to such applications in this country. One or two firms have, we are glad to note, already made a start in the direction named, among them being Messrs. Merryweather, the fire engine builders, who send us particulars of a combination petrol motor and fire pump recently installed at Hollybush Hall, near Burton-on-Trent. It is employed for filling the water tank for service to the house and to the gardens, and can also be used for throwing powerful jets for fire extinguishing. The pump and motor are bolted to a rigid base plate, so the whole machine is self-contained, and a friction clutch is fitted so that the motor may be started and the pump subsequently put into action. Motor-cars are now becoming so popular with country gentlemen that the employment of an engine such as is used on a motor-car offers an attraction on account of its being readily understood, and, what is more important, on account of the quickness with which it may be put into action on the discovery of a fire.

The Gordon Bennett Race.

SPEAKING at the annual dinner of the Motor Cycling Club on Wednesday evening, Mr. S. F. Edge made the important announcement that it now only remains for Parliament to pass a short measure to enable the 1903 Gordon Bennett Race to be run in the United Kingdom. Mr. Edge had returned from Ireland that morning, after driving over the proposed course. As a result he was able to report that there could be no objection to the course, it being in every way suitable. The suggested route is a circular one of about 137 miles—from Naas via Kildare, Maryborough, and Stradbally, to Athy; then via Kilcullen and Carlow to Athy again; and back to Naas, through Kilcullen.

ON Monday the Wolverhampton Automobile Club held its second annual meeting.

THE Mercedes Daimler Motor Company, Limited, has been registered with a capital of £2,000.

THE Swansea Corporation has decided to obtain tenders for the supply of a motor-wagon for municipal work.

THE Coupe de Pioule, which should have been run off on Sunday last, was at the last moment forbidden by the Prefectural authorities of the Department of Var.

THE PRINCE OF WALES has ordered a 22-h.p. Daimler car similar to the King's car which was exhibited at the last automobile exhibition at the Agricultural Hall, London.

MR. PIERPONT MORGAN, junr., has been to Coventry during the past few days, and has visited several places of industry in the city, including some of the motor works.

M. SERPOLLET is back again in Paris from his trip to the South of France. The last day's journey was from Brive to the capital, a distance of 317 miles—not a bad day's work at this time of the year.

IN connection with the Reliability Trials to commence on September 4th, the classification will be as follows:—Class A, up to £200; Class B, £300; Class C, £400; Class D, £550; Class E, £700; Class F, £900; Class G, over £900.

MESSRS. SHIPPEY BROS. call our attention to an error in the price of the Toledo cars in their advertisement last week. This should have read Doctor's Ideal at £220, instead of £235. If fitted with removable hoods, the price is £245. They also inform us that they have appointed the Victoria Carriage Works, of 24-26, Long Acre, W.C., as sole agents for London and a twelve-mile radius for the Toledo steam-cars.

The Velox 12-h.p. Four-Cylinder Car.

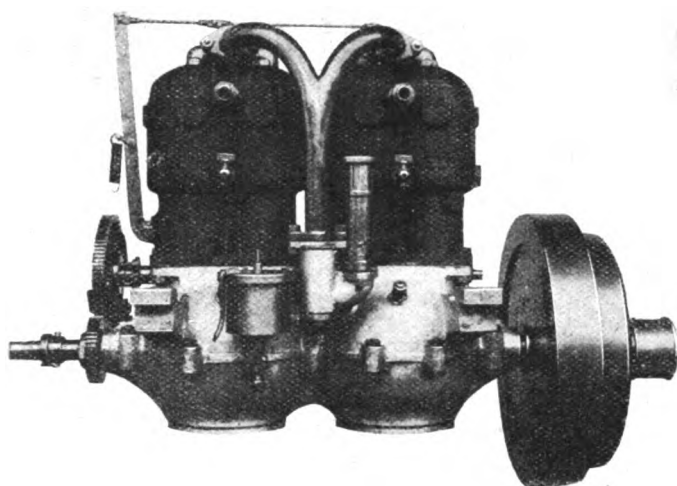


FIG. 1.—GENERAL VIEW OF MOTOR—INLET-VALVE SIDE.

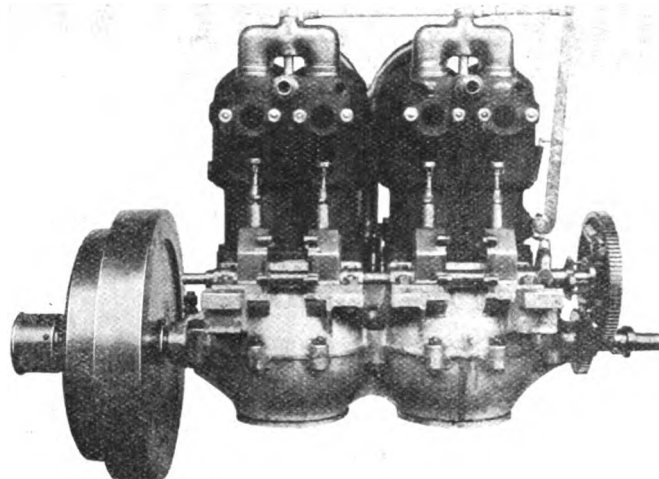


FIG. 2.—GENERAL VIEW OF MOTOR—EXHAUST-VALVE SIDE.

IN designing the Velox 12-h.p. four-cylinder car, illustrated herewith, the Velox Motor Company, Limited, of Coventry, inform us that the main objects in view have been to obtain a thoroughly reliable and fast car, of ample wheel base and with full and commodious seating capacity. In order to diminish the wear and tear on the tyres, the weight has been reduced to the greatest possible extent consistent with safety and durability. The frame of the car is of the company's special design, giving absolute rigidity and strength combined with lightness. The main frame is of tubular construction. The upper portion is

which are held in position by one nut. The whole of the moving parts are completely encased, being thereby both dust-proof and oil-retaining. The crank case is of aluminium and is carried direct on the outer tubes of the frame, no false *chassis* being employed. The usual form of electrical ignition is adopted the contact breaker being driven by a chain, which can be adjusted without affecting the timing of the engine. The radiator is fitted with header plates and is arranged like a water-tube boiler, the radiating tubes being of the latest pattern. It is fitted in front of the bonnet and can be

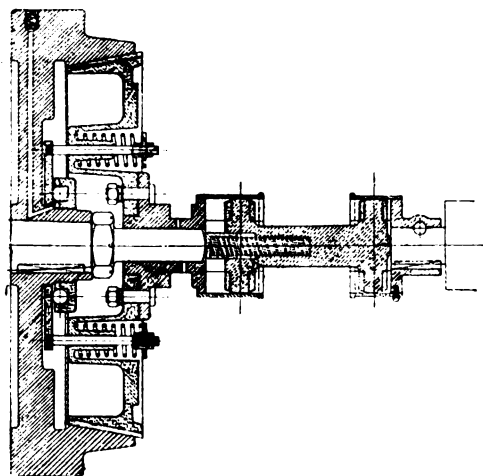


FIG. 3.—SECTION OF VELOX FRICTION CLUTCH.

rectangular, with four cross members in the same plane as the two side members. It is stiffened at each side by stays, which brace its two ends to short downwardly-projecting tubes.

The vertical motor (Figs. 1 and 2) has four cylinders, $3\frac{1}{2}$ in. bore by 4-in. stroke, and, while nominally rated at 12-h.p., develops 16-h.p. on the brake at a speed of 900 revolutions per minute. It can be accelerated to 1,500 revolutions per minute without causing undue vibration, owing to the manner in which the balancing of the reciprocating parts has been carried out. A governor acting on the throttle is fitted, a hand-accelerator being also provided. The cylinders are cast in pairs, the dome tops of

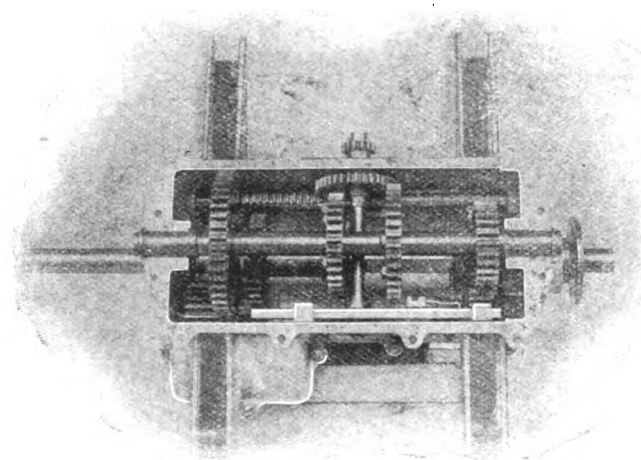


FIG. 4.—THE CHANGE-SPEED GEAR.

instantly detached by the removal of the two water connections and the two holding bolts. A fan, driven by the motor, is provided behind the radiator; its use renders the cooling more efficient, as it induces a strong current of air even when the car is stationary whilst the motor is working. The pump for circulating the cooling water is gear-driven. The water tank forms the front apron of the car, and, being immediately adjoining the radiator, only short lengths of piping are required.

The clutch (Fig. 3) which connects the engine with the gear box is of aluminium covered with leather; it is self-contained in the fly wheel, and by a special device the whole of the end thrust is

D

claimed to be removed. Between the clutch and the gear box a universal joint is provided, which affords special facilities for alignment. The speed-change gear (Fig. 4) gives four speeds forward and one reverse, all operated by one lever, the drive being direct on the highest speed. The gear is on the well-known lines of sliding pinions, the teeth being rounded for engagement and case-hardened. The frame to which the gear box is attached is of a special design, permitting the universal joints between the engine and the axle gear box to be detached with the least possible trouble, after which it is only necessary to remove four nuts to lower the whole of the speed gear to the ground. From the gear box to the rear live axle (Fig. 5) the power is transmitted by a universally-jointed



FIG. 5.—THE REAR AXLE.

shaft and bevel gear. The universal joints are of special design, in which cross pins or similar devices have been dispensed with. Each end of the longitudinal shaft is fitted with a dust-proof and grease-retaining universal joint. A further improvement is a patented "spring and pin" drive, which it is claimed absorbs all shocks to the transmission teeth and threads; the spring does not take the whole of the drive but simply the first shock, after which it is thrown out of action. The hubs of the road wheels are not keyed on to the rear axle but fixed by large squares and held in position by castle nuts. The axle is fitted with a torque box on either side, which prevents excessive strain being thrown on the springs and on the universal joints when the clutch is suddenly

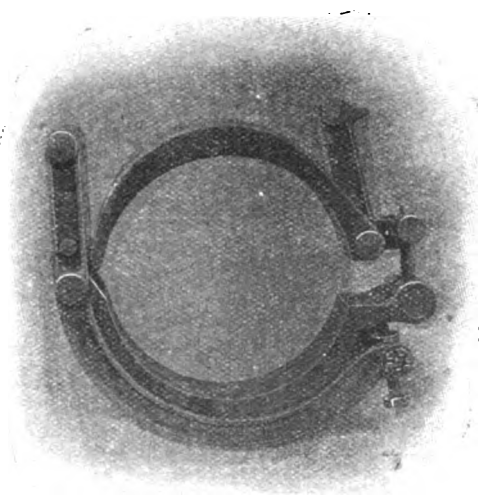


FIG. 6.—THE PEDAL-OPERATED BAND BRAKE.

thrown in for starting the car. In addition to this, the design of the frame controls the moving of the axle by means of the rods. The torque boxes are fitted with large rubber pads, admitting of the employment of exceptionally light springs without fear of the mechanism bumping against the upper portion of the car when being driven over rough roads.

The steering (Fig. 7) is of the worm and segment type, enclosed in a tight box and affixed to the frame by a patented method, whereby not only the inclination of the steering column can be adjusted but the steering wheel itself can be raised or lowered like the handle bar of a bicycle. Two road-wheel brakes operated by a hand lever and one foot brake (Fig. 6) are provided, all being double-acting. There are three pedals, one to operate

the clutch, one for the brake on the longitudinal shaft, and one for accelerating the speed of the engine. The latter works in conjunction with a hand sector whereby any engine speed can be obtained. The road wheels are of the artillery pattern, all being 32 in. in diameter by 3½ in., and shod with pneumatic tyres. The petrol tank has a capacity sufficient for a run of 150 miles, the average consumption of the motor being one gallon per 25 miles, on ordinary roads. A special feature is made of accessibility, the body being divided about 12 in. behind the dashboard, and as this is hinged at the rear portion of the frame, it can be easily swung for the purpose of gaining access to the whole mechanism of the car. The following are the principal dimensions of the vehicle:—Extreme

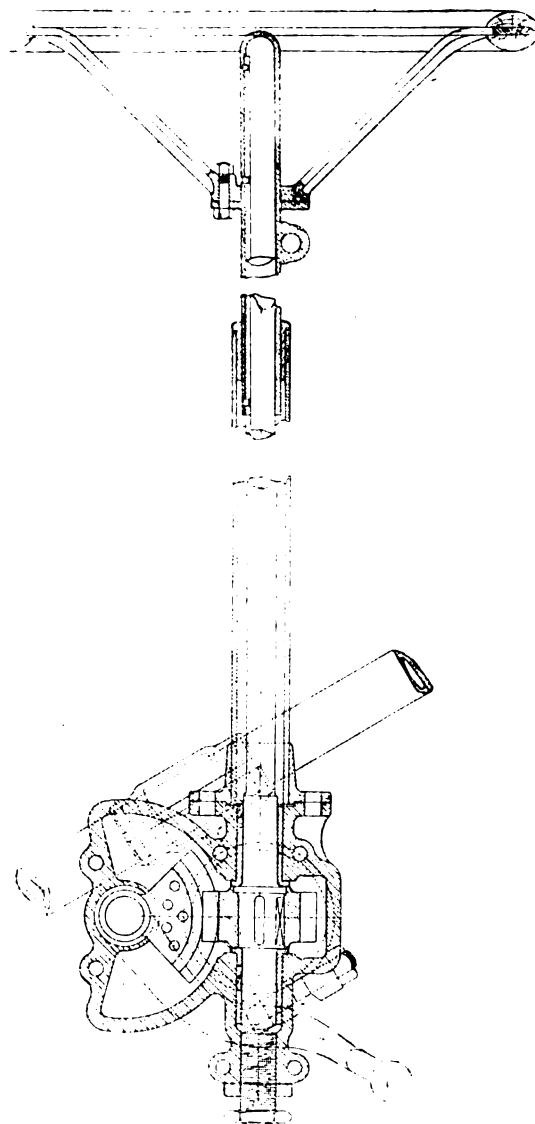


FIG. 7.—SECTION OF ADJUSTABLE STEERING PILLAR.

length, 12 ft.; width, 4 ft. 9 in.; height without hood, 4 ft. 6 in.; wheel-base, 8 ft. 6 in.; track, 4 ft. 3 in.; height of frame from ground, 2 ft.; clearance of lowest portion of mechanism from ground, 9 in. The total weight, with the standard *tonneau* body to carry four passengers, is about 16 cwt. The motor develops 16-b.h.p., which gives one brake horse power per cwt., and as the car is not excessively geared, excellent hill-climbing capabilities are ensured.

WHILE Thomas Adams, of Hamilton, was driving a motor-car on the Tollcross Road, Glasgow, he accidentally drove into the foremost of four carts loaded with sand. One of the shafts of the cart struck him on the chest, and the force of the impact was so severe that he was killed almost instantaneously.

SOME USEFUL NOTES.

WE shall be glad to receive contributions for this column from motorists of experience. Suggestions and hints, briefly expressed, may prove valuable not only to novices, but also to many who have passed the early stages of practical automobilism.

THE brakes of a motor-car may in various respects be compared to the safety valve of a steam boiler. Both are safety appliances, and must, to be reliable, be adjusted perfectly and kept in perfect repair. In stationary steam plants the safety valve is periodically lifted off its seat by the engineer or fireman to insure its not sticking to the seat by rusting, and thus giving a false sense of security. Similarly the brakes of automobiles, especially those running in hilly districts, should be examined periodically by their owners.

Now that the bad season has set in, motorists have to resign themselves to stabling their car for a longer or shorter period, and should follow the advice given by Messrs. Michelin as to the care to be given to pneumatic tyres during the winter. As a rule, towards the end of the season motorists are less particular about the condition of the tyres on their cars, and less anxious as to sending them to be repaired directly they show any signs of wear. In fact, many delay sending them to the manufacturers until they cannot run any longer. Others take off the tyres, wrap them up carefully, and put them away according to all the rules for good preservation laid down by makers. And when the fine weather returns and they wish to "motor" again, they are surprised to find that the tyres cannot be used till they have undergone some repairs; and consequently they have either to wait till these repairs are executed or buy new tyres. It is much more simple, in order to prevent this contingency, to send all faulty tyres to the repairers at once. The repairs will be done much quicker now than in the spring, when motor tyre repairers will be overwhelmed with orders, and besides, the tyres will be preserved just as well during the bad season after they have been repaired.

ALWAYS look at both sides of a punctured inner tube, to ascertain whether the puncturing object has penetrated the under as well as the upper portion of the tube, and thus perhaps save yourself a second dismantling of the tyre.

THE admission and exhaust valve should work freely, and need very little attention. Through too free oiling or too rich a mixture they may become clogged with soot, when the valve should be removed and washed in paraffin or petrol. The spring should be freed, and the valve turned several times on its seat by means of a screwdriver, adding a drop of paraffin. Should the seating of the valve show a bright ring all round its circumference, the valve and seat may be replaced, but if this bright ring does not show, the valve must be ground in with the finest emery flour and oil, and the whole carefully wiped clean and replaced.

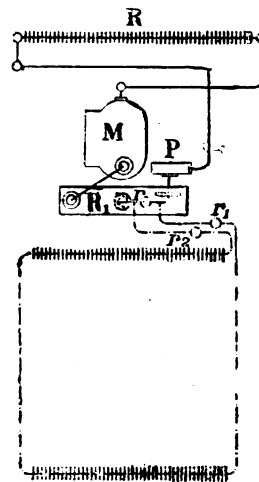
WHEN a punctured inner tube is removed for repair, pass the hand round inside the cover in order to feel whether the puncturing object remains imbedded in it. If it can be found, it serves at once as a guide to the position of the hole in the inner tube, and by removing it you escape the risk of the same object inflicting a second puncture at or near the former place.

IN California, which is at the present time "a land of sunshine and flowers," more than 600 motor-cars are at present in use, two-thirds of which are in San Francisco. In the annual floral fete, the Tournament of Roses, held at Pasadena, on New Year's day, decorated automobiles played a prominent part.

FOOTWARMERS FOR WINTER USE.

WHILE a spin on one's car during the winter is most exhilarating, there are many motorists who suffer from cold feet. To overcome this difficulty, M. J. Ramel, of Fismes (Marne), has, states *La Locomotion*, fitted to his car the arrangement shown in the accompanying drawing. As will be seen, it consists of an extension of the water-circulation pipes, the water heated by the motor being made to circulate under the floor of the car. Small grids are provided at the places where the passengers' feet rest, and to increase the heat radiation, the portions of the pipes under the grids are provided with radiating fins. Suitable valves are fitted, so that the water circulation under the body portion of the car may be opened or shut off as desired.

Since the above was written, we learn that a similar arrangement has been fitted to a number of cars in this country by Messrs. Hewetsons, Limited, the agents for the Benz cars. A tap is inserted in the water pipe leading from the engine to the tank; a branch is taken from this pipe on one side of the tap, and is led to a grid, made of copper tubing, placed on the footboard of the car, thence returning to the other side of the tap above referred to. By shutting off this tap the water is made to travel through the copper pipe forming the grid, the heat given off from this keeping the feet of the passengers warm. If it is required to



M, motor. R., water tank. P, pump. R, Radiator. r1, and r2, taps.

throw the footwarmer out of action it is only necessary to turn the tap, when the water will return direct without passing round the grid. Messrs. Hewetson inform us that they have found from experience that the best position of this grid is a few inches from the floor of the car, so that the feet can be placed, not on it, but beneath it, the feet being kept warm from above and not through the soles of the boot, as is generally the case. The arrangement, in conjunction with a rug or apron, will keep the occupants on the front seat of the car perfectly warm, even during severe weather. Of course, a similar grid can be provided in the tonneau at the back of the car. The arrangement can be fitted at a very small cost, and has also the advantage of helping to keep the water cool, acting as a radiator as well as a footwarmer. The device has been fitted on several cars by Messrs. Hewetson, and has been much appreciated.

THE MOTOR TRUST, LIMITED, is being wound up voluntarily, with Mr. W. H. Alexander, of Liverpool, as liquidator.

MESSRS. F. A. HENDY AND CO., LIMITED, of Southampton, are now getting supplies of petroleum spirit down from London by means of a traction engine.

THE motor-car movement is making slow but steady progress in Portugal, returns just issued showing that sixty-nine cars were imported into the country during the last six months of 1902.

THE ROCHET LIGHT CAR.

FOR the 1903 season the Rochet Company, of Paris, are introducing a new light car, of which we are able to publish a general view (Fig. 2) this week. The frame is constructed of U steel; it carries in the fore part a single-cylinder Aster motor developing 6-h.p., the diameter of the cylinder being 88 mm., and the stroke 100 mm. The usual form of electrical ignition is adopted, while the mixture is furnished by a spray carburettor of the company's own design. The water circulation for the cooling of the motor is on the thermo-siphon system. The engine is provided with a governor acting on the admission; an "accelerator" is also fitted, by means of which the speed of the motor can be regulated as desired.

Coming now to the transmission, three speeds forward and a reverse are provided, these being all actuated by a single lever. The engine is connected to the gear-box through a cone clutch, the power then being conveyed to the rear live axle by a universally-jointed shaft and bevel gear. A section of the change-speed gear is given in Fig. 1, from an observation of which it will be seen that on the top speed the power is transmitted direct, none of the gear wheels being in action. E is the male portion of the clutch connected with the motor fly-wheel; it is mounted on the end of the shaft F, which also carries a sliding train of pinions. On the side shaft G is a second sliding train, the object of which is to unmesh all the pinions on F when driving on the top speed. The fork which controls the sliding train, AB, is rigidly connected to the lever H; on the latter is loosely mounted

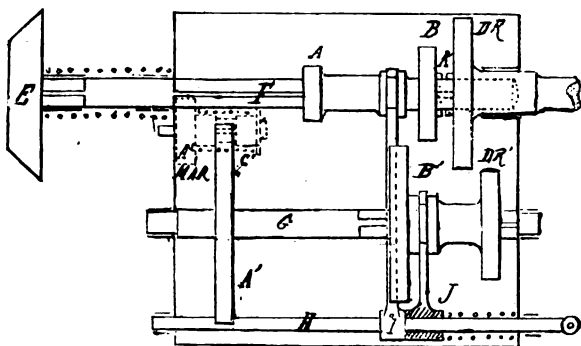


FIG. 1.—THE ROCHET CHANGE-SPEED GEAR.

a fork, which controls the train B', DR; it is, however, kept in contact with the fork J by a spring, which tends to force B' DR' to the left. The gear train B' DR is limited in its movement to the left, first by the piece I, the position of which is determined by that of the train AB, and secondly by the end of the square portion of the shaft G. When in the latter position the pinion DR is in mesh with that marked DR', which is mounted on a sleeve on the shaft. To give the first speed, pinion A is connected with A' and DR' with DR; for the second speed, B meshes with B', DR' still being connected with DR. The third, direct, speed, is obtained as shown in Fig. 1, the sliding train on the shaft F being moved to the right until the jaw clutch K is brought into contact; the train B' DR' is simultaneously moved to the right, and all the pinions disconnected, so that the shaft G no longer rotates. To obtain the reverse motion, the upper sliding train is moved to the extreme left until the pinion A meshes with that marked A'; at the same time the side of pinion B is brought into contact with the small gear wheel C', and pushes it to the left until it meshes with A'; the power is then transmitted in a reverse direction through pinions A, A' and C', A', DR' and DR.

Inclined wheel-steering, hand and foot double-acting brakes, and other features of the little car, which is mounted on cycle-type wheels shod with 700 mm. by 85 mm. pneumatic tyres. It weighs about 9 cwt., and can attain a speed on good roads of 25 miles per hour. We may add that the agents for the Rochet cars in this country are the British and Foreign Motor-Car Company, Limited, of Liverpool.

CONTINENTAL NOTES.

By "AUTOMAN."

ON January 1st, 1902, the 1,000-kilogramme limit of weight for heavy racing cars came into operation on the mandate of the Racing Committee, backed up by the full Committee of the A.C.F., and in one short year the automobile industry has been transformed as if by magic. The creation of monsters has practically ceased, and the efforts of experts have been directed into strictly utilitarian lines. The problem has been to find the minimum weight with the maximum horse-power. I leave out of the question the factor of safety, because common-sense dictates that in order to race for hundreds of miles and arrive at the winning-post, safety—that is to say, strength—is of the first necessity. It is quite safe to estimate that without this racing rule it would, in the ordinary course of events, have required ten years to bring about this transformation, and during this time many makers going on wrong lines would have had to face severe losses; whereas to-day the lines are clear and well defined, and those who follow them closely can be sure of success. The days of phenomena are past, the type which has survived all tests is established, and improvements on this type are being narrowed down to matters of detail.

In order to continue the good work which it has begun so well there is another step to be taken by the A.C.F., and that is to fix the dimensions of the motors to be used in the great races. The idea has already been advanced by the "Auto-Velo," whose quarter of a litre contest I explained last week, and now it has been officially brought before the Chambre Syndicale de l'Automobile, and may become a part of the "Circuit" which they are organising for the summer season. No new rule could be more beneficial to the trade, for it will enable one to judge with precision the relative merits of the methods applied by different makers. For instance, in order to have a certain volume in the cylinder, the stroke and bore may be varied almost indefinitely. Some makers claim that equality in bore and stroke gives the best result; some, on the other hand, prefer a long stroke and a small bore, whilst others again adopt a wide bore and a small stroke. It is almost impossible to tell which of the three systems is the best, for in almost every case the volume varies. If, however, in a big race the volume is fixed beforehand, one will be able to judge fairly accurately and choose the best arrangement.

THE Chambre Syndicale de l'Automobile has decided to organise a "Circuit," which is to be run on the lines of the "Circuit des Ardennes," which, it will be remembered, was run late last summer, and won by Mr. Charles Jarrott. The French race is also to be run in the "French Ardennes," which must not be confounded with the Belgian Ardennes. The course will be 400 kilometres long, or practically 250 miles, and the event will take place during the early part of July, without any controls or "neutralisations," on the roads situated between Chalons, Sainte-Menehould, and Vouziers. The idea is to limit the classifications by the volume of the motors, and to use the following rule: 1½ litre for each cylinder of the two-cylinder cars, and 3 litres per cylinder for the four-cylinder cars. The Belgian Circuit des Ardennes will be held in June or July, and there are already thirty-six entries, including Baron Piere de Crawhez (Panhard), Baron Piere de Caters (Mors), Mr. C. Jarrott (Napier), Bertrand (Panhard), Charron, Girardot and Voigt, Count Zborowski (Mercedes), Mr. Mark Mayhew (Napier), and Mr. S. F. Edge (Napier).

THE Criterium of Consumption, organised by the "Auto-Velo," takes place on February 19th, unless its date interferes with the Pau races, in which case it will be held a few days earlier. The course begins and ends at Suresnes, passing through Versailles and Longjumeau to Essoues-Corbeil, and back to Suresnes. There will be four classifications, namely, voiturettes under 400 kilos., light cars under 650 kilos., cars under 1,000 kilos.,

and cars over 1,000 kilos. Alcohol and petrol are to be pitted against each other in this competition from the point of view of monetary economy, so as to publicly test which of the two fuels is the cheapest to employ. Messrs. Thornycroft have written to the "Auto-Velo" asking if they can enter their steam lorries, and their entry has been accepted, with a promise to calculate their consumption of fuel. They cannot, of course, compete against petrol cars, as the comparison would not be possible. There are already eighteen entries. It will be remembered that last year in this competition the car of Messrs. Chenard and Walcker came out so far ahead of all the others that it was thought there was a mistake, and a further competition of the winners was held, in which Chenard and Walcker were again victorious.

M. TAMPIER, the popular timekeeper of the A.C.F., has been requested officially to examine the roads from Paris to the Spanish frontier *via* Bordeaux, in order to definitely fix the route to be followed by the competitors in the Paris-Madrid race; part of his official duties consists in finding a suitable length of road for the Gordon Bennett Cup race. It seems from this, that the A.C.F. has made up its mind that the race will be run in France

received from a date to be fixed to a later one, and when the entries have closed, lots will be drawn for the order of starting, everyone having an equally good chance of the first place, if that is of any advantage.

M. DEGRAIS, who drove one of the Pascal cars in the Reliability Trials last autumn, is a candidate for membership of the German Automobile Club, a preliminary, it is stated, to his driving one of the Mercedes cars in the 1903 Gordon Bennett race.

THE Phoenix Accumulator shown at the recent Salon, employed in most of the electrical carriages, is not altogether new. I remember it being introduced some four years ago by the inventor, M. Phillipart. It was then in a very crude condition, but has since passed successfully through the various stages of experimental work. The system employed in the Phoenix is quite different from that usually adopted; instead of using plates, tube-shaped poles are employed. The positive is, of course, lead, but it is contained in an earthen jar, made of a particular clay which does not offer any electrical resistance. The negative pole is built up round a skeleton of lead, and the material of which it is com-

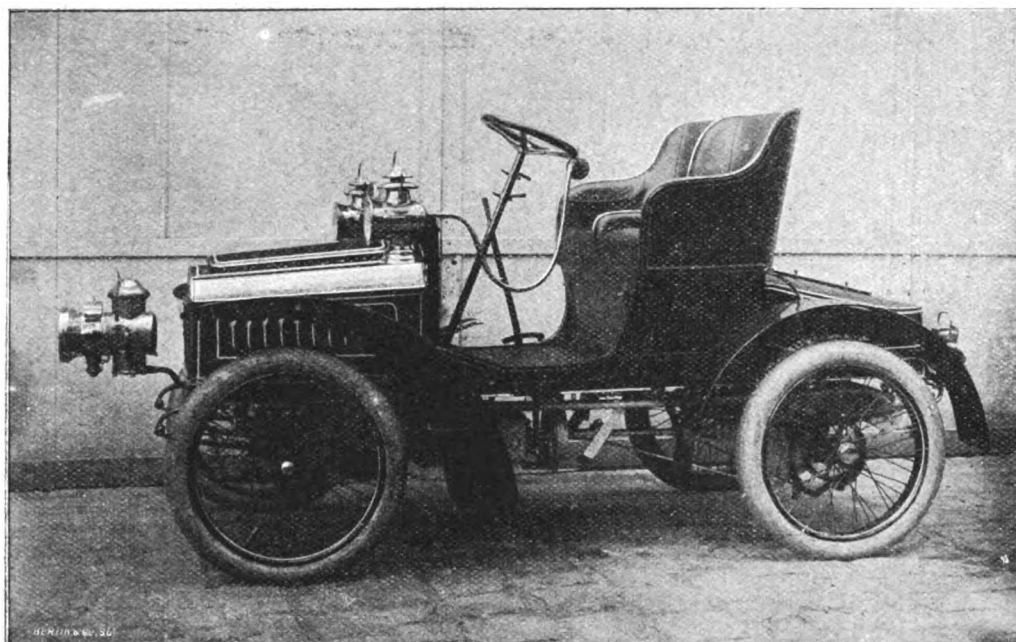


FIG. 2.—GENERAL VIEW OF ROCHET 6-H.P. LIGHT CAR. (See page 880.)

instead of in Ireland, and will oppose as much as is in its power any proposals which are laid before it by the A.C.G.B.I. The fact that the surface of the road chosen in Ireland by the latter is admittedly bad makes it all the more easy to raise objections. That it is a short-sighted policy of the A.C.F. there can be little doubt, for the race would be magnified considerably in importance if it were run on British soil. Furthermore, a victory obtained there for a Continental car would be of far greater service for advertising purposes than a victory in France. A road race in England would be productive of enormous orders, both for home-made and imported cars. The race in France will be overshadowed by the Paris-Madrid event, and will count for very little in comparison with what it would if run elsewhere and separately.

THE entry list for the Paris-Madrid race is not yet opened, but it is to the A.C.F. that they should be addressed. There is no hurry to send them, for the best places will this year not be secured by those who apply first, as has been the case hitherto. This was obviously unfair, for it gave an advantage to members of the Sports Committee, who had the information before the public, and who, in some cases, are competitors. In future entries will be

posed is held together by a multitude of little rings of vulcanite or fibre finished off by a screwed washer at the top, which keeps them all in place. The poles thus constructed may be combined into a battery of any shape required, either square, oblong, round, or in a thin long line. The cells themselves are most efficient in proportion to their weight, and stand the jolting without any inconvenience.

As already announced, the Bavarian Automobile Club is organising an Endurance Tour of Germany for the coming summer. The start will take place at Leipzig, the programme being as follows:—First day, Leipzig-Halle-Berlin; second day, Berlin-Hanover; third day, Hanover-Cologne; fourth day, Cologne-Frankfort-on-Main; fifth day, Frankfort-on-Main-Stuttgart; and sixth day, Stuttgart-Munich.

THE Holland Park Motor Company, of Princes Road, Holland Park, W., have recently extended their premises, having taken over the building until recently occupied by Messrs. Friswell. They are being equipped to carry out repairs to all types of cars.

MOTOR-CYCLING NEWS.

SIR MARTIN CONWAY believes "the motor-bicycle is the machine of the future." So he told the members of the Metropolitan District Association of the Cyclists' Touring Club on Monday. The first thing on which he desired knowledge was how he was to fall off, as he fell off every machine on wheels some time or other; next, how long it would take a man to understand the parts that were in a motor cycle; then how the thing vibrated, and, finally, which of them did not break down. He was told that the pleasure with a motor-cycle was considerable when it went, and the annoyance even more considerable when it did not. Motoring, he believed, would be the locomotion of the future, and we should reserve railway trains for the carriage of coals, invalids, and other impediments.

THE Automobile Club has appointed Mr. F. Straight as assistant secretary, his special work being to watch the interests of the motor-cycling section.

At a meeting of the Cycle Engineers' Institute held at Coventry on Friday last week, Mr. B. A. Hunt read a paper on "Important Features in the Scientific Designing of Motor-Cycles." The author said that during the last three seasons the motor-bicycle had been in a state of rapid evolution towards the perfection stage. From the comparatively crude mechanical novelty of 1898 and 1899 the motor-bicycle had developed into a machine which closely approached its humbler pedal-driven brother in point of reliability. In the matter of efficiency, too, considerable advances had certainly been made, but much still remained to be done. He thought, indeed, the time was ripe for the trade to make a closer investigation into the phenomena and behaviour of these machines on a scientific basis with a view to increasing their efficiency. Mr. Hunt proceeded to deal with the various features of the motor-bicycle. As regards ignition, he was inclined to favour a very light and compact rotary armature high-tension system, which would operate the standard type of plug. Frame design and motor position were in turn dealt with, and as to carburation, Mr. Hunt considered that the spray carburetor was superior to the sur-



THE FIRST MOTOR-BICYCLIST TO CLIMB THE STELVIO, IN THE AUSTRIAN ALPS.

MAURICE FOURNIER set up a fresh track record of 1min. 38.15secs. for a mile from a flying start on a $4\frac{1}{2}$ -h.p. motor-bicycle on Saturday last at the Alexandra Palace.

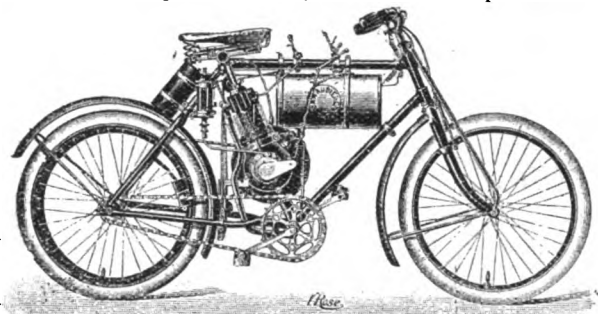
OUR Austrian contemporary, "Allgemeine Automobil Zeitung," devotes considerable space in a recent issue to an account of a 1,000 kilometre (625 miles) tour recently made on a Laurin-Klement motor-bicycle. The machine, which in this country is known as the "Hewetson," was only of $1\frac{1}{2}$ -h.p. The rider, who hides his identity under the name "Filius," left Vienna early in September, and, making his way through Carinthia and the Tyrol, succeeded in climbing the famous Stelvio, which is up among the snow nearly 10,000 feet above sea level. Notwithstanding the hilly route, he averaged 200 kilometres (125 miles) a day comfortably.

face type. An interesting discussion followed the reading of the paper.

ON Tuesday a meeting of those interested in the manufacture and sale of motor-cycles was held at the Automobile Club to consider the question of holding a motor-bicycle Trial during the present year. Considerable discussion took place as to the time when the event should take place, and ultimately it was agreed that it should be held immediately after August Bank Holiday. The Trial will include minimum daily runs of 100 miles aggregating not less than 1,000 miles, and is to be completed within a fortnight. Each maker will be allowed to enter three motor-bicycles, provided he does not duplicate any one machine. In order to exclude the entry of "freaks," Professor Vernon Boys and Mr. M. O'Gorman are to be invited to draw up a classification by which the most powerful machine entered will

not be more than a standard size. Representatives of firms willing to serve on the committee are to send their names to Mr. F. Straight, and from these the Executive Committee of the Automobile Club will select ten to act on a Joint Committee to arrange details.

THIS week we give an illustration of the Lamaudiere motor-bicycle, made by Messrs. Lamaudiere and Company, of Levallois-Perret, near Paris, which is being introduced into this country by Messrs. Cheswright and Company. A special feature about it is the motor, which develops $2\frac{1}{2}$ -h.p. at a speed of 1,400 revolutions per minute. It is constructed principally of steel, and is built up as part of the frame, taking the place of the seat tube. A small crank case and large outside fly-wheel are adopted. A spray



carburettor of novel form is used to furnish the mixture, using either petrol or alcohol as fuel; the spirit is delivered on gauze wire, an adjustable drum above the gauze wire operated by a lever on the top bar regulating the air supply. An exhaust valve lift is fitted, and the switch is within the left handle. The ignition is the high-tension system, the accumulator being carried in a compartment of the petrol tank, the latter having a capacity sufficient for about ninety miles. The power is transmitted by a chrome leather belt to a pulley which, unlike the usual method, is riveted direct to the rim of the rear wheel. The underside of the belt passes over a jockey pulley, which can be adjusted from the top bar by a lever with a ratchet stop action. Not only can any stretch of the belt be taken up by this device, but the speed of the machine can also, by its means, be regulated. A fibre shoe brake is fitted in such a way as to act on the inside of the large belt pulley, and a rim brake works on the front wheel. The front forks are strengthened by an additional pair of tubes. The machine has 26-inch road wheels and a long wheel base; its weight complete is 95 lbs., the makers considering it unsafe to build a $2\frac{1}{2}$ -h.p. bicycle that turns the scale at less than this. The Lamaudiere machine has figured prominently at the various competitions in France, and is likely to become popular in this country.

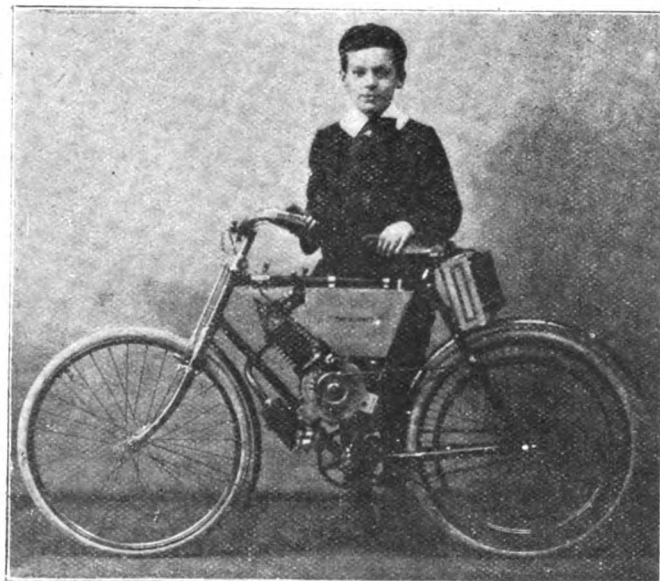
THE "hanging on" of ordinary cyclists shows signs of becoming one of the biggest bugbears of motor-cyclists. If, sooner or later, it does not result in the death or serious injury of one or more of the riders of ordinary cycles, who persist in this undesirable practice, it will be due as much to the watchful care of Providence as to any other agency. The "disease" breaks out whenever and wherever a motor-cyclist appears within reach of a party of cyclists. They rush for the rear wheel of the motor-bicycle and "hang on" as if glued there. On any of the popular routes a motor-cyclist cannot ride a mile without having one or more cyclists behind. The most amusing part of such performances is that the matter of speed is not of consequence to the "hangers on." It appears to be merely the fascination of "riding behind a motor" that is responsible for the "disease"; whether the motor is going eight or eighteen miles an hour appears a minor consideration. The danger of the practice lies in the quickness with which the motor cyclist can cut off power and slacken speed. Unless he is watchful he can, with his machine, upset the "hangers on" without trouble or danger to himself. Only those who have been through it time after time can appreciate how aggravating is

the nuisance to the unwilling pacemaker. Aside from the mental exasperation, the practice has another disagreeable side. The police invariably prick up their ears when a "motor" comes within their hearing, and the sight of one with a crowd hanging on its rear wheel excites suspicion and invites trouble.

WITH the view to the formation of an Ulster branch of the Irish Motor-Cycle Union, a meeting has been held in the Hotel Metropole, Belfast. Lieutenant Young was moved to the chair, and Mr. J. C. Percy stated the objects of the Union. He said they were primarily to ensure a fair and equitable administration of justice as regards the rights of motor cyclists as such; to establish, revise, or alter the rules regulating the sport and pastime of motor-cycling; to control and arrange for race meetings, matches, competitions, or time-trials for motor-cyclists; to endeavour by such means as may seem advisable to bring about the more efficient maintenance of Irish roads; and to protect the interests of motor-cyclists and motor-cycling generally. On the motion of Mr. Thomas Mallon, seconded by Mr. W. Good, it was decided to form an Ulster centre (with headquarters at Belfast) of the Motor-Cycling Union of Ireland, and the following provisional Committee, with Mr. R. G. Wilkinson as secretary, was appointed: Lieutenant Young, Messrs. Wm. Nixon, T. Mallon, T. Sloan, T. Ireland, J. Fetherston, J. Wilson, J. Woodside, P. Brady, James Wilson, S. B. Thompson, J. Stewart, M. Marshall, W. Good, W. B. M'Kee, W. J. Anderson, W. J. Forsythe, J. Denby, and R. Ireland.

A MOTOR-TRICYCLE is being advertised for sale in a condition that is "not worse than new"—a form of expression that points to the unhappiness of the present owner. Apparently many motor cyclists who are "advancing" to light cars are trying to dispose of their machines this month, as a speedy sale will save the cost of the new licence.

THE accompanying illustration depicts Master Carter, who is probably the youngest motor-cyclist in the country, at the side of his Brown motor-bicycle. He is the son of Mr. C. E. Carter, of the Dispatch Cycle Works, Grays, Essex, and is only ten years of age; his machine has an 18-inch frame, and 24-inch wheels.



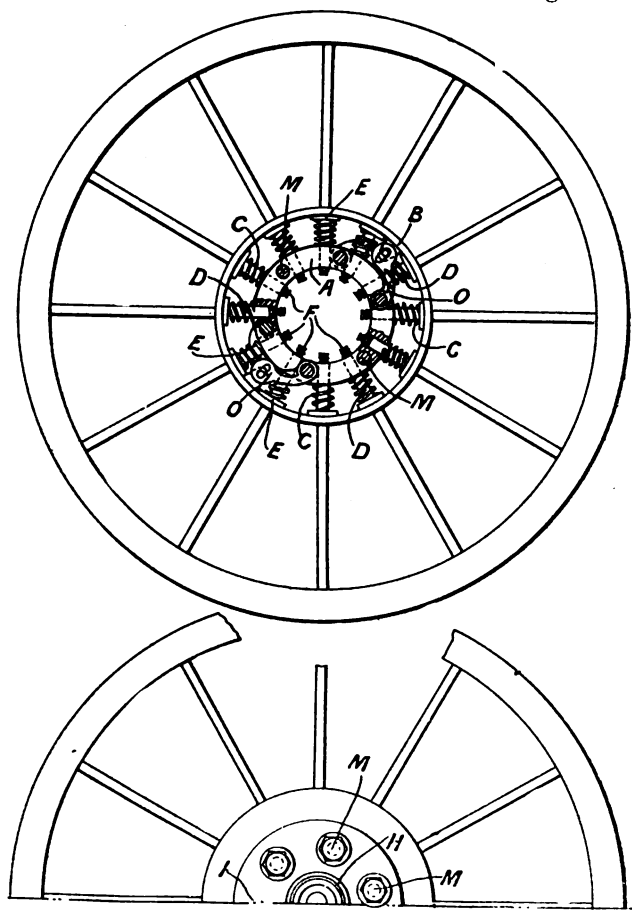
His sister, who is thirteen years of age, is also an adept rider of a motor-bicycle. She has been riding six months, and has, so far, never had to pedal her machine home, being able to locate the cause of motor stoppages almost as well as the oldest hand.

THE Horsham magistrates in the furious driving cases reported in our last issue were good enough to observe that they modified the penalty with regard to motor-cycles, because they did not constitute so great a public danger as the motor-car.

THE JACKSON SPRING WHEEL.

AT the first of his series of lectures on "Locomotion," delivered at the Royal Institution, Professor Hele-Shaw, LL.D., F.R.S., discussed "The Invention of the Wheel." After explaining at some length the theory of the wheel, the Professor passed on to consider the various kinds of tyres in use. He then observed that there are certain cases where pneumatic tyres are almost useless, and certain kinds of roads over which wheels provided with these tyres will not pass without considerable vibration being communicated to the vehicle to which they are fitted. He then showed on the screen photographs of several spring wheels designed, without much success, to meet this difficulty, and exhibited a model of Jackson's spring wheel, illustrated herewith. He had had the opportunity, a few weeks before, of riding in a car fitted with these wheels, round Regent's Park at a pace at least up to the legal rate. Although the wheels were only fitted with solid tyres, he found the ride a most pleasant one.

Referring to the illustrations, Fig. 1 shows an elevation of the wheel with the covering discs removed, and Fig. 2 an eleva-



FIGS. 1 AND 2.

tion of half of wheel with discs in position. In the annular space between the two rings A and B are arranged a number of springs C, to transmit the load from the inner to the outer ring. These springs act through radial buffers D which are constructed to be pressed outwardly against the inner surface of the outer ring B, by the springs C, the latter being compressed between the heads E of the buffers D and the inner ring A. The buffer heads are shaped to the same curvature as the inner cylindrical surface of the outer ring B, so that contact over the largest possible surface is ensured between the heads E and the ring B. To effect the assembling and disassembling of the parts of the wheel, the shanks of the buffers D are arranged to extend through holes

in the inner ring A, and the inner ends F of the shanks are screw threaded. By means of nuts screwed on the projecting ends F against the inner ring A, the buffer heads E can be withdrawn from contact with the outer ring, and the spring arrangement removed. When the parts of the wheel are assembled, the nuts are removed to allow the springs C to act and press the buffer heads E against the outer ring. The hub of the wheel is formed integrally with the disc I, which bears against the side of the inner ring A, and has a shoulder adapted to fit in the ring. At the other side of the wheel is a similar but removable disc, with a shoulder. The hub is secured in the inner ring by bolts M passing through the two discs and the ring A. The space between the discs serves to hold lubricant, and a dust-proof chamber is also formed. To prevent creeping or rotation of the inner ring relatively to the outer ring B, links O are provided, connecting the two rings, the links being so formed and arranged as to allow free action of the springs. The inventor, who is the gauge maker to most of the leading railways in the country, has devised another means for preventing creeping. These consist of a hexagonal boss formed on the inner side of the disc I, and a flange on the ring B cut away in hexagonal form. The hexagonal boss can turn slightly in the flange, but such turning is limited on account of its angles coming in contact with the flange. By the employment of the buffers, controlled by screw nuts, springs compressed to any suitable extent can be employed.

OCCASIONAL NOTES.

"HERE'S a pretty go, here's a how d'you do!" occurred to me as an appropriate ejaculatory comment on the situation, which feeling was in nowise diminished by the departure of the driver and fireman, who stolidly informed me they would be back in an hour. I listened meditatively to the tramp of their feet on the cindered sidewalk as they stalked back towards Liverpool for assistance, each swinging a hurricane lamp whose adaptations seemed universal. The lights disappearing round a bend, I turned again to my charge. "Keep an eye on the water-gauge," had been the driver's parting injunction after he had pumped the boiler nearly full and dampened the fire. Oh, but it was cold as I clambered on to the tool-box—that "box" seat I had pictured so different from reality—and nestled close to the friendly boiler. There was no fear of capsizing now, for the heeling tendency was checked by two small bottle-jacks under the axle caps, their bases resting on wooden blocks. I soliloquised upon the arrival of relief and the reasons for our apparently being unable to jack ourselves out at once. Meantime the wind soughed through the trees, the rain pelted down as it chose, and I, deserted and alone, but for the boiler, which kept my shins hot and my back, *per contra*, cold as ice, faithfully performed the duties of watchman. I argued the problem with myself, by way of mental gymnastics and to encourage circulation, that the stranded wagon was no longer conveying "petroleum in transit," but was now "a place or store" within the meaning of the Petroleum Act. It clearly was a case of storing, without a licence, for even a hawker's cart requires one, so I must needs dissemble should a curious officer venture forth from the cover of his sheltering lintel to challenge me in the name of the law. Unfortunately, nothing so diverting happens. Instead, I discern a faint rumbling, which grows apace, and suddenly the four headlights of the last lorry from Blackburn, tooled by the home-bound Liverpoolian, appear. I shout and wave a lamp. He, stamping vigorously on his gong, pulls up. Then follows a critical pow-wow on our belated condition. These men have been there before, worse luck, they confess. Why not get out your two jacks, I ask, and lift her free? "No use, guv'nor," they reply; "they're too short a lift for a job o' this sort; you must do it from the frame." Otherwise, they explain, in soft places like our present Slough of Despond—a main road, bear in mind—it is only a game of see-saw; one point up, another down. "Good-night, sir," a

they squeeze past No. 11 tremulously, "the tackle won't be long." I take a long pull at my flask, and dry myself in patches externally by surface evaporation. Another half-hour and I shall be tempted to essay a *locus* on the boiler top, or down the firing shoot. I start the Marsh pump, to replenish the boiler, whose Klinger gauge shows one bare inch, and at least find company in the resonant working of the valves, proving their action by the slowly augmented level in the glass. One and a half mortal hours do I wait for the "tackle" to arrive. It comes on a spring cart at three o'clock. Out come the big lifting-jacks and packings, and out come we. All over in fifteen minutes, with the aid of a little verbal encouragement, which I need not repeat. The "tackle" is driven off by hay-motor, back to Rufford, and a delay which might easily have reached a dozen hours is overcome in less than two.

WE are in low gear for the next mile, then change to high and keep there, moving nicely. The road is apparently fit to admit the use of that designation, and allows our making up for evil times. We drop anchor, or rather stop to uncoil the watering hose, at the Bridge Inn, Penwortham, with the lights of Preston dancing on the waters of the Ribble, the whole forming an enticing contrast to the twenty-six miles of road through which we have toiled, at 4.47 a.m. Shall I, or shall I not? The Park Hotel, Preston, is, I know, a comfortable house, and trebly acceptable to a weary traveller with serious qualms as to the form of spinal trouble that is threatening. The temptation is strong as we mount Fishergate, and even a night on the "sleeper" back to town would be as Paradise. But no, where duty calls I must obey.

WE have slackened to three miles an hour on the setts, to reduce the noise and vibration. Peace be to the slumbers of Preston's hundred thousand odd souls. I envy them and realise the curve of one's nervous centres at 5 a.m. With thirty-one miles behind me, why give in?

WE approach Brockholes Brow, the steep descent to the Ribble on the new Preston-Blackburn road. I recollect the grade as 1 in 13, from the profiles of the Liverpool trials routes. The surface is ghastly, yet we do manage to keep moving, being down hill, by giving her full steam. They evidently believe in sand as a binding material hereabouts, without anything to bind unless it be the traffic. The road is nothing short of a crying disgrace, which would not be tolerated in the South. We jog along, notwithstanding, and reach the Five Barred Gate, Samelsbury, at 6.30 a.m., this being about five miles from home and the last watering station. The men here accept their second "refresher" at my hands, and earn my golden opinions by their abstemious conduct.

INCIDENTS cease. We reach Simmons Street, Sudell Cross, a little before eight, fit and well. The depot here is a disused tramway shed, into which the Vauxhall Road establishment could be fitted twice. No. 11 is taken over by the running-shed men, and I take my departure to the Old Bull Hotel, where the landlord, Mr. H. Burton Berry, had been notified of my requirements and prepared right royally. By nine o'clock I am snugly between the sheets, with a roaring fire and curtains drawn, dreaming of mud, of ditches, of hedges, and of having accomplished forty miles in twelve hours.

MY experiences were obtained under winter conditions, with a new system of goods transport and with initial difficulties not entirely overcome. The national importance of our roads, the more extended uses to which they can be put, and the scope of light locomotives on highways are on trial. It is a commercial experiment. I am convinced that the troubles are far less than those fought against by the pioneers of railways, that they will be overcome with equal success, and that the railway locomotive, the electric tram, and the traction engine will ever leave a wide field for the application of the self-propelled goods lorry on common roads. It may be a question of two, three, or more years, before success is assured and complete, but come it will and must. An increase of the tare weight is the first essential.

P. A. M.

THE WESTON SUPERHEATER.

THE Weston Motor Syndicate send us the following particulars of the new superheater they are fitting to the 1903 models of the Weston steam-cars. After having experimented with super-heaters for several months, they have adopted a device specially made for them by the Albany Manufacturing Company, Limited. Departing from the practice usually adopted, the superheater is fitted between the throttle and the boiler, and not between the throttle and the engine. The coil is therefore always full of steam and does not become too severely heated; the wear and tear being thus considerably minimised. At the same time wet steam is prevented from issuing into an intensely hot coil, and subsequently flashing and causing an undue amount of strain on the engine when starting until the coil has regained a more or less normal temperature through the continual flow of steam. Being placed behind the throttle, the action of the latter is the same as hitherto, the steam being cut off just as sharply. Fig. 1 shows the shape of the coil; the size of the barrel is only $\frac{1}{4}$ inch, and consequently very little heating surface is taken away from the boiler plate. The reason the superheater is built in

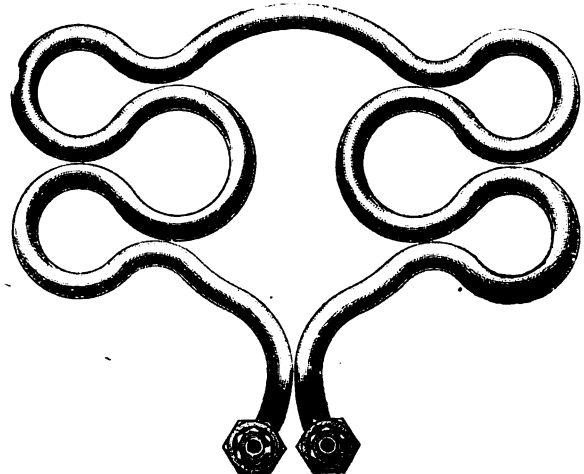


FIG. 1.

the form of a circular serpentine coil is that it has been found to be the only one which resists the water priming, and prevent it "bulleting" through in the event of priming. Although steam can easily flow round the reverse bends, the tube offers such a resistance to water, passing on account of the direction of travel being reversed at every turn, that sufficient overplus of steam is generated in the bend to overcome the resistance of boiler pressure, and returns the same back into the boiler, only using that portion which has been transformed into steam. The Weston Syndicate claim that by the use of the device the steaming qualities of the car are increased to a considerable extent. Owing to any tendency of the boiler to prime being practically overcome, the hill-climbing capabilities of the vehicle are also greatly improved, while the fuel consumption is said to be reduced by about twenty per cent.

ONE of the exhibitors at the Agricultural Hall Show is expending over six hundred pounds on his stand.

MESSRS. DELAHAYE, of Paris, have just shipped two cars to Guadeloupe for public service work.

A ST. AUSTELL motorist has been fined 10s. and costs for not having two red lights visible from the rear of the car.

MOTORING has been one of the daily diversions of the distinguished house party at Chatsworth.

THE start of the Paris-Madrid race has been definitely fixed for the 24th May.

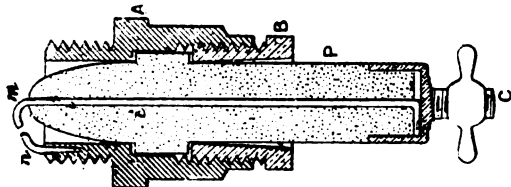
ON the 28th inst. the Auction Company will hold a sale of motor-cars at Willoughby Hall, Norwood Road, West Norwood, S.E.

WE hear that the Hon. C. S. Rolls will drive a Mors racing car in the forthcoming Paris-Madrid race.

AT a recent meeting of the Automobile Club of America the evening was devoted to an informal discussion on the subject of "The Personal Equation in Automobiling."

AT a meeting of the Western section of the Scottish Automobile Club, to be held in Glasgow on Monday evening next, Mr. Wm. H. Kingsbury will introduce a discussion on "Tyres."

ONE of the most interesting stands in the basement at the recent Salon in Paris was that of Messrs. De Dion, Bouton and Co., where the manufacture of the De Dion sparking plugs was shown in operation. It is now fairly generally known that the firm have introduced a new plug to take the place of the one familiar to all motorists. The new plug, of which we give a sectional view



herewith, is smaller than the old one and has a coned porcelain to prevent sooting. Indeed, it is claimed that with the new plug short-circuiting is impossible. Another important alteration is that the centre terminal is placed in the porcelain before the latter is baked, so that the chance of the rod becoming loose is exceedingly remote.

ROWLEY'S BOTHWAYS GEAR SYNDICATE, LIMITED, has been registered, one of its objects being to carry on the business of motor-car manufacturers, &c.

THE Manchester Wheelers' Club—the leading cycling club of the district—has decided on the formation of a motor section. There is already a substantial nucleus, with four owners of cars, three riders of motor-tricycles, and more than a score of motor-bicyclists.

THE ELECTRIC IGNITION COMPANY, of Unity Works, Birmingham, have sent us samples of new high and low tension ignition cables. They are of high-grade quality, and particular attention has been paid to the insulation, to ensure which the wire is surrounded by three layers of rubber.

SIR HIRAM MAXIM is leaving England for America, where he expects to remain about two years, to carry out an important series of experiments, with a view to building a flying machine. He thinks there are about 100 different people experimenting at the present time. The greater number of these, however, are experimenting with balloons, which, in the varying nature of things, he believes cannot succeed.

A CONFERENCE between the Cork and Belfast branches of the Irish Road Improvement Association has taken place. Amongst the matters discussed was the distribution of the new pamphlet, "Good Roads: How to make and maintain them," which has recently been reviewed in our columns. It was decided to send a copy to every County Councillor and District Councillor in Ireland, the Cork Branch undertaking to do the distribution in Munster. It was also agreed to approach the Irish Automobile Club and the Motor-Cycle Union of Ireland with a view to inducing both of those bodies to support the association by an annual subscription.

AN important change has been made in the administration of Irish county affairs by the decision of the Local Government Board with regard to the maintenance and up-keep of public roads and thoroughfares. Hitherto the work has been done under contract, but, at the request of the Irish Local Government Board, the Limerick County Council has formulated a scheme for having the work in question done by direct labour, under the supervision of the county surveyor. Whether this will lead to an improvement in the state of the roads in county Limerick remains to be seen.

It is probable that a permanent committee will shortly be formed in London to consider the reports of local surveyors and engineers with regard to the life and wear of the different kinds of paving, and to make experiments.

WE regret to hear of the death of Mr. E. S. Cheel, which took place last week from phthisis. He was on his way to the Cape, and Mrs. Cheel asks us, on her behalf, to thank those members of the trade and of the Automobile Club for the introductions they had given him to friends in South Africa.

NOW that the Panhard Company are introducing a three-cylinder motor a good deal of discussion has arisen as to who was the first to make the innovation. A claim has just been put in for M. Berret, of the Société Cannoise d'Automobiles, of Cannes, France, who is stated to have a car with a three-cylinder motor which has been in use for five years.

As the question of the prevention of skidding is at present attracting much attention, we may mention that a device has been invented in Ireland for which exceptional features are claimed. We are not at liberty to go into the details, but we are told that the principal features of the invention are:—1. It is not attached or connected with the tyre; 2. It has no effect on the resiliency or elasticity of the tyres, and only comes into operation when the car skids, it being automatic in its action; and, 3. It can be attached and detached in a few moments and placed in the car without any inconvenience. We have not as yet had an opportunity of testing the device, but we understand that experiments with it have proved very successful.

ALL over the country small cycle makers are turning their attention to motor-cars, and many are now engaged in building, in small numbers, little cars intended to meet the demands of those requiring a reliable two-seated vehicle at the popular price of about £125. Our illustration shows a voiturette which comes within this category, which is now being turned out by Mr. E. T. Holbrow, of the Cycle and Motor Works, Earlsfield, S.W. The frame is of channel steel, and carries in the front, under a bonnet, a vertical single-cylinder engine developing 4½-h.p. at the slow speed of 750 revolutions per minute.



The usual electrical ignition and float-feed carburettor are fitted, while the water circulation is maintained by pump and radiator. With regard to the transmission, two forward speeds—18 and 8 miles per hour—are provided, as also a reverse motion, these being controlled by a single lever on the inclined steering column. From the engine a single belt, working on fast and loose pulleys, conveys the power to a countershaft at the rear of the back axle, the countershaft driving the latter by means of spur wheels. Cycle-type road wheels of equal size, shod with pneumatic tyres, are fitted, while ample brake power is provided.

NOT often do we hear of motorists forsaking the automobile. Sir John Campbell, who has had a car for at least eighteen months, is, however, giving up motoring.

MISS MANGLES, of Littleworth, Seale, has been fined 1s. and costs at Farnham for allowing steam to be emitted from her motor-car on the highway.

THE London Motor Garage Co., Ltd., are establishing a large new garage at 33, 35 and 37, Wardour Street, W., which will be opened in the early spring.

THE LANCHESTER ENGINE COMPANY, LIMITED, will shortly place a more powerful air-cooled motor than they have hitherto employed on the market.

THE Imperial Cycle Company, Limited, has been registered to carry on the business of motor-car and motor-cycle manufacturers, etc., at the Imperial Works, Hack Street, Birmingham.

THE PENGE MOTOR WORKS, 12B, Southey Street, Penge, S.E., of which Mr. C. J. Paffard is proprietor, have issued a new tariff for the storage, repair, and electric charging of cars. The office of the firm is at 112, Oakfield Road, Anerley, S.E.

THE thirtieth annual issue of "Willing's Press Guide" has just been published by Messrs. Jas. Willing, jun., Limited. Its characteristic is accuracy, and its presence is indispensable to all having frequent communications with the newspaper world.

SIR DAVID SALOMONS, Bart., has had an accident, due to the back firing of one of his motors. In warning others of this danger, he points out "that an apparatus is now made in Paris to obviate accidents should a back fire take place." This was described in the *Journal* on the 27th ult.

AMONG the revised decisions under the Customs Tariff of New Zealand we notice that oil-engines for motor-cars imported separately are admitted free of duty, but oil-engines forming part of motor-cars are classified as carriages, and are subject to a duty of 20 per cent. *ad valorem*.

SPEAKING about his new storage battery for electric motor-cars, Edison is reported to have recently remarked: "I don't intend to let a battery be put on the market for at least three months, or until I have made a 5,000 mile endurance test, and have discovered all the weak points and rectified them."

"ALTHOUGH automobilism is in a very backward state in Cuba, there is an opportunity to do considerable business there." Such is the report of Mr. G. M. Dickson, of the National Vehicle Co., Indianapolis, Ind., who has just returned from a trip to the island. Local conditions, customs duties and lack of charging facilities prevent the extensive use of electrical vehicles in Havana. The entire city possesses but twelve or thirteen motor-cars, several of them being old patterns and out of commission.

A SURPLUS of snow on the streets, combined with a shortage of coal and coal carts, were the conditions that recently made the Hudson Coal Company, of Jersey City, U.S.A., a convert to the motor-wagon. An electrical truck, which was built to carry only three tons, was hired, and loaded with five tons of coal for New York. The vehicle carried its excess load safely, and before the day was over had made three trips between the two cities and delivered fifteen tons of coal. The next day the coal company placed an order for three similar trucks.

At his tailoring establishment in Piccadilly, Mr. Lovegrove has a good show of accessories for motorists, including goggles, ladies' masks, gauntlets, horns, etc. An all-weather motor cap for gentlemen and serviceable hats for ladies are there to be seen, as well as hoods for covering the backs of ladies' heads. These fasten to the ordinary hat, and, to quote a commonplace saying, "supply a long-felt want." On some of the coats made by Mr. Lovegrove we have noticed a special metal button with the imprint of an automobile—a neat and effective symbol of the car. A large leather sheet for throwing on the ground, when the car has to be examined from below on a muddy road, is also among the miscellaneous articles stocked at this establishment.

CORRESPONDENCE.

THE NUMBERING PROPOSALS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Although the proposal to number motor-cars is universally condemned, the only alternative at present suggested is to retain the *status quo*. In view, however, of the fact (so it is openly stated) that the Government are going to bring in a Bill next Session which will, *inter alia*, embrace numbering, I think it behoves us to inquire whether there is no alternative to numbering which will meet the views of the authorities, and I venture to suggest that there is. I will not occupy your valuable space either by pointing out in detail how or why numbering has been a failure on the other side of the Channel, or by enlarging on the many objections there are to the proposed system of identification by legible numbering.

I take it that the present position is briefly this. Automobilists are restricted to a maximum speed of twelve miles per hour, and must stop when called upon to do so either by a constable or by a person in charge of a restive horse. Automobilists as a rule habitually travel at a greater speed than twelve miles per hour, the majority with due consideration for other users of the road, and a few without any consideration whatever. These latter have obtained for automobilists generally an unenviable notoriety, with the result that the police have in many places had to resort to tactics of all sorts to catch these offenders. The result, as we all know, is that more often than not the real offenders escape while considerate drivers have been caught and made examples of. Consequently a kind of feud has sprung up between automobilists and the police, with the result that many drivers, rather than run the risk of a certain fine, refuse to stop when called upon to do so, and if by chance they are held up give false names and addresses. Hence the demand that is being made on all sides for cars to carry numbers sufficiently large to enable them to be identified when in motion.

Assuming the aforesaid to fairly represent the present state of affairs, I venture to suggest that the requirements of the authorities who are clamouring for numbering can be met, and well met, by:—(1) Making it compulsory that all motor-cars carry in a conspicuous place a small plate bearing the name and address of the owner of the car (such plate being capable of being read only when the car is at rest). (2) Making the owner of a car responsible for the action of whoever may, for the time being, be driving the car; and (3) making the penalty for not stopping when called upon to do so, a heavy fine for the first offence and imprisonment for the second and subsequent offences. In short, make the car self-identifying as regards ownership when the car is at rest instead of when in motion, and enable the severest punishment to be meted out to those who fail to stop on the demand either of a constable in uniform or of a person in charge of a restive horse. Obviously the sign to be made by a constable as a demand for stopping must be an unmistakable one, impossible to misunderstand; such, for instance, as holding up both arms at right angles to the body, and it should be made at least ten yards ahead of the car in the direction in which it is moving.

In addition, all drivers should be required to hold certificates of competency to drive. As a corollary to this scheme all vehicles the property of manufacturers, factors, agents, etc., out on the road for the purpose of trial or otherwise should be required to display an identification plate. It will probably be suggested that this scheme provides no means of identification for those in charge of restive horses. Quite true; but these users of the road are surely in no worse position than others who may have cause for invoking the aid of the law and are unable to identify the party or parties giving the ground for such cause of action.

With the removal of the legal limit the *raison d'être* for police traps will disappear, and consequently the aversion of automobilists to being held up by the police will also disappear, and this the more so when drivers realise that a demand to stop will more often than not be made with the object of testing their willingness to comply with the law than with the object of making a charge against them. In conclusion, this scheme has the advantage that automobilists cannot have charges brought against them for breaking the law without their being made aware of the fact at the time and place of the alleged breach.—Yours faithfully,

ROBERT E. PHILLIPS.

MAIDENHEAD BRIDGE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Will you allow me, through your columns, to invite all users of vehicles (motors or horse-drawn) to make a point of protesting every time toll is demanded of them on passing over Maidenhead Bridge, to invite the collector to assert his authority by closing the gate, and to demand a receipt for the amount they pay?

Tolls have been extracted from the public by the Corporation of Maidenhead for over 130 years. The assistance of myself and friends is at the service of any member of the public against whom any action might be commenced. I shall be glad to know the names and addresses of any of your readers who in the past have had to pay 8d. and 6d., as there is no reason why the Corporation should not be forced to refund these sums so freely extorted from the public. Mr. Witt, K.C., and Mr. Danckwerts, K.C., who fought the Windsor Bridge Case, have been retained for the plaintiff in Taylor v. Corporation of Maidenhead, in the action to recover toll paid under protest on December 8th, 1902.—Yours truly,

J. SEPH FULLBROOK.

THE GORDON BENNETT RACE.

To THE EDITOR OF *The Motor-Car Journal*.

SIR.—Referring to the letter from a correspondent in your last issue, signed "U. Stratton," this gentleman is needlessly troubling himself. Two Napier cars have been chosen by the Automobile Club to represent England in the Gordon Bennett race. These two cars will appear for the race in good time, in accordance with the Automobile Club's regulations, and no departure from what has been settled will be made so far as I am concerned. Not one Napier car will compete for the eliminating race, but several—certainly three.

I am having seven Napier carriages built, all of which will be quite capable of driving with every hope of success in the Gordon Bennett race. Why should he assume that I would deliberately make inferior cars for the race itself, and a superior car for the Eliminating Race? It does not seem to me that such a suggestion is common sense.—Yours truly,

S. F. EDGE.

LESSONS OF THE PARIS SHOW.

To THE EDITOR OF *The Motor-Car Journal*.

SIR.—Mr. Sangster's letter in the last number of the *Motor-Car Journal* contains a very large quantity of debatable matter, which boils down into the suggestion that British manufacturers ought to be copyists. Surely the British manufacturer is able to evolve out of his own intelligence some improvements in motor design, and to have his own very decided opinion on the importance of retaining features which have proved to be efficient. The discourse which Mr. Sangster preaches really amounts to a consideration of whether the three features of the Mercedes, which he enumerates, are at the moment items for immediate acceptance by the British industry, and by the British users of foreign motor-cars.

The chassis *embouti* may be lighter, stronger, and ultimately cheaper than the old form of frame construction. From the point of view of the manufacturer, the question then arises whether the time has come for the standardisation of frames, in view of the fact that so many purchasers of cars wish to have widely differing varieties of bodies unsuitable for a single standard of frame. At any rate for the present, standardisation, like the alleged economy, is out of sight. From the point of view of the owner there is the question of the sequel to accidents. Will the frame resist the fancy manoeuvres of an inexperienced user? Neither type of frame will withstand such abuse, but while the broken portion of a built-up frame can be repaired, the pressed steel frame has to be replaced as a complete whole. This replacement means the complete dissembling and subsequent re-assembling of the car.

As to mechanically-operated inlet valves, Mr. Sangster questions whether these are more complicated than the atmospheric suction valves, and yet he at once admits that there is a complication. He omits, however, to refer to the wear, which alters the power of the engine and spoils the exact timing of the valve, and if the timing be incorrect the alleged superior efficiency disappears. The mechanically-operated inlet valve may be ideally designed for a certain speed, but it has not yet been proved to have a greater efficiency at all speeds for all engines.

The statement that the induced draught type of radiator is more efficient than the old pattern is one not justified by experience, when the car is in motion, whatever may be the heating on a stationary vehicle. Its use reduces the quantity of water carried, but that is not necessarily an increase in efficiency. The old system of radiator has reached perfection so far as efficiency is concerned, and the advantage must be sought in other and secondary considerations. There are authentic cases of the distance of 500 miles being covered without any necessity for refilling the tank, during the whole of which distance the water has kept perfectly cool. That is complete efficiency. Weight may be reduced, but complication and risks of injury inevitably enter when air is induced through a honeycomb by a fan.—Yours faithfully,

F. T. BIDLAKE.

MR. M. F. LYONS writes:—"With reference to the article on 'The Sthenos Carburettor and its Adjustment,' by Mr. R. W. Buttner, I would be glad if that gentleman would say where the good petrol strainer he mentions is to be obtained, and how it is fitted so that it will effectually prevent dirt from getting into the spraying nozzle."

MR. A. ADAMS writes:—"I once saw a motor-car with an attachment for pumping a little paraffin at will into the cylinder for cleansing purposes, without stopping the engine. Is there any objection to this arrangement for a horizontal motor? If not, I should be glad to hear whether any such apparatus is on the market at present, or whether it has to be fitted specially."

MR. S. F. EDGE writes:—"In your last issue a statement is made by Mr. Chas. Sangster that 'no radiator fitted in this country will keep water cool enough so that the car does not want re-filling for, say, 500 miles.' This statement is incorrect so far as the Napier is concerned. In May last I drove in a trial from Glasgow to London, a course of over 400 miles, where it was officially recorded that 'no water was required,' although many miles had to be driven on the low speed to keep within the time limit."

X. Y. Z. writes: "Can any of your readers explain why the inlet valve moves twice—once when taking in charge after exhaust, and again just after compression?"

BARON H. DE ROTHSCHILD ON AUTOMOBILISM.

IN the new home of the Automobile Club in Piccadilly, London, on Friday, the 9th inst., Baron Henri de Rothschild gave a paper on his "Seven Years' Experience of Automobilism." Mr. R. W. Wallace, K.C., presided.

At the outset of his paper Baron Henri de Rothschild expressed his pleasure at coming to London for the purpose, for England was the classic land of sport. The good feeling shown him by English motorists on his visit to Bexhill, and later, when he was permitted to take part in the 650-miles Reliability Trial, made him regard it as a duty to respond to the invitation of the Club. It was in 1895 that, for the first time, he put his foot on an automobile, his experience then being scarcely of an encouraging character. The vehicle was a 6-h.p. Peugeot, which attained a speed of six or eight miles an hour. They were going on a journey to Chantilly, about twenty-five miles from Paris. About six miles out he (the speaker) took the place of the driver and they ascended a hill at four miles an hour. On arriving at the top he decided to let the car go a little, but on reaching the bottom saw a cart a few yards away. It was impossible to stop, and he ultimately picked himself up a few yards away, while the car was overturned and broken to pieces. On that he was asked by his wife to promise that he would never again enter a motor-car. Within three weeks he obtained a De Dion motor-tricycle. Later he became the owner of a 6-h.p. Panhard and also of one of the first cars fitted with pneumatic tyres. It was capable of attaining a speed of sixteen miles an hour. On that he had some striking adventures during a period in the history of the movement when motorists ran the risk of being mobbed. In 1899 he was at Nice with his uncle, Baron Arthur de Rothschild, on an 8-h.p. car. One day on the Turbie-hill they were passed by a vehicle, which his uncle bought at once. It was of German make, having been constructed at the Daimler works. A fortnight later another car passed them when on their new possession. His uncle was in desperation; but another cheque was passed to M. Jellinek. Then they each gave an order for a 24-h.p. car, the price being proportionate to the weight. The Daimler cars not only climbed hills, but nothing ever went wrong with the mechanism. He pointed out to M. Jellinek that if he could build motors of such calibre, it ought to be possible to put them on a light frame combined with an elegant appearance. In 1900 it was decided to modify the underframe and lighten the vehicle, and in 1901 at Nice the first Mercedes car of 35-h.p. appeared, making an average of thirty-seven miles an hour. Then the French makers prepared to take revenge for the defeat they had sustained. In the memorable race from Paris to Berlin a 40-h.p. Mors carried everything before it. Last year the Mercedes went again into the front rank. With regard to motor-car accidents, he said he was one of those who had caused the least number, because he had seen so many due to the reckless conduct of others. In England they had laws to check excessive speed, and he would not attempt to advise them, for he had been too much troubled by English police regulations. Having given some figures with regard to the extent of the automobile industry in France, the speaker went on to say that its present position was due to the encouragement of racing. This had helped to perfect the construction of motor-vehicles. Regarded with moderation, motoring would have a beneficial effect on health. A ride of two hours in the morning and three in the afternoon would be found enjoyable; but to sit five or six hours at a stretch in an automobile, going at more than thirty miles an hour, would often produce a feeling of fatigue which was not healthy. It was not advisable to take journeys—as he confessed to have done—of 464 miles, starting at four o'clock in the morning and arriving at his destination at ten o'clock at night; or leaving Paris in the morning, lunching 150 miles away, and returning to town to dinner. An excess of automobilism might cause nervous trouble, but if taken in moderation it would produce the most beneficial results, and he had known cases of serious nervous disorder cured by motoring at regular intervals. In conclusion he thanked his audience for the reception they had accorded the Parisian *chauffeur* whom they had invited to come amongst them.

The Hon. J. Scott Montagu, M.P., said he was in France two years ago, when their guest of that evening prophesied to him that the Mercedes would prove the best car. The Baron was himself the maker of an excellent vehicle, and the profits thereon were devoted to charity. In this country it was difficult to find the manufacturer who made profits, even for himself. Whatever was done in the future, it was certain that France had shown the way to the whole world in this branch of sport. Most of the improvements that had been made came from France, and Baron Henri de Rothschild had suggested many of them.

Mr. Mark Mayhew, L.C.C., said they had only to remember their early motoring experiences to realise how perfect the modern vehicle had become. He had recollections of once starting in a car from London with the object of getting to a place in Wales. He worked hard, and fought that car for a week before he reached his destination with broken chains and pipes.

Mr. W. Worby Beaumont confirmed the last speaker's view as to the improvement that had taken place. No doubt the experience gained in early trials had led to the present position.

A member of the Club having suggested that the writer of the paper might be willing to give his views as to the respective merits of petrol, steam, and electric vehicles, Baron de Rothschild said he had seen M. Serpollet three or four days before, and that he hoped with his new steam car to attain a speed of nearly 100 miles an hour on a specially-prepared road. At Cannstatt, on the last day of 1902, he had been allowed to see the new engine being built for the Gordon Bennett racer. It was of 100-h.p.

and would probably develop a speed of more than a hundred miles per hour on prepared ground. At a certain place, in one of the great races, Chevalier de Knyff had attained a speed of exactly ninety-eight miles an hour, but was obliged to slow down, as it was absolutely impossible to drive at that speed in open country. Whatever speed the car might be capable of attaining, the driver would not be able to trust himself to drive more than ninety-five or ninety-eight miles an hour. M. Serpollet had said when he could travel ninety-eight miles an hour he would not want to go any faster. With regard to electrical vehicles, up to now they had been only good for town work.

Mr. R. W. Wallace proposed a vote of thanks to the Baron. It was, he said, quite possible to construct an electric car that would go as fast as a petrol or steam car; but after the journey the battery would not be of any use. He hoped M. Serpollet would not risk too much in getting to the maximum of speed. He (the speaker) had never met a braver man—evidence of which was afforded by the way he drove towards the cliffs at Bexhill. They had wondered why the Mercedes had had such a wonderful following in France. It was now perfectly clear, for the Baron Henri de Rothschild had been to the works. French ideas had been given to Germany, therefore the French did not object to copy them.

Mr. A. F. Bird seconded the vote of thanks, and testified to the remarkable cures from insomnia that had been effected by automobilism.

The vote having been enthusiastically adopted, the brief reply of the recipient, closed the proceedings.

ELECTRIC AUTOMOBILES.

At the present time there are, in London alone, upward of 16,000 licensed horse-carriages, apart from private vehicles tradesmen's vans, etc. It is estimated that more than 200,000 horses are stabled each night in London, necessitating the daily removal of at least 5,000 tons of manure and refuse, in addition to what is distributed over the roads. The daily growth of London and of other large cities renders the problem of substituting motor-cars for horse-traction, even from a sanitary point of view alone, of the first importance. Electric automobiles have now become thoroughly practical vehicles, single journeys of more than 100 miles on one charge and tours of more than 1,000 miles having been accomplished satisfactorily. Electrical energy is an economical and readily-applied form of power, which is noiseless in its application, gives rise to neither smell nor refuse, and possesses the advantage that it can be turned on and off at will. It is only since the passing of the Locomotives on Highways Act, 1896, that the problem of motor-cars has been seriously attacked in England, and this country is far behind France, America, and Germany, where no such restrictions had to be fought against as hampered their development here before 1896. In America electric carriages were being made in 1894. It is interesting to note that at that time the limit of a run on one charge was 20 miles. Germany, France, Austria, America, Italy, Spain, Belgium, and other countries are giving earnest attention to the manufacture and improvement of electric vehicles, and in most of these countries makers are assisted directly by Government subsidies, by official trials, as in Berlin, and otherwise. In England it has been left entirely to private enterprise to compete with the foreigner for a share in this new and important industry, which even now gives employment to about 10,000 men in this country. The weight of the earlier electric carriages was out of all proportion to the weight of the batteries carried by them, due to the attempt to utilise existing coach-builders' work strengthened to carry the batteries. Further, the batteries and motors were very inefficient. In the electric cabs used in London a year or two ago, the total weight of the vehicle, battery, motor, and gear, for carrying a useful load of 4 cwt. (passengers and driver), was over 2 tons, a ratio of 1:10. These vehicles may be contrasted with a bicycle, weighing only 26 lbs. and carrying 140 lbs., or five times its own weight. In the electric cabs the weight on each wheel was about 10 cwt.; in a bicycle the weight on each wheel is about $\frac{1}{2}$ cwt.

Dealing with storage-batteries, the author stated that the active agents of the storage-batteries in general use are lead and dilute sulphuric acid. The batteries may be divided broadly into two classes, namely, the "to-be-formed," or Plante kind (1873); and the "pasted," or formed Faure type

*Abstract of Paper read by Mr. H. F. Joel, Assoc. M. Inst. C.E., before the Institution of Civil Engineers, January 13th, 1903.

(1881). The object of both these processes is to produce a couple consisting of a positive electrode of lead oxide, and a negative electrode of lead in a solution of sulphuric acid and water. Peroxide of lead is formed on the positive, and pure lead on the negative, by the process of charging; and energy is stored which is given up on discharging the battery, the electrodes returning to their first state of lead sulphate. The pasted cell is lighter than the other, and is more generally used in electric automobiles. The improvements made in storage-batteries to adapt them to electric automobiles are mostly in mechanical details of the supporting grids, to allow full expansion of the paste and to avoid sulphating; in the increase of the specific gravity of the electrolyte, from between 1.05 and 1.20 to between 1.15 and 1.30, and the consequent decrease in volume and weight and increased output in the chemical composition of the active material, i.e., paste; and in the mixture of the paste with inert materials to make it more coherent and porous. As a result, batteries for traction now give, weight for weight, three or four times the output of batteries used for electric lighting. A zinc and peroxide-of-lead battery of 120 ampere-hours can be charged at 90 amperes for 2 hours, and discharged at 20 amperes to 100 amperes. The output of the various storage-batteries, given by the manufacturers, as is shown in table A:—

TABLE A.

	Watt-hours per Lb. Complete Cell.	E.M.F. of Discharge.
		Volts
Faure-Sellon-Volekmar (France)	9.0	2.0
Fulmen (France)	11.0	2.0
B. G. S. Modified Fulmen (France)	12.65	2.0
E. P. S. Faure-King (England)	8.0	2.0
Rosenthal "National" cell (England)	15.0	2.0
Lee coll. (Lead and zinc with cadmium) (England) ..	10.6	2.5

TABLE B.
TESTS OF BATTERIES MADE BY THE AUTOMOBILE CLUB OF FRANCE, 1899.

Name.	Weight. Lbs.	Total Number of Discharges.	Total Kilo-watt-Hours.	Ton Miles at 100 Watt-Hrs. per Ton-Mile.	Efficiency fell from	Total Kilo watt Hrs. per Lb. of Cell.
					Per cent.	
Tudor	236.5	135	135.8	1,358	67 to 60	0.57
Blot Fulmen	215.6	132	143.9	1,439	76 „ 68	0.67
Fulmen	148.5	98	101.9	1,019	77 „ 68	0.67
Phoenix	202.4	102	118.8	1,188	75 „ 66	0.5
Pope	220.0	135	155.6	1,555	74 „ 70	0.7



A SNAPSHOT AT THE SWISS CUSTOMS OFFICE AT MEUDON.

[Le Chauffeur.]

ton-miles, allowing 10 per cent. loss of efficiency and an efficiency of charge and discharge of 80 per cent. This means that an electric vehicle, weighing, say, 6 cwt., with a battery weighing 6 cwt. and a load of the same amount, could run 10 miles per day for 330 days in the year, i.e., 3,000 ton-miles, taking 100 watts per ton-mile, at a loss of efficiency in the battery of 10 per cent.

The motors designed specially for electric automobiles are of light

weight compared with electric motors used for driving stationary machinery; they are of high efficiency, are capable of bearing very rough usage, and an overload of 100 per cent. for short periods. The author then briefly described the Still, the bipolar single-coil Lundell motor, the Krieger motor and gear, and the motor designed by himself. The latter has eight poles with the armatures revolving outside the fields. The armature has a long sleeve-bearing with a sprocket-pinion at its end, and by means of a chain drives the large sprocket-wheel attached to the spokes of the carriage-wheels. This motor is very light, weighing 112 lbs., and giving 2-b.h.p. at 700 revolutions per minute. It runs sparklessly, and owing to the large surface of wire exposed on the armature it will stand an overload of 100 per cent., while it has an efficiency varying between 80 per cent. and 90 per cent., according to the load.

Many ingenious methods of controlling electric automobiles in regard to direction of travel, speed, braking, recuperation, and recharging, have been devised. The controller is simply a commutating switch, or circuit-changer, and the system in general use is an adaptation of the series-parallel controller used on electric railways and tram-cars, and consists in grouping the batteries in parallel or in series as change of speed is required, or grouping the motors in parallel or in series with the same object, and also in combining the two. The author then described the system used by Jeantaud, Krieger, Northey, and others.

After dealing with underframes, the author went on to describe the size of wheels, which is a question which has recently received special attention. Dr. Luxenberg has shown that for level roads the resistance to traction, and the energy consumed, are, within certain limits, inversely proportional to the diameter of the wheels of the car; and he advises the use of wheels between 3 feet 3 inches and 5 feet, or more, in diameter. He estimates that the use of these larger wheels in place of the 2-foot 6-inch or 3-foot wheels generally used would effect a saving on the level of about 40 per cent. This, however, would not apply to hill-climbing, where the power must be increased almost in proportion to the gradient, necessitating either a lower speed or a large reserve of battery power. Wheels over 3 feet in diameter present difficulties in respect of reduction of speed. It is obvious that wheels of such diameter bridge the ruts and depressions of a bad road much more than 2-foot wheels, and with the heavy weight of electric cars the sinking and re-lifting of the car means great loss of power. As regards air-resistance, assuming that this follows Smeaton's rule, and also that, for purposes of calculation, the irregularities of the surface of a road may be allowed for by regarding the cross-sectional area of the car as forming half the curved surface of a cylinder, the pressure becomes serious at above 12 miles per hour, and has to be taken into account in determining the power required. The electric motor can be made with as high an efficiency as 85 per cent., and the loss in the gearing, especially high-class chain-gear, is about 2½ per cent. Allowing 25 per cent. for all losses, including the friction of the carriage-wheels, 75 per cent. is a fair all-round efficiency, and well within the conditions of practice.

Electric automobiles, when properly designed, possess the unique feature that they can return energy to the batteries when running downhill, the momentum of the vehicle causing the motor to act as a generator, whilst at the same time forming a very convenient automatic brake. At the Chislehurst trials in November, 1900, the highest current recorded for car No. 3 when ascending the steepest hill (gradient 1 in 10) was 119 amperes, and in descending the same hill a back charge of 35 amperes was given to the battery. The total weight of the car, with passengers, was 19 cwt. In many long runs on electric automobiles the author stated that he had not used the mechanical brake at all, stopping and reducing speed solely by the reactive effect of the motor. This makes the control of an electric motor-car simpler than that of any other self-propelled vehicle, and, of course, there is no loss of energy with shunt-wound motors in stopping, but rather a gain.

The ratio of the weight of the vehicle to the weight of the power-giving battery is of great importance. Generally, as the ratio of the weight of the battery to the weight of the vehicle increases, so the distance that such a vehicle can be run on one charge is increased; but of greater importance from a practical point of view is the load-carrying capacity, and the ratio of the weight of the useful load to the weight of the battery and vehicle. The author submits that cars in which the weights of batteries, vehicle, and load are equal, are, all things considered, the most suitable for electrically-propelled vehicles.

The last point for consideration is the cost of electric propulsion on common roads, and in order to put this question in a clear form, the author prepared a table giving the comparative costs of different motor-cars. It is possible to run electric vehicles on a good level road with an expenditure of only 50 watt-hours per ton-mile, at a cost for electric energy of 0.1d., taking the actual cost of generating the electricity, with a fair profit, at 1½d. per Board-of-Trade unit. This cost will compare favourably with any other system of self-propelled carriages, and makes electric propulsion on roads, with its advantages already enumerated, more promising than any other system of motor-carriages. The difficulty of obtaining a fresh charge for the batteries is now being rapidly overcome, owing to the readiness of the electric-supply companies in towns and in country districts to provide motor-houses, and to recharge at all hours of the day and night, at a reasonable cost. Charging can be effected in every district in London, and at Chelsea, Hampstead, Richmond, Windsor, Watford, Stratford, Leyton, Harrow, Chislehurst, Putney, all on main roads leading from London; farther out there are charging-stations at Guildford, Crawley, Woking, Tonbridge, Chelmsford, Luton, Cheltenham, Reading, Maidenhead, and other towns on the River Thames; and still farther afield the like facilities

are afforded at Brighton, Southsea, Hastings, Oxford, Bath, Bedford, etc., and many other towns throughout the country. It appears to be desirable to fix upon a standard for the electro-motive force to be used in electric automobiles; such a standard would be of great advantage to the designer and manufacturer of such automobiles, and of the motors, batteries, etc., used in them. The potentialities of electric propulsion of carriages on common roads are very great. France, America, Germany, and other countries are far ahead of England in regard to the manufacture of motor cars; but the author hopes that England will now take its place in the world with this new industry, as she did in the past with the steam-locomotive.

A CLAIM FOR NEGLIGENCE.

On Monday, at the Wandsworth County Court, Judge Russell tried the case of "Chipp v. Levita," which was an action brought against Mr. Claude Levita, of 27, Ennismore Gardens, Rutland Gate, W., to recover damages for personal injuries sustained through being knocked down by a motor-car in High Street, Wandsworth. Mr. A. Cairns appeared for the plaintiff and Mr. E. G. Mears was counsel for the defendant. The damages were laid at £50, and there was also a claim for £12 10s., special expenses. The facts of the accident were reported in our columns in August last. On a point of law, Mr. Mears contended that the driver took all reasonable ordinary proper precautions to prevent the gear starting. The Judge: Except by leaving someone in charge of it. Mr. Mears said that no principle of law required someone to be left in charge of a motor-car. The Judge said the general principle of law equally applied to horses and carts, and motor-cars ought not to be left unattended, when mischievous boys might interfere with them. The learned counsel quoted from "Bevan on Negligence," which set forth that the general rule of law was that where every precaution had been taken, and injury had been inflicted through the independent act of another person, the owner was not liable. The Judge: Cockle was fined by the magistrate for leaving the car unattended, and the conviction was upheld on appeal. Is it not therefore ridiculous to ask me to hold that there was no negligence? The Board of Trade does not affect the general principle of law. Dr. Dorin, of Clapham Road, S.W., then gave rebutting medical evidence. Mr. Cairns, addressing the Judge, commented on the fact that nothing had been paid into court. He submitted that his client's health had been seriously impaired, having regard to the fact that she was a woman of fifty-four.

His Honour said he had already expressed his opinion on the question of negligence, and he did not intend to say more. He thought this lady had put forward a very inflated claim, and he proposed dealing with it accordingly. He awarded her £8 10s., with costs.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Hove	F. W. Norman, Burgess Hill.	—	£2 etc.
"	A. H. Spinks, Sandhurst	—	£1 "
"	*H. Cowles, Brixton	—	£1 "
Winchester...	C. Hargreaves, Reading	19 m. p. h.	£5 "

Where no alleged speed is given it is understood to be above the legal limit.

*Motor-cycle case.

JAMES M'DONALD (19), a motor-car driver, was charged at Edinburgh with having recklessly driven a motor-car in Queensberry Road, on the night of the 19th ult., in consequence of which the car collided with a carriage under the charge of Charles Logan, knocking down the horse and breaking a shaft. He pleaded guilty. In reply to the Bench, the accused explained that he put on the brakes, but the car skidded on the wet road, and the back swung round and struck the horse. A fine of 30s., with the option of ten days' imprisonment, was inflicted.

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COMMENTS.



A MEETING of the Liverpool Self-Propelled Traffic Association has been held at the Exchange Hotel, Liverpool, Professor H. S. Hele-Shaw, F.R.S., chairman of council, being in the chair. The attendance included Messrs. A. G. Lyster (engineer to the Mersey Docks and Harbour Board), W. Becket Hill, T. Thornycroft Vernon, Max Muspratt, Thomas Lloyd, W. E. Moss, and E. Shrapnell Smith. Letters of apology were received from the Earl of

Derby (president), Sir A. L. Jones (vice-president), and other members of the council. The principal business of the meeting was to confirm the election of Mr. W. E. Moss as hon. secretary, and Mr. Moss's appointment was unanimously confirmed on the motion of the chairman, seconded by Mr. A. G. Lyster. The programme of the association for the coming year was discussed, and it was decided to invite Mr. Mark Mayhew to give an address at the Royal Institution in March. There will be a Club meet at Easter, and speed trials both as separate fixtures and in connection with the British Association Committee for the investigation of the resistance of road vehicles to traction. It was unanimously confirmed that the entrance fee and annual subscription be each doubled, the latter now being two guineas instead of one.

The 1903 Mercedes Car.

MOTORISTS who visited the Paris Exhibition, no less than those who heard Baron Henri de Rothschild at the Automobile Club a fortnight ago, recognise that 1903 is a "Mercedes" year. Many French makers seemed in a state of uncertainty last month, and all were anxiously awaiting the advent of the new Mercedes car. Hence the interest with which our article on the details of the new model on another page will be read on both sides of the Channel. We are this week able to publish the earliest information with regard to the new features to be introduced in this famous vehicle, and it will be seen at once that the Mercedes firm is determined to do all that is possible to maintain the position already won.

Motor Racing.

THE attendance at last week's meeting at the Automobile Club was somewhat thin, and it occurred to some of those present that in arranging for a paper every week the Committee were attempting too much. Seeing that Mr. Jarrott was dealing with a subject which he has made his own, the paper was one of great interest, particularly to the many recent converts who formed a considerable factor of the audience. There was something exciting in his account of the Paris-Vienna race, and he rightly described his arrival at the Prater in Vienna as "dramatic." When he arrived in Vienna with his governor broken, his throttle gone, no exhaust-box, running on the low gear, unable to change speed through the impossibility of taking out his clutch, regulating his speed by the ignition, the frame of

the car practically in half, no cap, no coat, and no goggles, he must have presented a picture ludicrous to a degree, but indicative in a measure of the effort he had made to get the car through.

Effect in the States.

THAT Mr. Jarrott's eulogy on racing as a factor in the development of the automobile industry was not too highly pitched is proved by the zest which has been infused into the American trade by the decision to send an American team to compete in the Gordon Bennett race. It is strange that the donor of the trophy, an American, should have had to wait until the fourth year of the competition before seeing America represented among the competitors. Sight is often lost of the fact that the motives that actuated Mr. James Gordon Bennett in offering the cup bearing his name were very patriotic and intended to stimulate the automobile industry everywhere. It was expressly stipulated that each competing car should be the actual product in every detail of the country entering it. Not even parts of fittings could be imported. Until the industry of a country had so grown that it could produce every iota of manufactured material that entered into the composition of the car, that particular country was barred from the contest. But it is evident throughout the United States that now there is a definite entry from that country manufacturers are taking up the business with a serious purpose and determined intent.

Why not in the Fen Country?

CARE must be taken in connection with the agitation for the Gordon Bennett race to be run in the United Kingdom, that public attention is kept to one district—to avoid confusion in the public mind and allow the local authorities on the proposed route to make what repairs on the road seem necessary. Hence the suggestion made in the "Lincolnshire Echo" that the race should be run in the Fen country is a little belated; and seeing that a suitable course has been found in Ireland, somewhat unnecessary. There are good roads in Cambridgeshire, Lincolnshire, Huntingdon and Norfolk, along which a course might be found. But now that experts have reported favourably with regard to the proposed Irish route it will be well to focus attention there—at least for some weeks to come.

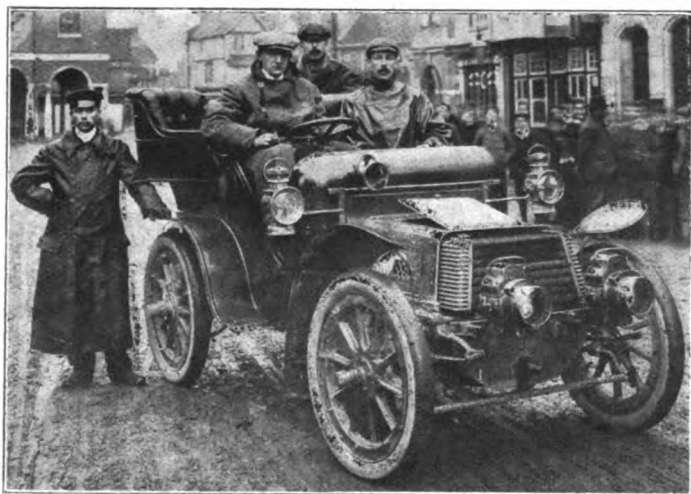
The Race in Ireland.

MR. ROGER WALLACE, the president of the Automobile Club, is decidedly hopeful as to the prospects of the great event being held in the Emerald Isle. Speaking at the Club, on the 16th, he said some people had been approaching others in high quarters as to whether the race should be run in Ireland or not. But the Club would be very much obliged to those people who had such wonderful initiative if they would control their powers until the whole matter had been considered. Firstly, the Club had assured itself that there was a suitable course, and, secondly, a letter was to be addressed to every Irish M.P. asking him to sign a petition to support the race being held in Ireland. Should the race be held there, automobile tours to

other parts of the country would be arranged, and a hill-climbing competition organised near Belfast, and a race for motor-boats held at Cork. When the Irish members had approved the idea would be the time to go a step further in the matter.

Aluminium.

HAVING thus indicated the policy of the Club with regard to the race, Mr. Wallace made reference to the effect of automobile racing on the industry. During the last few months the consumption of aluminium had increased by nearly 50 per cent., and much of that was to be attributed to the motor-car trade and the conditions regarding weight that had been imposed on racing vehicles.



MR. CHAS. HARDY, OF NOTTINGHAM, ON HIS NEW 12-H.P. DAIMLER.
Photo by *(Argent Archer)*

Automobile Fire-Service Vehicles.

EXPERIMENTS are now being made in Berlin with an electrical motor fire-service vehicle to carry firemen to the scene of the outbreak immediately on receipt of a "call." The vehicle, which carries a reel of hose, ladders, etc., weighs, when loaded, 2,200 lbs. It is driven by a 4-h.p. electric motor, running at a speed of 1,500 revolutions per minute, and transmitting its power to the rear axle through a double reduction gear. The electrical energy is furnished by a battery of accumulators weighing 11 cwt. 88 lbs.; a speed of $9\frac{1}{2}$ miles per hour can be attained. A second and more powerful automobile is, remarks the "Electrical Review," also being tried by the Berlin Fire Brigade authorities, capable of attaining a speed on the level of $12\frac{1}{2}$ miles per hour. It is driven by two electric motors, each of which is rated at 9-h.p., but which can, on occasion, develop 12-h.p. without fear of damage. The vehicle, complete with battery, firemen, hose, ladders, etc., weighs 7 tons. The cost of a car like the second one referred to is stated to be £600; the annual cost of upkeep and energy is put down at £125, this including 5 per cent. interest on the first cost, and 5 per cent. for depreciation and renewal. The average cost per kilometre works out at $2\frac{1}{2}$ marks (a little under 2s. 6d.), which is stated to be less than that of animal traction.

Motor Buses for Eastbourne.

WE have previously mentioned that the Eastbourne Town Council adopted a scheme for the provision of public motor buses to run over various routes in the borough. A clause was inserted in the Parliamentary Bill passed last year entitling the Council to run these buses, and about sixteen tenders were received from different firms for motor buses of all sizes and descriptions. The Electric Light Committee, after considering the tenders, selected about half the number for a sub-com-

mittee to enquire into and report upon. There is likely to be a good deal of delay before the question is finally settled, and some time will doubtless elapse before the committee can bring forward any recommendations for the consideration of the Council. There has been considerable opposition in the town to the provision of tramways, and motor buses have been put forward as a compromise.

At Wolverhampton.

THE Wolverhampton and District Automobile Club has now thirty-four members—an increase of nine during the year. At the second annual dinner, held at the Victoria Hotel a few days ago, Alderman Johnson proposed "Success to Automobilmism," remarking that the three local firms making motor-cars were busily engaged. Mr. S. R. Rhodes, the secretary replied. He said that they as a Club had progressed in more senses than one. It was very gratifying to find that the prejudice against automobilism was passing away. Whilst they wished to extend the greatest consideration to the drivers of horses, he wished they could instil into their minds that the automobilist had as much right to the roads as anybody else. They heard much about certificates for proficiency for drivers of automobiles, but it would be better to have an association on the part of the owners of horses to teach courage to the drivers of horses. The motor industry had progressed very rapidly in the past twelve months, but they still had much headway to make up. He referred to the way in which the municipalities were utilising motor-vehicles, and said that in one case the cost for drivers, etc., had been decreased from £1,300 when horses were used to £500. The Wolverhampton authorities might use fully take the hint. Going on to discuss the proposed new Act, he pointed out that there was now no talk of limiting the speed of automobiles, quoting utterances by Sir William Harcourt, Mr. Chaplin, and Mr. Ritchie. He contended that numbering would not be of any advantage, and exhaustively discussed the objections to Mr. Scott Montagu's Bill. Mr. A. E. Jenks proposed "The Visitors." During the evening a capital entertainment was given by Messrs. G. P. Fletcher, B. Sanders, Willis C. Crisford, and Professor J. T. Wenyon.

"Truth's" Opinion.

HAS not the time come, asks "Truth," when the twelve-mile limit of speed ought to be reconsidered altogether? It seems a stupid, wooden formula which exists merely as a concession to obsolete prejudices. It is irrational because, under many circumstances, it exceeds the reasonable maximum quite as much as under others it exceeds the reasonable minimum. At a crowded spot, such as the Mansion House or Piccadilly-circus at mid-day, six miles an hour may often be a dangerous speed. On many a country road, with a clear course, and no openings from side turnings, there is no danger in twenty-five miles an hour. The mistake of laying down a fixed statutory limit of speed is that the standard of safety must always depend entirely upon the circumstances of the moment. In addition to this, the present maximum limit is absurd, because it takes no account of the fact that a properly-built motor-car is far better under control, and can be stopped dead far more quickly, than any horse vehicle going at the same pace. A motor-car going at twelve miles an hour is therefore far less dangerous in the event of any sudden obstruction of its course than a four-horse stage-coach driven at the same pace.

Earl Spencer's View.

A DISCUSSION on motor-cars has taken place at the Northamptonshire County Council, and a resolution was adopted instructing a committee to take steps to devise further precautions against accidents to the public through the reckless driving of motor-vehicles. In the course of the debate Earl Spencer said the motor-car had come to stay, and he did not suppose they wished to restrict their use. He certainly thought, however, that the public were not sufficiently protected, and he especially

favoured not only the registration of cars with easy means of identification, but drivers should be required to have certificates of efficiency. We are glad to have Earl Spencer's recognition of the automobile as something not to be treated as the fad of a moment, and would wish all our county magnates would be equally tolerant. At the same time it cannot fail to be observed that the Earl was not very definite as to the particular means of identification to be employed.

Numbering.

TOUCHING on the question of numbering, he contended that such provision would not be of any advantage—a conclusion to which most motorists have already come. In fact, the only enthusiastic advocates of labelling motor-vehicles

at the present time are bucolic councillors and prejudiced persons owning horses and disliking automobiles. The fact that feeling has lately grown so strongly against numbering is already having its effect; and the advocates of numbering in automobile circles have become considerably less energetic in their efforts to impose unnecessary and irritating conditions on their *confreres*.

Mr. Ellison (motor-tricycle); and Mr. Chippendale (motor-bicycle). At lunch Mr. Harrison Benn (Vice-President) proposed a vote of thanks to Mr. and Mrs. C. Kirk for extending their hospitality to the members of the Club. This was seconded by Mr. T. Atkinson, and having been enthusiastically adopted was responded to by Mr. C. Kirk. After luncheon the cars were driven to the front of the Hall, and after the usual motor talk and gossip they commenced their homeward journeys. The weather was keen and frosty and the roads were in splendid condition. The annual general meeting of the Club will be held at headquarters on the 29th inst.

For Business Men.

At the annual dinner of the Huddersfield branch of the Commercial Travellers' Association, Sir James Woodhouse, M.P., referred to the value that the motor-car was likely to prove to commercial men. He was talking with one of the delegates who had been over to America from the London Chamber of Commerce; and he told him that one day he was seated at the dinner table, and said to his next-door neighbour, who happened



SCENE AT THE "WILD WEST," OLYMPIA.—COSSACKS AND THE CAR.

[The Biograph Studio.]

Yorkshire Automobile Club.

THE opening run of the season of the Yorkshire Club was to West Huntington Hall, near York, on Saturday last, in response to Mr. and Mrs. Kirk's invitation to lunch. The replies were from all parts of the county, and promptly at noon the cars began to arrive. Amongst those present were: Mr., Mrs. and Miss Benn, and Mr. I. E. King (22-h.p. Daimler); Mr. H. R. Kirk, Mr. Bolton, and Mr. Smith (12-h.p. Gladiator); Mr. and Mrs. Hepper, and Mr. Jones (12-h.p. Belsize); Messrs. T. and T. P. Atkinson (9-h.p. Clement); Mr. and Mrs. Armitage (9-h.p. Clement); Mr. Woolf and Mr. Hey (9-h.p. Clement); Mr. and Mrs. Whitaker (10-h.p. Lanchester); Mr. Wentworth Clark (Clement); Mr. and Mrs. Beevers (8-h.p. M.M.C.); Mr. A. W. Dougill (Hon. Sec.), Mr. Ramsden, and Mr. Braime (8-h.p. Loidis); Mr. and Mrs. Parker and Mr. J. W. Smith (8-h.p. Humber); Mr. and Mrs. Winn (4½-h.p. Renault); Mr. and Mrs. Walker (4½-h.p. De Dion); Mr. Mortimer and Mr. Wilson (4½-h.p. Renault); Mr. Borland and Mr. Nichols (4½-h.p. De Dion);

to be the chairman of a tramway company, that he would like to have gone to a certain place, but that he could not be back to keep an appointment in the morning. The gentleman touched a bell, ordered a motor-car, and he who had expressed the wish went off in it at a rapid rate, and visited the place. There is no doubt that the motor-car is likely to effect a wonderful change in business methods, and in enabling commercial men to be independent of the train that only runs at certain times, will be an indispensable convenience.

An Accommodating Carburettor.

AN account has reached us from the makers of the "Sthenos" carburettor of a trial of the same made during the Paris Show. A 1½-h.p. motor fitted with one of these carburettors, of the cycle type, and without exhaust jacket, was arranged to drive a dynamo for the purpose of testing its output. The carburettor was then supplied in turn with petrol, alcohol, and paraffin oil, and ran well under each of these conditions,

giving a constant output from the dynamo. It is further stated that the exhaust was devoid of smell with all three fuels. No information is to hand as to how near to the inlet valve the carburettor was placed, and in the cars we have seen there is a somewhat longer inlet pipe than the makers appear to favour, which might militate against the successful use of heavy oil. It would, however, be an interesting experiment to make with a car so fitted.

Wider Roads.

FROM the Roads Improvement Association comes a pamphlet giving a brief history of the agitation for securing better and wider roads throughout the country—a national movement that ought to be supplemented by local action wherever possible. A list of M.P.'s favourable to an enquiry into the existing system of highway administration is given, together with some extracts from their opinions. Captain C. B. Balfour calls attention to the better plan which prevails in Scotland, where all the roads in a district are under one authority. The Earl of Dalkeith also directs notice to the Scottish plan, while Mr. C. Eric Hambro points out that "motor-cars and motor-wagons will certainly be the vehicular traffic of the next decade all over the world, and if we do not provide good roads now, we shall be left far behind the rest of Europe."

Roads in Essex.

IN the course of an address on "Our Roads" at Southend, Mr. W. J. Ellis alluded to the lack of a main road between Southend and London, and cited the statement of a gentleman who had travelled all over the country that the roads in Essex were the worst in the kingdom, and that those in the South-eastern part were the worst of all. Their deplorable condition was owing to the wrong material being used. Guernsey granite would be the cheapest in the end. In France the cost of making roads was £37 per mile. In Southend the figure was £103. The chairman mentioned that at Tunbridge Wells the cost had been £411 per mile; at Dover, £1,251; and at Rochester, £564.

Reprehensible Procedure.

OUR correspondence columns this week give evidence of a remarkable state of things which we hope and believe is isolated to only a very few instances. Often it is difficult for a maker to decide how customers are attracted—whether by the arguments of local friends, or by the announcements in the press. But in the case alluded to the claims of the agent who applied for commission seem to have been ruled out of court by the reply of the customer, who introduces the *Journal* as the primary cause of his interest in the particular vehicle he ordered. In giving publicity to this request for commission, we would suggest to agents and to manufacturers the necessity of having very definite arrangements in all business transactions, so that there is no loophole for disagreement.

Some Good Advice.

THE little handbook which the Ohio Motor Company has lately issued with regard to the Packard petrol car contains some useful advice which is well worth repeating, as it applies to motorists on both sides of the Atlantic, and apart from the particular make of car they are using. We therefore extract the following from the booklet in question:—"No piece of machinery was ever made which would run continuously without some care and attention. When you buy an automobile there is formed an unwritten agreement between you and the machine. You expect to receive certain benefits from its possession. It likewise exacts a penalty from you in direct proportion to your own demands. You cannot make it a one-sided proposition, in which everything is your way, and anyone trying to so convince you is a lineal descendant of Ananias. An automobile is almost human. But it is unable to build up worn-out tissue or to recu-

perate in the slightest from the effects of hard usage. We plan and build to the best of our ability and provide means for prolonging the life of the carriage, but the amount of pleasure you receive will depend upon the care you take of it. No matter what we may write on the various kinds of automobile mishaps, it will always be for you to make the diagnosis and apply the remedy. The times when a car stops without warning are rare indeed. There are usually symptoms apparent for some time previous to a complete shut down, which indicates disorder. When you notice that the machine is not acting as usual, do not continue in the belief that the trouble will right itself, but begin at once to check off in your mind those things which you know to be doing full duty, and you will rapidly arrive at the part which needs attention. Don't get discouraged or blame the manufacturer until you know you are not suffering from some simple omission of your own."

American Police Enterprise.

SOME time ago the police authorities of New York supplied bicycles to certain members of the force in order to aid them in their chase after speedy motor-cars. But it has at length dawned upon these wiseacres that policemen in uniform are conspicuous objects which motorists take a special care to avoid. They have now attired their policemen in ordinary garments, with the result that they have had larger hauls of motorists in the police courts. Seeing their anxiety regarding the automobile industry, why do not the authorities of New York go one better and supply the newest types of motor-cars for the limbs of the law, so that they may be thoroughly up-to-date—and thoroughly up to the motorist in the matter of speed?

The Latest about the Race.

WE may point out in connection with the active efforts now being taken to secure the Gordon Bennett contest being run in Ireland, that the race will begin at daybreak—say about 3 a.m.—and conclude within ten hours, so that the stoppage of traffic will not prove irksome to anyone. Representative Irishmen are already expressing agreement with the idea, and the Marquis of Hamilton, Sir Edward Carson, Sir J. H. Haslett, Mr. John Redmond, Mr. T. M. Healy, and Mr. P. J. O'Brien, though differing in most Parliamentary matters, are reported to be unanimous in their approval of the race taking place in their country. The Naas-Kildare-Maryborough-Athy-Carlow road is securing universal favour.

It is announced that M. Fournier has sold his famous Mors racer to Mr. W. R. Hearst, of New York, for £5,000.

THE Norfolk County Council is trying to obtain the support of other county authorities in favour of the numbering of motor cars.

THE Highways Committee of the Bucks County Council has given the Automobile Club permission to erect notice boards on the main roads.

AN International Automobile fete will be held at Paris in June. There will be a reception and banquet on the 18th of the month, a run to the Forest of Fontainebleau on the following day, and a grand fete on the 20th.

At a meeting of the Scottish Automobile Club (Western Section), held at Glasgow on Monday, Mr. John Adam presiding, Mr. W. H. Kingsbury read a paper on "Tyres, their Origin, Preparation, and Use." The paper was illustrated by exhibits of tyres and of sections of tyres. A general discussion followed, after which Mr. Kingsbury was thanked for his interesting paper.

THE three 16-h.p. vans supplied by Messrs. Milnes-Daimler, Limited, to the Motor Haulage Company, of Manchester, and which are used to convey the night mail between Manchester and Liverpool and *vice versa*, are, we learn, proving very satisfactory. The vehicles carry a load of 35 cwt., and have covered close upon 4,000 miles without a breakdown of any kind. Over an extended trial the 16-h.p. engines have been found to use nine gallons of petrol per eighty miles with the vehicle loaded.

The 1903 Mercedes Car.

SO far, little information has been allowed to leak out with regard to the details of the 1903 Mercedes cars. It is known, however, that attention is being given to a 60-h.p. car, which will have engines comprising four cylinders, the diameter being, we understand, 140 mm. by 150 mm., as compared with the 118 mm. by 150 mm. cylinders of the 1902 40-h.p. engine. The racing cars, of which, we believe, six are being built, will have four-cylinder engines, developing 80-h.p. at a speed of from 1,000 to 1,200 revolutions per minute, the diameter of the cylinders being 170 mm. by 150 mm. stroke. The capacity of the cylinders in the 40-h.p. car is 1,640 cubic centimetres, in the 1903 60-h.p. car it is 2,052 cubic centimetres, and in the 80-h.p. racers 3,404 cubic centimetres; it will thus be seen that the motor of the new racer has a capacity more than double that of last year's 40-h.p. vehicle.

The weight of the frame, springs, and axles has been further reduced, and at the same time the strength and rigidity of the same have been increased. The cooling surface of the radiator has been doubled by a new method of arranging the tubes without increasing the volume. There are many other new features

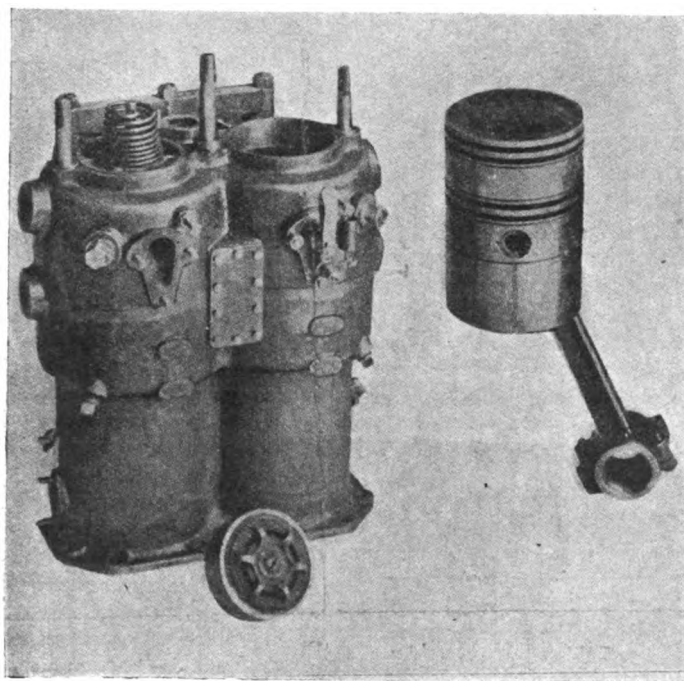


FIG. 1.—VIEW OF CYLINDERS SHOWING NEW INLET VALVES.

about the 1903 motor, which will, if desired, have a double system of ignition. In view of the demand for Mercedes cars, the Cannstatt Company are making preparations for considerably increasing their output, and instead of building fifteen cars a month, as at present, they will soon be able to turn out forty.

Since the above was written some further particulars have reached us of the 1903 models of the Mercedes cars, together with illustrations which, in view of the great interest shown therein, we hasten to publish. In addition to the 60-h.p. car already referred to, an 18-h.p. vehicle is being introduced for the 1903 season; it will be fitted with a four-cylinder engine, developing from 18 to 25-h.p., the car, complete with tonneau body, weighing 750 to 800 kilos (14½ to 15½ cwt.). The parts illustrated herewith are those of the 60-h.p. car, but as the 18-h.p. is a replica in miniature of its big brother, the following brief description will apply to both.

To deal first with the engine. This will, of course, have four cylinders, the latter being cast in pairs. A noticeable alteration is the placing of the inlet valves directly in the centre of the cylinder head. The valves are of unusually large size, as will

be seen by a glance at Fig. 1, in which the valve in one cylinder is shown in place, while that of the other is lying on the ground. The inlet valves are mechanically operated, but the actual details of the arrangement adopted have not yet been made public. The placing of the inlet valves in a central position is claimed to not only concentrate the force of the explosion on the piston,

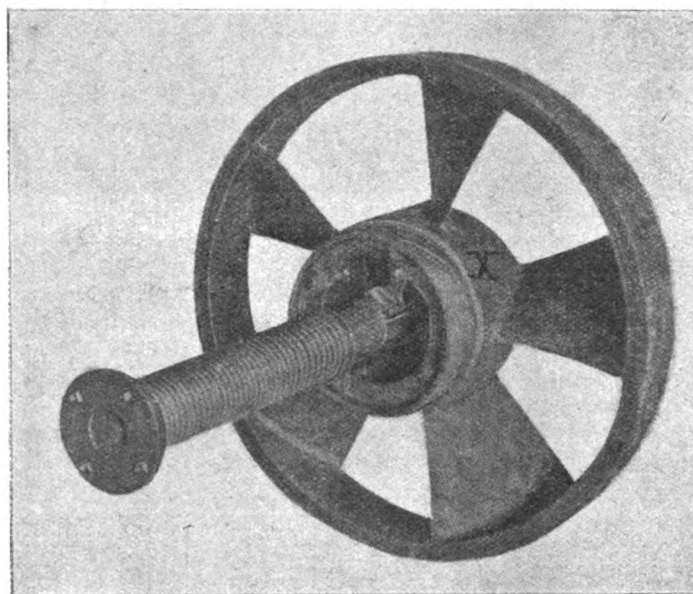


FIG. 2.—VIEW OF NEW FAN-TYPE FLYWHEEL AND CLUTCH.

but leaves one side of the cylinder free for the magneto-ignition gear. A new carburettor is being adopted; this is smaller than the 1902 pattern, and, while giving a perfect mixture, allows the motor to be run at even a slower speed than last year's type. Owing to the patents not yet being secured, no information with regard to its construction can, states the "Allgemeine Automobil

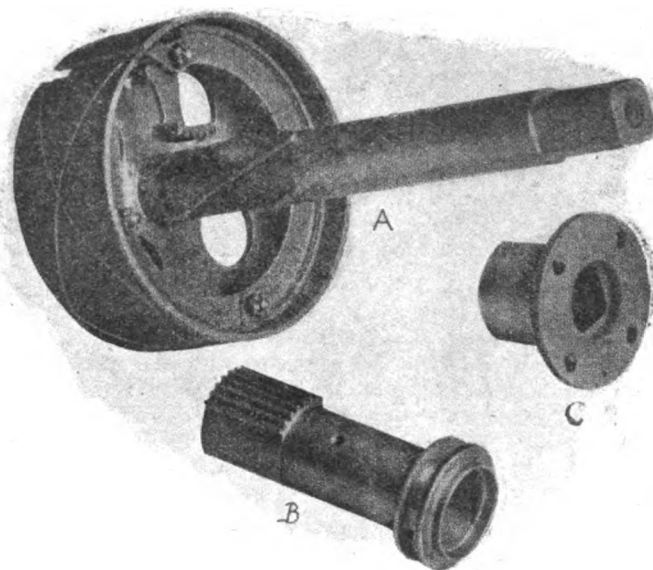


FIG. 3.—DETAILS OF NEW CLUTCH.

Zeitung," to which we are indebted for the illustrations, as yet be given.

Passing now to the transmission mechanism, we may first of all mention that the clutch has been entirely remodelled. Figs. 2 and 3 show the arrangement so clearly that little description is necessary. The fly-wheel, it will be noticed, is still made

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to act as a fan to induce a current of air through the water-cooler, which, by the way, comprises no less than 5,000 tubes! A large cylindrical boss X is formed in the centre of the fly-wheel, this boss serving as the female part of the clutch. The male portion is shown at A in Fig. 3: it is of the expanding type, the segments being opened and closed by means of a semi-circular toothed rack. The clutch shaft has formed on its forward end a spiral guide, a corresponding spiral track being provided on the inside of the clutch shaft B. On the end of the outside of the latter is a toothed segment meshing with that connected with the expanding clutch. As the sleeve is pushed forward by means of the clutch pedal it is at the same time, by the spiral guides, given a rotatory motion, this being conveyed through the toothed segments to the clutch, which is thus expanded or contracted as desired.

We now come to the change-speed gear. As hitherto, four forward speeds and a reverse, controlled by a single lever, are available. Fig. 4 gives a view of the gear; the change from one speed to another is actuated by means of a disc E, on which are

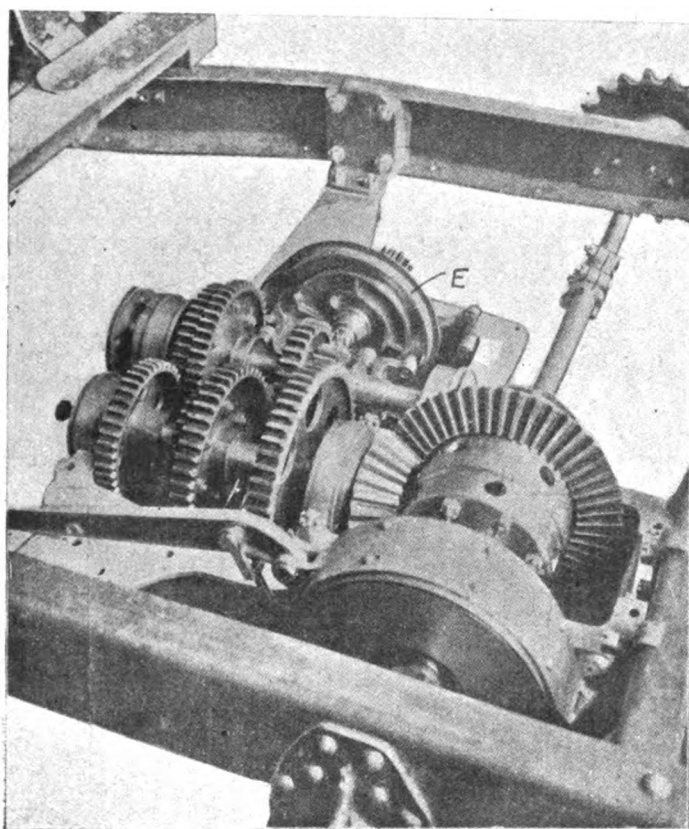


FIG. 4.—VIEW OF NEW CHANGE-SPEED GEAR.

formed two grooved cams, each one operating two speeds. On the outer end of the shaft carrying the disc is a small pinion meshing with a toothed segment connected with the change speed lever. The latter is now arranged so that the four speeds are obtained one after the other, by pushing the lever forward in the quadrant. The shafts in the gear box are mounted on ball bearings.

The frame of the cars is, of course, of the pressed steel type: a change has, however, been made in the axles, which are now of T section, instead of round. The band-brakes on the rear wheel are of a new design, intended to prevent any objectionable rattling even after long use; owing to questions of patents no information regarding them can be given for the moment. Fitted with 34-tooth sprockets, and the engine running at 1,100 revolutions per minute, it is expected that the 60-h.p. car in racing trim will be capable of attaining a speed of 128 kilometres (eighty miles) per hour.

In conclusion, just a brief mention may be made of the 1903

Mercedes Gordon Bennett racers, which will have 80-h.p. motors, capable, it is said, of developing 90-h.p. Great secrecy is being shown with regard to these vehicles, but we learn from a reliable source that the motor will not be fitted in the fore part of the frame, but approximately in the centre, the driver's seat being mounted directly over the rear axle.

The foregoing few notes are by no means a complete description of the 1903 Mercedes design; they briefly summarise the principal changes that have been made as compared with the 1902 type, which we feel sure, in view of the prevailing conditions of the industry, particularly in France, will be read with more than passing interest.

SOME USEFUL NOTES.

IN the case of heavy, or very fast light cars, repair patches should always be vulcanised on the tyres. If a patch is applied with solution in the ordinary way it is sure to come off after a time, unless the car is driven at a very moderate speed. Therefore a spare inner-tube should invariably be carried.

WHEN a short stretch of new metal is encountered on the road it should, if possible, be "rushed" with the clutch out. This prevents the back tyres driving on the metal, and is a practice which, when consistently adopted, greatly lengthens the life of the driving tyres.

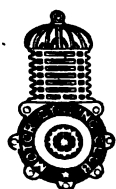
HAIR felt is the best thing to use for protecting the steam pipes of steam cars from the effects of severe frost. This material, which stands first on the list of combustible insulators, should be wrapped about the piping leading to the steam gauge, the automatic regulator and the water supply pipes from the water tank to the pump.

ALTHOUGH a plug in which the packing is loose may yield a good spark when the car is standing at rest, the current may be short-circuited in the plug under the influence of vibration when the engine is running and misfires result.

DURING very cold weather a considerable amount of trouble is caused by frozen carburettors. In some cars the carburettors are jacketed with a branch from the exhaust or from the water-tank, and in such, of course, no trouble is experienced. The symptoms of a freezing carburettor are: (1) Gradually decreasing power in the engine; (2) little or no response when the throttle is opened. Treatment: (1) Hot rags applied to the carburettor; (2) if there is need for haste a few drops of petrol may be poured on the carburettor (the tap between it and petrol supply being closed) and a light applied. Needless to say this method is only applicable where the carburettor is suitably situated, and should not be adopted by the novice. It requires exceedingly careful handling, or the cure may be worse than the disease.

DR. H. GROOM, of Wisbech, sends us the following "useful note":—"My man, in washing down the car, very frequently found, especially when the roads were muddy, a great trouble in washing the wheels, which receive most of the slush. To assist him I purchased a cheap lifting jack; he can now raise each wheel separately off the ground, greatly facilitating the cleansing, and saving much annoyance and trouble. If this little extra is considered too great a luxury, or too heavy to carry on one's car, a very cheap and simple device to obtain the same result can be made by getting a piece of common board, about $\frac{3}{4}$ in. thick, and cutting it to about 6 in. wide. All that is then necessary is to cut the board about one inch longer than the distance between the car axle and the ground; by placing this slanting against the wheel to be lifted, under the axle, and then carefully pulling back the car, the axle rides on the wood, and when perpendicular it affords a very simple means of raising the wheel; it is not advisable to raise more than one wheel at once. By carrying such a simple thing a great trouble is easily got over, not only in cleansing, but also in repairing a punctured tyre or even when a wheel is taken off."

MOTOR-CYCLING NEWS.



AS briefly reported in our last issue, the first annual dinner of the Motor-Cycling Club was held on Wednesday last week. Mr. S. F. Edge occupied the chair, and the company numbered altogether about sixty. In place of the ordinary after-dinner speeches, the novel feature was introduced of short papers on subjects connected with motor-cycling, the innovation being a great success. Mr. F. Straight read one on "Classification—Handicapping—Weight v. Power," and though his views on the subject did not meet with entire approval, yet the paper was listened to attentively. Mr. B. A. Hunt dealt with the subject of "Transmission and Ignition"; Mr. A. L. Owen, with the "Organisation of Motor-Cycle Clubs"; Mr. F. R. Johns, with "Fore-Carriages and Trailers"; and



THE HUMBER OLYMPIA MOTOR TANDEM.

Mr. G. F. Sharp, with "The Value of Pedals." The feature of the evening, however, was the announcement by Mr. Edge that a suitable course had been found in Ireland for the Gordon Bennett Cup race. For the 1903 season the Motor-Cycling Club has an ambitious programme, including consumption tests, hill-climbing trials, and inter-club runs.

IN view of the bitterly cold weather experienced last week, the performance of Mr. E. G. Young and Mr. J. Kich, two members of the recently-formed Nottingham Motor-Cycling Club, is worthy of mention. These two hardy motor-cyclists came up by road from Nottingham to London on Wednesday, the 14th, on their motor-bicycles to attend the annual dinner of the Motor-Cycling Club.

THE Automobile Components, Limited, of Church Street, Islington, are desirous of matching M. Maurice Fournier (riding a motor-bicycle weighing under 50 kilos and fitted with an "Automotor" engine) against the representative of any other manufacturer for a speed test over any distance from one to fifty miles for not less than £250 a side. The test is to be decided on or before the 21st prox. The weight of the complete cycle whose maker accepts the challenge is not to be more than 50 kilos. A sum of £50 has been deposited with the proprietors of the *Motor-Car Journal*, and acceptances of the challenge should be addressed to the Editor, accompanied by a deposit for £50.

AT a meeting of the Liverpool and District Cycle Trades Association on Thursday last week, Mr. G. B. Mercer, A.M.Inst.C.E., gave a lecture on Motor-Bicycles. No trouble had been spared to make the address as interesting and instructive as possible. He had got together specimens of a number of the latest types of machines, and various motor parts and fittings. After a few remarks on the origin of the gas engine, Mr. Mercer

commented on the invention of the motor-bicycle in 1885, and gave brief descriptions of the principal motor-bicycles which had been introduced between then and now. He then went on to consider the subject from the points of view of the manufacturer and the agent. The manufacturer of motor-bicycles should always bear in mind that nine machines out of every ten would fall into the hands of novices. Simplicity and reliability, therefore, should be the chief aim. The agent should buy and sell carefully, keep a machine for his own riding, and lending it freely to likely customers.

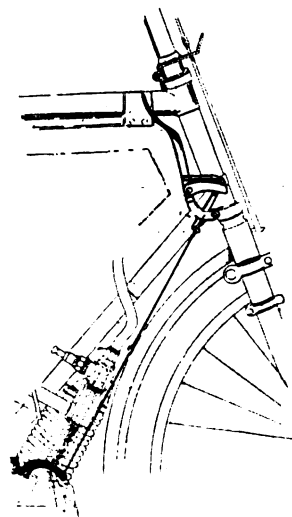
MOTOR-CYCLE races are to be included in the programme of an athletic meeting at Canning Town on Easter Monday.

TO-MORROW, Sunday, the members of the Liverpool Motor-Cycling Club will hold a run to Queen's Ferry.

ONE of the drawbacks to the *avant-trains*, or fore-carriages, now being used with motor-bicycles, is the difficulty of storage, many of them being too wide to pass through ordinary doorways. Mr. J. J. Leonard, of Brockley Grove, S.E., whose fore-carriage we illustrated in a recent issue, informs us that he is now constructing a new *avant-train* with a telescopic axle. With the new arrangement, by simply loosening a couple of nuts, the two wheels can be brought close together, thus not only allowing the fore-carriage to pass through ordinary doorways, but also enabling it to take up less room when not in use.

MR. F. MAY, of the York Hotel, Albemarle Street, W., is about to become a motor-cyclist, having a 2½-h.p. Werner on order.

THE accompanying illustration shows a new exhaust valve lifter lately introduced by Messrs. Stretton, Limited, of the Million Cycle and Motor Works, Cheltenham. The lifter is suitable for use on any motor-bicycles, and its action and principle may readily be seen from the illustration. Among the special advantages claimed for the device are its ease of adaptability to motor-



bicycles. When the valve is lifted it is held in this position as long as desired without the hand remaining on the operating lever. The normal working of the valve is not interfered with, so that the efficiency of the motor is not impaired; while, owing to the extreme simplicity of its construction, there is no fear of any part getting out of order.

THE motor omnibus to run on the St. Just road, between St. Just and Penzance, has commenced running, leaving Penzance at eight and St. Just at nine. The journey between the two places will be done in forty-five minutes.

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CONTINENTAL NOTES.

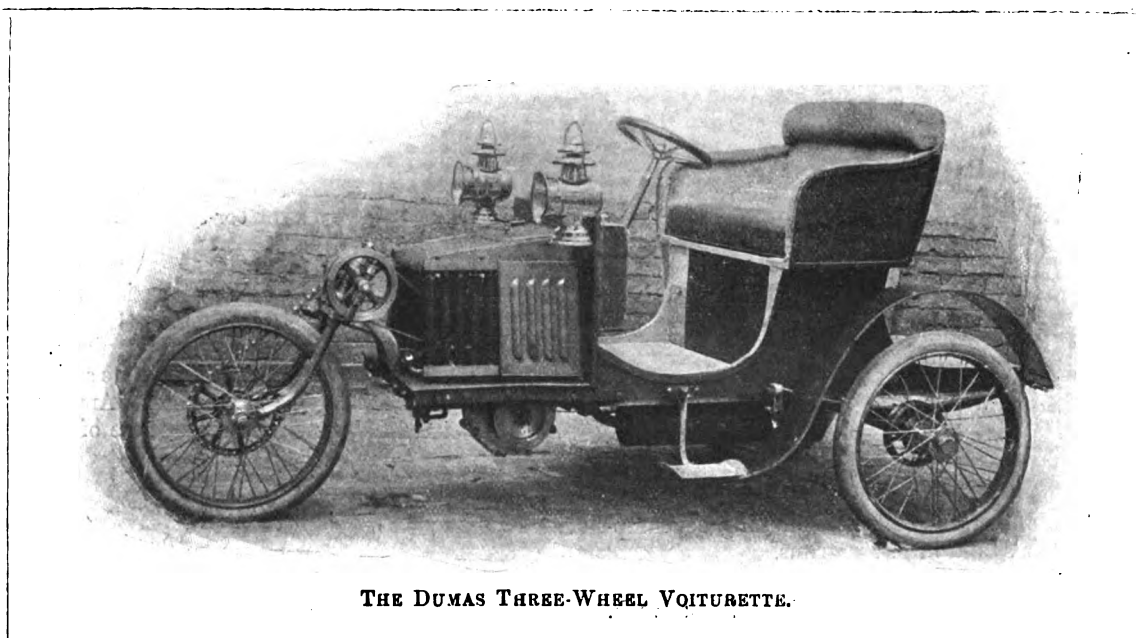
By "AUTOMAN."

THE "Passe Partout" seems to have reached its farthest north-eastern point at Nijni-Novgorod; and there, if the correspondent of the *Velo* is correctly informed, the vehicle, in mechanical distress, has been relegated to a garage, where the unfortunate mechanic who accompanied this twentieth-century Baron Munchausen expedition is sadly contemplating the repairs to be undertaken ere he can travel again. The journey is said to have been definitely abandoned, but there remains surrounding the fiasco an idyllic event which brings a happy termination to the enterprise to at least one of its organisers—Dr. Lehwiss having successfully wooed a fair Muscovite, to whom he is to be married in Moscow.

THE frosty weather, if it has not been good for motoring in open cars, has at least had the advantage of being good for tyres, and with little possibility of side-slip. The number of auto-

and to throw the engine out of gear when necessary in riding through traffic. From the countershaft the power is conveyed by a chain to the front wheel. Although the latter serves the double purpose of steering and driving, it should be pointed out that the motor is fixed to the frame of the car, a novel arrangement being adopted to allow the transmission mechanism to move with the front wheel. Ample brake power is provided, the brakes being also so arranged that the action of applying them at the same time throws the engine out of gear with the driving wheel. M. Dumas' object has been to provide a little car to seat two persons side by side at about the price of a motor-quadracycle. Although it has only three wheels, he claims, as a result of long tests, that the stability of the vehicle leaves nothing to be desired.

THE organisation of the two "Circuits des Ardennes," Belgian and French, is proceeding briskly, and in the case of the former, which I think takes precedence in importance from the fact that the course is known and appreciated, and easily accessible from France, England, or Germany, the entries are rolling in and have already passed the half century. Amongst them there



THE DUMAS THREE-WHEEL VOITURETTE.

mobiles to be seen about Paris in every direction has been quite remarkable, but nearly all of them have been closed vehicles—Limousines, Berlines, and cars with what is called in French a "cab" on the back seat. To a Frenchman the word "cab" means "hansom cab," and therefore the covered-in back seat of the motor-car, which has a shape somewhat similar to the top of a "hansom" without, of course, the driver's seat, is called "un cab." It is astonishing the number of ladies who now ride about Paris continually in their covered motor-cars. This reminds me that the other day there was a very singular accident to a gentleman and his wife riding in a Limousine with the windows closed to keep out the intense cold. By some means the exhaust from the motor penetrated the flooring, and gradually the air became vitiated until the couple risked being asphyxiated, and it came on so gradually that they were almost unconscious before they realised what was happening, and knocked on the window for assistance.

THE accompanying illustration shows the novel three-wheel voiturette shown at the recent *Salon* in Paris by M. A. Dumas Fils, of Champigny-sur-Marne (Seine). The motive power is supplied by a 4½-h.p. water cooled Buchet engine located under the bonnet. Two speeds are provided, the motor transmitting its power by a belt to a short countershaft fitted to the steering head, a jockey pulley being provided to take up any slack of the belt

are six Panhards, nine Mors, two Mercedes, three Clements, three Napiers, etc., etc. One thing that makes the Belgian race attractive is the popularity of the chief organiser, Baron Pierre de Crawhez, president of the racing committee of the A.C.B., and also president of the A.C. of Namur. With regard to the French Circuit des Ardennes, it has been decided to keep to the categories with the limit of weight, but at the same time, as a tentative measure, there will be prizes offered for the quickest machines in each class with a given cylinder volume, the particulars of which will be shortly announced.

THE Paris-Madrid race will be commenced on Sunday, May 24th. This day has been chosen for the start for several reasons. In the first place there is a much smaller number of vehicles on the roads on Sunday, especially fewer carts, so that the racers will find less obstruction to speed, and there will be less danger over the most populated portion of the road—that is to say, the stage from Paris to Bordeaux. In the second place, the A.C.F. wants, and has always wanted, to make road racing as popular as possible, and so Sunday has been fixed to give an opportunity to the people to turn out in the largest numbers possible and take a glimpse of the competitors as they pass. Entries should be sent to the Secrétaire des Services Techniques, Automobile Club de France, 6, Place de la Concorde,

Paris, accompanied by the entrance fee, which is as follows :— Moto-cyclettes up to 50 kilos., 50 francs (£2); voiturettes between 250 and 400 kilos., 200 francs (£8); light cars between 400 and 650 kilos., 300 francs (£12); heavy cars between 650 and 1,000 kilos., 400 francs (£16). After April 15th the entrance fees will be doubled, and at 6 o'clock on the evening of May 15th entries will be definitely and irrevocably closed. M. Tampier started off last week on a little De Dion 6-h.p. car to reconnoitre the route as far as the frontier. He presented a most amusing appearance on setting out, as, in addition to several jerseys, he had donned two "peaux de biques," as the shaggy goat-skins with the hair on the outside, which are the fashion in France, are called. On Friday last week he had reached Bordeaux, where he rested for a few days before setting out again to reconnoitre the roads from Bordeaux to the frontier. Should the Cup race have to be held in France, the route chosen will probably be the old one from Paris to Bordeaux of 1901 (the Fournier year), with a circuit in addition, which will begin

SCOTTISH NEWS.

ALREADY we hear rumours of ardent motorists intending to visit John o' Groat's, starting from Land's End. But we see comparatively few come this way, and a comparison of the books kept at the respective ends of the trip would reveal scores of lost hopes and opportunities. An East Anglian motorist recently commenced his End-to-End journey, but misfortune early overtook him. He has, however, continued on his way, and news is anxiously awaited.

At a meeting of the Lockerbie District Committee, some interesting confessions have been made with regard to the roads in that district, and a letter was read from a resident of Capplegill, concerning the condition of the road between Capplegill and Moffat, in which he declared that it was positively dangerous to life, especially in these days of motor-cars. There were some precipices in places without almost any fencing, and others



THE NEW STIRLING PUBLIC-SERVICE VEHICLES FOR LONDON. (See page 902.)

at Quatre-Pavillons, where the road to Saint-Andre-de-Cubzac and back to Libourne will be taken, and then on to Bordeaux on the old road.

◆ ◆ ◆
The first automobile road in France is to begin at the Arc de Triomphe, in Paris, and end at the Croix de Noailles, in the forest of St. Germain. It will not only be an automobile road, however, as it will be nearly forty yards wide. It will have two footpaths for the pedestrians, two tracks for cyclists, a road eight yards wide for horse-drawn vehicles, a road eight yards wide for motor-cars, and a centre track for an electric tramway. It will have a total length of a little over eleven miles, and it is to be supposed that there at least motorists will be free from the trammels of the law. In this case the beautiful forest of St. Germain will be within a quarter of an hour's run of Paris for the average car—that is to say, if we take it for granted that the speed of motor-cars keeps on increasing as it has done the last few years, which I see no reason to doubt. The cost of construction is estimated at £46,500, and it will be the continuation of the Champs Elysees, the Avenue de la Grande Armee, and the Avenue de Neuilly.

with no fencing at all. A report was also read from the road surveyor, in which he stated that the line of the road was badly designed and of narrow construction, the width being only 14 ft. No matter how the road was fenced, it required to be used with caution and care. If the whole road were fenced it still would be unsuitable for motor-cars. Mr. Rankin suggested that they might put up notice boards warning drivers of motor-vehicles, as has been decided upon in the county of Surrey. Ultimately a Committee was appointed to visit the place and report upon the matter. Other motorists in Scotland might well urge similar action on the part of local bodies.

◆ ◆ ◆
In the Nairn Sheriff Court, Mr. H. J. Mappin, a resident of Surrey, and a member of the firm of Mappin and Webb, London, and William Hendry and Joseph Delmas, motor-car drivers, were charged with having contravened the Light Locomotive Regulations by driving motor-cars over the statutory speed limit. In each case exception was taken to the citations, in respect that the warrants were signed by the Sheriff-Clerk instead of the Sheriff, as required by the Act. The Sheriff upheld the objection, and the complaints were departed from.

FITTED with a 10-h.p. Albion engine, a motor-car has just been built by Mr. A. C. Penman, a Dumfries coachbuilder, which is likely to be seen in London ere long. In designing the body Mr. Penman has followed, to some extent, the familiar lines of the tonneau; the cane panelling gives the vehicle a very attractive appearance. Among other Dumfries residents to become interested in automobilism is Mr. W. Irving, a local posting-master, whose car is now on order, and whose conversion to motoring is significant of the rapid growth of the movement.

A MOTOR-CAR *mecanicien*, of Paisley, has been the hero of an interesting incident unravelled by Sheriff Campion, at Dumfries. He was summoned for driving a motor-car at more than twelve miles an hour. His solicitor pointed out that the complaint should have stated the hour at which the alleged offence took place. The Sheriff agreed that it would have been better if the time had been exactly stated, and "in justice to the accused it should be noted in future cases"—a peculiar piece of reasoning somewhat puzzling to the lay mind.

A CONSTABLE said the accused passed him on the Thornhill road going at a rate of twenty miles an hour. A telegram was sent to the police at Sanquhar, and witness followed on his bicycle. The telegram was received at fifty-two minutes past noon, and three minutes later the car passed ere he could stop it. So he wired to New Cumnock, through which place the defendant drove at 1.30. The telegram was received at 1.45, and was transmitted to Old Cumnock. The car had passed through there when the telegram was received, but a telephone message to Kilmarnock brought the wayward one to bay at that place. The accused declared that he was not the driver wanted by the police, as his route on the day in question was from Paisley, Kilwinning, Troon, and *via* Dundonald to Troon. He produced a certificate of efficiency as a driver from Lord Kingsburgh, under whom he had served at the Volunteer Brigade Camp in 1900. Taking a sensible view of the matter the Sheriff said there was no evidence that anyone had been incommoded by the speed of the car, and he dismissed the case, with the remark that when there was a broad open road with only an open hedge on each side it appeared to him like an excess of zeal to bring up a case of that kind. With our legal luminaries taking such an intelligent view of their duties, Scotland is to be preferred to Surrey for automobile touring.

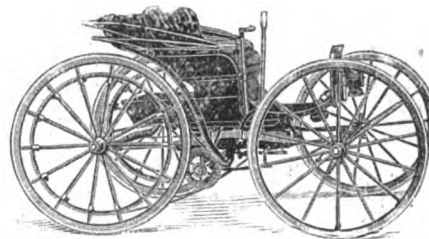
THE Eastern Section of the Scottish Automobile Club has given its patronage to the Edinburgh Motor Show, to be held in the Waverley Market, Edinburgh, from the 6th to the 14th of February. On Thursday the Section had a discussion on the proposed alteration of the law relating to the regulation of motor traffic, in the Royal Hotel, Edinburgh. The date of the annual dinner of the Club has been fixed for the 13th prox.

SOME time ago it was proposed to utilise the tramway rails and trolleys in Glasgow for the removal of refuse. A sub-committee appointed to make inquiries report that the suggestion is not practicable, and the superintendent of the Cleansing Department says that the scheme which appealed to him as offering great advantages in every way was that of self-propelled vehicles, with movable covers. These might be used for the following purposes:—As dust carts for the removal of refuse; as sweeping machines, by removing cover and attaching a revolving brush; as watering carts, by removing cover and substituting a water tank and spreader; as ordinary motor lorries, by simply removing cover. In this shape they would be available for the conveyance of hay, victuals, and other material, and by the adoption of its official's view the Glasgow Corporation would be maintaining its reputation in municipal matters. The Glasgow Corporation have already adopted a Milnes petrol vehicle, with tipping body for dust-removal purposes.

LORD WILLOUGHBY DE ERESBY is interesting himself in the application of automobilism to agriculture.

A NOVEL AMERICAN MOTOR-VEHICLE.

THE novel motor-car illustrated herewith has lately been put on the market by the Holsman Automobile Company, of Chicago. Power is supplied by a 5-b.h.p. double-opposed-cylinder engine. The cylinders are $3\frac{3}{8}$ in. in diameter by 4 in. stroke; they are air-cooled by forced draught, the fly-wheel being fitted with vanes to act as a fan. The speed of the motor is controlled by throttling the mixture and timing the spark. The transmission device consists of the ordinary vehicle brake beam or shaft suspended on hangers by roller bearings and revolved in a forward direction by a simple chain connection to the motor shaft. This shaft is provided with two deep-grooved pulleys at each end; the larger one is connected by a flexible rope or band with a corresponding pulley attached to the spokes of both rear wheels to turn them forward; the smaller pulley



is adapted to engage with the tyre of the rear wheels by friction to give a reverse motion. The shaft is connected to a ratchet brake lever in easy reach of the driver, so that by setting the lever back the bands are tightened in the revolving grooved pulleys and the vehicle starts forward; by setting the lever forward the bands are loosened and the vehicle is disengaged. At the same time and by the same motion the brake is set, when, by releasing a catch and setting the lever further forward, the brake is released and the friction pulleys are at once applied to the wheels, causing them to reverse. Thus, all movements of starting, stopping, and reversing are performed by means of a single backward and forward motion of a lever. The road wheels are 44 and 48 inches in diameter, shod with solid rubber tyres. It is claimed that the vehicle can attain a speed of eighteen miles per hour.

WE hear that Messrs. F. F. Wellington, Limited, are about to remove to more central premises in Long Acre, W.C.

THE motor fire engine constructed in the workshops of the Metropolitan Fire Brigade at Southwark, has been placed in the fire station in Carmelite Street, Blackfriars.

OIL fuel is to be tried on two British cruisers. Each vessel will carry 300 tons of crude oil, and, although the burners vary in every case, the "spray jet" pattern is the prevailing type.

THE Hewitt static converter is expected to eliminate the present costly sub-stations for distributing electric power, and one of its uses will be in connection with stations for charging the batteries of electric automobiles.

MR. F. HUNT, of Fulham, owing to increasing business, is about to open larger premises at 74, Burnfoot Avenue, Munster Road, Fulham, where cars can be stored, cleaned, and repaired. Mr. Hunt is making a special feature of the repair of Gardner-Serpollet steam cars.

DRAINAGE excavation in progress in Stamford has resulted in a motor-car accident. Mr. W. J. Hornsby, of Grantham, was motoring through the town. A barrier was placed at the bottom of St. John Street, which Mr. Hornsby did not notice until close upon it. He immediately applied the brakes, and turned the car round. Unfortunately, he took the brakes off before the car had restarted its ascent of the hill, and the vehicle ran down the incline, dashing into the window of a shop.

HERE AND THERE.

A MOTOR-CAR service between East and West Hartlepool is in course of projection.

THE Flint Town Council has decided to erect notices at the entrances to the town requesting motorists to drive slowly through its streets.

WITH a capital of £500 in 1s. shares, the International Inventions Syndicate, Limited, has been registered to carry on "the business of motor-car manufacturers, engineers, mill furnishers," etc.

A SURREY horse dealer has expressed surprise at being fined at the Uckfield Petty Sessions for leaving an animal attached to a cart unattended outside a local hostelry. He had done so on market days for many years—a bad habit of which he is now probably cured.

At the meeting of the Clonmel Corporation a resolution was read from the Dungarvan Urban Council requesting the Post Office authorities to substitute a motor bus for the mail car at present running from Clonmel to Dungarvan. The Mayor moved the adoption of the resolution, which was carried.

Two Russian motorists have recently made the journey between St. Petersburg and Moscow, on a 10-h.p. car, in twenty-five hours, stops included. The distance is about 440 miles.

SOME trials have lately been made on the desert in Egypt with a heavy steam wagon built by Messrs. Jesse Ellis and Co., Limited. The wagon was tried in the desert beyond Abbassieh with half a company of Egyptian soldiers on board, and in crossing the sand splendid progress was made, the only difficulty encountered being where the sand was many feet deep; but even this set-back is remediable with special road wheels; those used have a flange in the centre of a broad tyre; this flange, as it sinks into the sand, compresses the latter right and left, making a hard surface for the two flat portions of the wheel to run on.

ACCORDING to one daily paper "the Daimler 22-h.p. car of the Motor Manufacturing Company" is on view at Earls Court—a fact which will be of interest to two neighbouring Coventry companies.

WITH regard to the question of the speed at which cars shod with solid rubber tyres may be run, referred to in our issue of the 10th inst., the Sirdar Rubber Company, Limited, inform us that their Buffer solid rubber tyres are running on cars which were formerly fitted with pneumatic tyres, at speeds up to 40 miles an hour, with every satisfaction.

CAPTAIN G. A. SMALLBONE, of West Kensington, is reported to have perfected an apparatus for steering the ordinary pear-shaped balloon. Between the balloon and the car is fixed a "consolation boom," on the port and starboard side of which are placed two sails. The sails, which can be moved at the will of the person in charge of the car, control the movements of the balloon.

THE "Auto-Velo," the French daily, will in future be known as "L'Auto."

MR. E. W. HART, of Luton, was last week elected a member of the French Automobile Club.

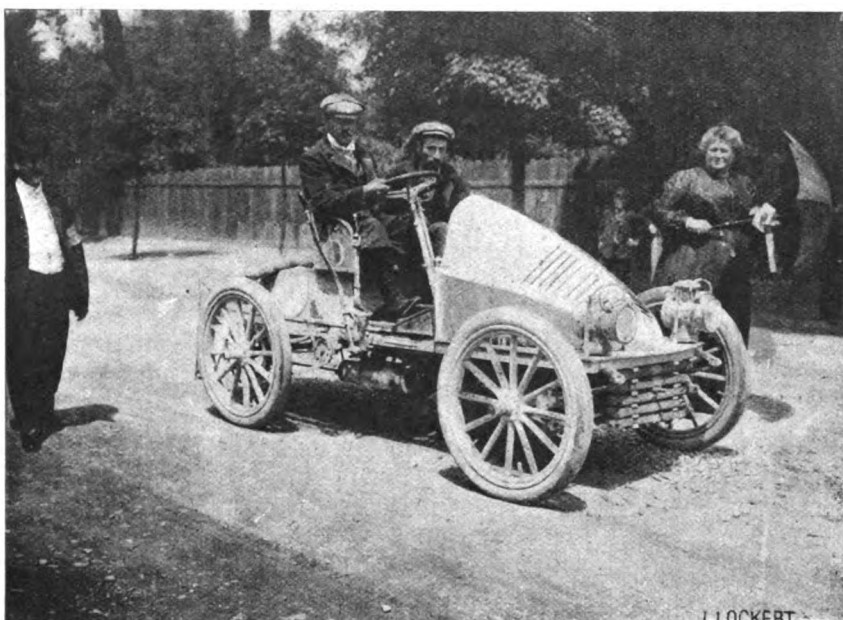
THE Derbyshire County Council has ordered the main road to Matlock to be rolled to allow of the King and Queen going thither by motor-car.

THE Life Saving Association of Budapest, Hungary, have recently made some tests with motor-ambulances. The results have been so successful that a number have now been placed in regular service by the Association.

IN an important decision just handed down by the U.S. Commissioner of Patents it is held that in applications for American patents a division is "required between claims covering a motor-vehicle and claims covering the steam power apparatus for use in a motor-vehicle."

AN invitation dinner was given by the Oxford Automobile and Cycle Agency last week. Mr. W. L. Creyke presided, and Messrs. F. G. Barton and R. Vincent Tapscott occupied the vice-chairs. The loyal toasts having been duly honoured, Mr. Claude Rippon proposed "The Automobile Industry." He said he would

like to see in Oxford some sort of automobile club. They had almost enough automobilists in that district to do something in that way, and if they could not support a club of their own they might do something to amalgamate with the Reading Club. Mr. A. Walsh proposed the toast of "The Oxford Automobile and Cycle Agency." He had been connected with the agency almost from its birth. It was flourishing, with its centre at Oxford and branches at Bicester and Abingdon. Mr. Creyke, in responding, said the agency was started by Mr. Barton and himself sitting down quietly and thinking the matter out. At the present time they had £3,000 worth of orders on hand for cars alone. Their



THE 12-H.P. ADER CAR, WHICH SUCCESSFULLY TOOK PART IN THE PARIS-VIENNA TOUR. (Le Chauffeur.)

employees numbered thirty-five.

BARON HENRI DE ROTHSCHILD is arranging to make an automobile tour in North Africa, with the intention of reaching a point inland further than has hitherto been visited by a motor-car. He will start for Algiers on the 10th prox.

THERE are indications that there will be quite a large number of Americans coming over to Europe to attend the race for the Gordon Bennett Cup. Mr. Percy Owen, of the Winton Company, has already arranged to bring with him a party of friends. It has even been suggested that the A.C.A. should organise a Club excursion across the Atlantic.

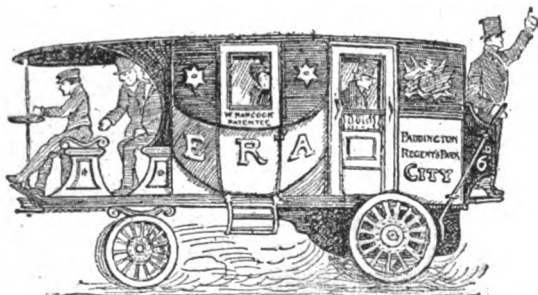
SPEAKING of the progress of the automobile industry in Austria, recently, Herr Ludwig Lohner said that by organising the Paris-Vienna race the Austrian Automobile Club has earned the lasting gratitude of the Kaiserstadt. A couple of months' strenuous preparatory labour on the part of the Club had resulted in an influx of strangers into Vienna such as had not been witnessed since the International Exhibition of 1873.

THE president of the Milwaukee Automobile Club has condemned a local municipal proposal to number automobiles.

THE Caledonian Motor-car and Cycle Company, of Aberdeen have been again appointed sole agents in Scotland for the sale of Peugeot cars.

TWO regular motor-car services have lately been established in Peru, one running between Tambo-Colorado and Cerro de Pasco, and the other between Sicuani and Cuzco.

THOSE who have lately been in the neighbourhood of Edgware Road, W., will probably have noticed the new motor-omnibuses which have lately been put in service between Oxford Circus, W., and Cricklewood, by the London Motor Omnibus Syndicate, Limited. We give, on page 899, an illustration showing a couple of the 'buses ready to be despatched from the works at



THE LONDON STEAM MOTOR 'BUS (HANKOCC'S) OF 1834.

Granton, near Edinburgh, of Stirling's Motor Carriages, Limited, the builders of the vehicles. They are provided with engines of 12-h.p. and have, in addition to a reverse motion, three speeds forward, the maximum being about fourteen miles an hour. The main features of the *chassis* are similar to that described in our report of the 1902 Exhibition at the Agricultural Hall. By way of contrast we illustrate the steam omnibus put on the road by Hancock nearly 70 years ago.

THE Automobile Club of America has chosen Mr. Clarence Gray Dinsmore as its delegate on the International Committee of the Gordon Bennett Cup race.

DURING the Christmas rush at the post-office at Detroit three Oldsmobiles were successfully used for the collection of parcels from sub-stations, doing the work of fifteen horses.

THE exportation of American automobiles and motor-car parts continues to show gradual expansion. The returns for November show that the shipments amounted to a value of £11,094, as against £7,876 in November, 1901. For the eleven months ending with November the exports were valued at £205,216, as compared with only £60,384 during the corresponding period of 1901.

THE Hart Accumulator Company, Limited, of Stratford, have sent us a new illustrated price list they have just issued. It gives in neat and clear style the various details, dimensions, and prices of their lighting, traction, central station, portable and ignition batteries, also sundries for use in connection therewith. The particulars have been brought up to date, and several new types of cells are included.

THE Electromobile Company, Limited, of Juxon Street, Lambeth, have just issued a catalogue of the various types of electrical cars they are now supplying—coupes, victorias, landaulets, etc. They are on the Contal system, and are equipped with interchangeable batteries, the capacity of which is sufficient for a run of forty to fifty miles on one charge. The catalogue also gives the terms for the storage and maintenance of electric cars. For the sum of £15 per month the company will house, clean, oil and keep in working order any of its vehicles; will keep its batteries in good condition, and replat them when necessary; will give a supply of current at all times to the car at any of its depots, or will exchange a fully-charged battery for an exhausted one; and will insure the vehicle against fire and damage, and provide indemnity for third-party risks.

RUMOUR is rife to the effect that the Automobile Club has abandoned the Parliamentary Bill relating to numbering, etc.

THE Automobile Club of Lombardy has just been formed in Milan, with Baron Franchetti, an enthusiastic motorist, as first president.

MESSRS. LINLEY AND COMPANY have just opened works at Hills Place, Oxford Street, W., where they intend to make a speciality of motor-car repairs.

THE Belgian Automobile Exhibition, which is to be held in the Palace du Cinquantenaire, Brussels, from the 7th to the 16th February, promises to be a big success.

WHAT is stated to be the largest heavy motor-wagon ever built has lately been completed by the Morgan Truck Company, Worcester, Mass. Its capacity is placed at 10 tons.

MESSRS. JONES AND COMPANY, of Talbot House, Lichfield, are handing to all motorists calling at their establishment a useful little card giving the distances of various resorts from their city.

THE death of Miss Helen Blackburn last week reminds us that her father drove an automobile of his own construction in Regent's Park twenty years before the advent of the modern motor-car.

A NEW steam van belonging to Messrs. Bryant and May is engaged in the delivery of matches in the eastern suburbs of the Metropolis, and Messrs. Allsopps are also using motor-wagons in their London trade.

WE are officially informed by the London, Brighton, and South Coast Railway that they cannot undertake the delivery or collection of motor-cars in connection with the forthcoming show at the Crystal Palace.

THE New Automobile Company, of Cambridge Circus, W.C., have on hand two 10-h.p. Miesse steam cars intended for the carriage of the mails in Demerara. The cars will, it is expected, be ready to be shipped to their destination in March.

MESSRS. THOMAS SLACK AND COMPANY, LIMITED, is the title of a company registered with a capital of £6,000 to acquire the business of motor-car and cycle manufacturers, etc., carried on at the Wellington Works, South Stockport.



THE FARM WAGON OF THE FUTURE.

Das Schnaufert, Munich.

A ROAD is being constructed from the Persian Gulf to Teheran, which will, according to a news agency, be most suitable for the inauguration of a system of motor-wagons, to deal with the heavy goods traffic.

A LONDON morning newspaper having just discovered that electric motor-cars can be hired in London, informs its readers that these vehicles are "capable of attaining a speed of seventy or eighty miles an hour"—quite sufficient for City traffic.

MR. D. M. WEIGEL, in the unavoidable absence of the Earl of Shrewsbury, presided at a dinner given at the Hotel Cecil, on Monday last, to the English agents of the British Automobile Commercial Syndicate. A pleasant and social evening was enjoyed.

THE STANLEY AUTOMOBILE SHOW.

DURING the week the Stanley Automobile Exhibition has been in progress at Earls Court, S.W.

Mr. L. A. Beckett introduces a new type of motor vehicle to the English market. The cars are made in two sizes—9-h.p. and 16-h.p.—and are to be known as the "Beckett and Farlow." They are built by a Belgian firm of engineers to the designs of M. E. Mathieu, who has had a long experience with motor-cars. The vehicles comprise a number of special features, which for the moment can only be briefly alluded to. In outward appearance they follow the now generally accepted design. Under the bonnet in the fore part is set, in the smaller car, a single cylinder vertical motor, rated at 9-h.p., the cylinder being 110 mm. diameter by 130 mm. stroke, and the normal speed 1,000 revolutions per minute; and in the larger vehicle a two-cylinder engine developing 16-h.p. The usual type of electrical ignition by means of trembler coil and accumulators is employed. The explosive mixture is furnished by a float-feed carburettor. A special form of centrifugal governor is employed, this working in oil in an extension of the crank case; it is adapted to act on the supply of mixture to the explosion chamber by means of a butterfly valve in the admission pipe; a small handle on the steering column is provided to enable the motor to be instantly throttled down and consequently run slowly and quietly when passing through traffic or when leaving the car for a short time. Coming now to the transmission, the motor transmits its power through a friction clutch of the progressive type to a gear box and thence by a universally-jointed shaft and bevel gearing to the rear

Messrs. Brown Brothers, Limited, exhibit one of the Brown tonneau cars, which have already been described in these columns; they are fitted with an 8-h.p. governed motor. The vehicle is gear driven, and has three speeds forward and a reverse, all actuated by one lever; radiator and pump circulation; and inclined wheel steering. They also stage one of the latest Brown motor-bicycles, in which the motor is now placed in a vertical position and attached to the frame close to the bottom bracket. It is not, however, built into the frame, and is easily detachable. The engine is of 2-h.p., and is fitted with exhaust valve lifter. The tank is located inside the frame, and contains lubricating oil with pump feed, ample petrol capacity, and leaves sufficient space to carry accumulators and coil, so that every part is covered and protected from wet.

The New Automobile Company have an interesting array of the latest types of Rochet petrol cars. First we may mention the new 6½-h.p. light car, of which an illustrated description was given in our last issue. The change-speed gear on these vehicles is exceedingly ingenious, three speeds and a reverse controlled by one lever being available, the power of the engine being transmitted direct on the high gear. Another car on the stand is the 11-h.p. vehicle, which is fitted with a most comfortable body, the production of Messrs. Whitlock and Son, of Kensington. The power is supplied by a two-cylinder engine, governed on the inlet, and fitted with Grouvelle and Arquembourg "cloissonée" radiator. Four speeds and a reverse motion are provided, the gear-box being connected to the rear road wheels through a differential countershaft and side chains. The largest and probably the most interesting car on the stand is the new 16-h.p. Rochet, fitted with a four-cylinder engine, governed on the inlet, new style radiator, and a change-speed gear, giving a direct drive on the fourth speed.

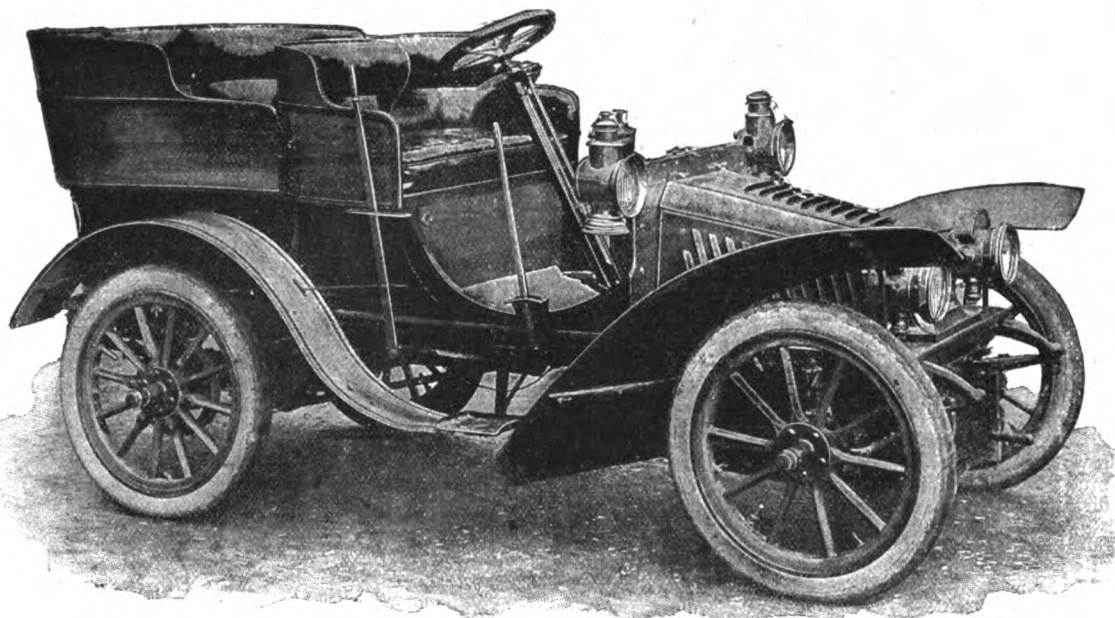


FIG. 1.—THE 9-H.P. BECKETT AND FARLOW TONNEAU.

live axle. Three speeds forward and a reverse motion are provided, all controlled by a single lever. The change-speed gear is of the usual shifting pinion type, but in the method of effecting the changes much ingenuity has been displayed. Without a drawing, however, it is impossible to clearly indicate the action of the gear, and it must suffice for the moment to state that the operation of changing speed can be effected by mere finger pressure on the side lever, and that the gear is remarkably silent. Steering is controlled by an inclined hand-wheel, and to render it absolutely irreversible, a worm and threaded nut are provided at the upper as well as at the lower end of the steering post, provision being made whereby any wear can be readily taken up. Great care has been taken to reduce losses by friction, it being claimed that from 85 to 90 per cent. of the power developed by the motor is given off the rims of the wheels.

The Duryea Motor Company display four or five 10-h.p. cars, one being a two-seated phaeton illustrating the Duryea system of "one hand control," and the other, a tonneau, having a separate lever for the change speed gear. A novel car on the stand is a phaeton fitted with a detachable brougham top. It is entirely enclosed, and has been designed for winter use, particularly by doctors. The Duryea cars have been described in a previous issue of the *Journal*, but it may be mentioned that the principal mechanical features are a triple-cylinder balanced motor developing 10-b.h.p., one piece nickel steel live axle, direct chain transmission without countershaft, throttle control, irreversible steering without worm gear, two powerful brakes supplementary to the engine, magneto ignition, natural water circulation without pumps, and one hand control. The changes in the latest models comprise a new condensing tank, with projecting ears at the rear of the body, a new detachable exhaust-valve seating, and an improved silencer.

Before leaving the Rochet Company's productions, we may briefly mention the motor-bicycles. It has already been stated in these columns that the Rochet Company had acquired the rights in, and had taken up the manufacture of, the Chapelle motor-bicycles, which are now being introduced into this country by the New Automobile Company. Three types are shown, a 2½-h.p. ordinary machine, a 2½-h.p. bicycle with two-speed gear, and a special two-cylinder racing machine developing 16-h.p. We pass now to the Miesse steam cars, of which examples of both the 6-h.p. and 10-h.p. types are staged. Since these vehicles were described in connection with our report of the 1902 exhibition at the Agricultural Hall, a number of improvements have been effected in them. The steam generator has been modified, and the pedal actuating the throttle is now arranged to work similar to the clutch pedal of a petrol car—that is to say, the pedal is depressed when it is desired to shut off the steam. Paraffin is used as fuel, but the burner is now adapted to be started by means of petrol. The 6-h.p. car carries 16 gallons of water, which is stated to be sufficient for a run of 70 miles; the fuel capacity is sufficient for a run of nine hours, at an average speed of 20 miles an hour. We are informed that in the case of a 10-h.p. car, one gallon of paraffin has sufficed for a 25-mile run.

A big display of Benz cars is made on the stand of Messrs. Hewetson's, Limited, these comprising several examples of the 6-h.p. single-cylinder vehicles, with the engine under a bonnet in the fore-part of the frame. Three speeds forward and a reverse motion are provided, the transmission being by means of a single belt and a gear box. A 16-h.p. car on similar lines, but having a two-cylinder motor and four forward speeds, is also shown. The details of the Benz cars have already been dealt with in these pages, so that no lengthy description is necessary. For the 1903 season,

the Benz Company are introducing a car with vertical engine and gear transmission, but Messrs. Hewetson inform us that they have no intention of discontinuing the manufacture of cars with horizontal motors and belt transmission.

The Velox Motor Company, Limited, have on view a 12-h.p. chassis, and a complete 12-h.p. car fitted with a most luxurious tonneau body by Mulliner, painted white with brass edging, and upholstered in red leather. As the details of the car were fully described in our last issue, no lengthy

pressure reduced, the regulator will again admit petrol to the burner, and the steam pressure is once more raised to the cutting-off point of the regulator. So efficient is this combination of pilot light and main burner that it is claimed that steam has been raised up to 150 lbs. from cold water in five minutes. The engine, which is placed as usual under the front seat, is of the ordinary two-cylinder type, with cylinders 3 in. diameter by 4 in. stroke, piston valves being fitted in place of the usual slide valves. The crank-shaft bearings are of large diameter and have ring lubrication, while the cross-heads

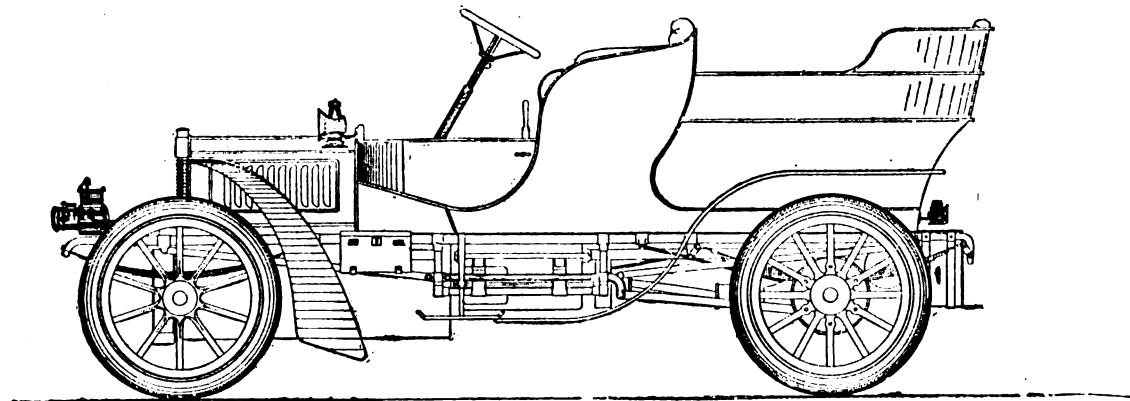


FIG. 2.—THE VELOX 12-H.P. CAR.

reference is necessary. We may add, however, that the vehicle shows signs of having been most carefully thought out, the chassis and the carriage work being of the highest grade. The tonneau is exceedingly roomy, and has ample accommodation for three persons. Useful drawers are placed under the rear seats, while under the rear floor board is ingeniously contrived a long, shallow drawer to carry spare tubes, etc.

Relatively new to this country are the Toledo steam cars, a couple of which—a two-seated vehicle and a four-seated *dos-a-dos*—are to be seen on the stand of the London agents, the Victoria Carriage Works, Limited. In general appearance the vehicle closely resembles the familiar light American steam cars, but the details comprise a number of new features. The steam generator is 19 in. diameter and is a happy combination of the shell and flash type generators. Two innovations enter into the make-up of the boiler—first, that of a centrifugal separator within the shells, and secondly, the addition of a superheating coil. The centrifugal action causes the entire body of water contained between the walls formed by the inner and outer shells to horizontally circulate. The rotary movement thus established throws the water against small dams or scoops placed at the mouth of each tube, which direct the water into the lower ends of the tubes, thus promoting rapid steaming. A mud-settling drum is also provided below the line of the fire action, wherein dirt may settle, and then be got rid of by a blow-off

and cranks are enclosed in oil-tight casings, the cranks working in an oil bath. A self-acting lubricator provides for the lubrication of the cylinders. A boiler feed-pump worked off the cross-head pumps water through a feed-water heater placed in the muffler, and raises it to a temperature of 208 deg. before it passes to the boiler. An auxiliary water pump ingeniously fitted to the base of the steering lever is provided as a reserve should the engine pump get out of order. An automatic air-pump is worked from the engine cross-head, and a water-lift is also provided. The frame, which is specially strongly constructed, is of seamless steel tube of large diameter, and possesses several commendatory features. Two powerful band brakes are fitted—one on each side of the differential gear—and these are applied by a pedal with pawl and ratchet, which hold the brake on in any desired position, being released by pressure on a trip on the upper portion of the pedal. The throttle and reverse are controlled by one lever, while an Albany condenser is carried below the body. The water tank has a capacity sufficient for a run of from forty-five to fifty miles; nine

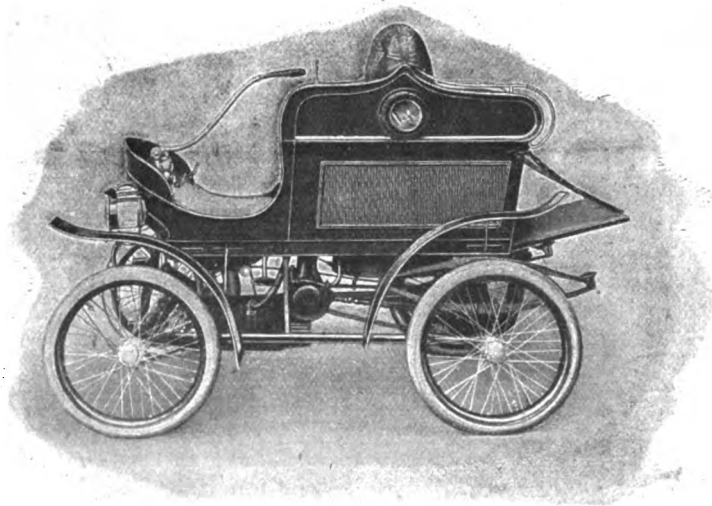


FIG. 3.—THE TOLEDO DOS-A-DOS.

cock placed at its lowest point. The boiler is tested to a pressure of 600 lbs. per square inch, and the working pressure is 200 lbs. to 250 lbs. The burner is a special bronze casting, and is provided with a pilot light which, after once being lighted, maintains a steady, small flame, irrespective of the regulator. The latter acts on the main burner, and either cuts out or admits gas to it automatically. The automatic regulator action is such that steam being raised to within a few pounds of a predetermined pressure the flow of petrol is cut off. Should the carriage be started and the steam

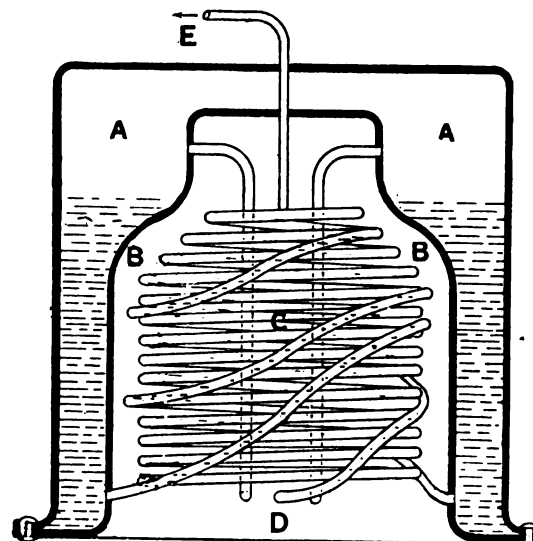


FIG. 4.—SECTION OF TOLEDO STEAM GENERATOR.

A, Boiler. C, Water tubes.
B, Firebox. D, Burner Space.
E, Steam pipe to engine.

gallons of petrol are carried, which quantity will, we are informed, run the car a distance of from eighty-five to ninety miles.

The Haarlemsche Motorrijwielafabriek of Haarlem, Holland, show a new motor-bicycle, which is mainly noticeable for its X-frame. The motor (of 2-h.p.) is located in a vertical position just forward of the bottom bracket. Magneto ignition is adopted, the machine being entirely controlled by twisting the two handles on the handle bar. The power is conveyed by a belt to a wood pulley attached to the rear road wheel. M. Lepape, of Rue Demours, Paris, exhibits the Bichrone two-cycle motor as applied to a

bicycle. This is an ingenious idea, the motor having two cylinders, one of which, however, serves only for the compression of the charge. Without a sectional drawing, it is difficult to explain how one impulse is obtained every revolution. The $1\frac{1}{2}$ -h.p. motor is exceedingly light, weighing with carburettor only 16 lbs.

The Speedwell Motor Company have an extensive show of the latest types of Serpollet steam cars, the features of which were described in our report of the recent Paris Salon. Interest has been centred on the 1903 40-h.p. chassis, which is fitted with a new type of motor, the cylinders of which are cast separately. The 1903 40-h.p. car only weighs 920 kilos for the touring model. The pump which supplies water to the boiler as

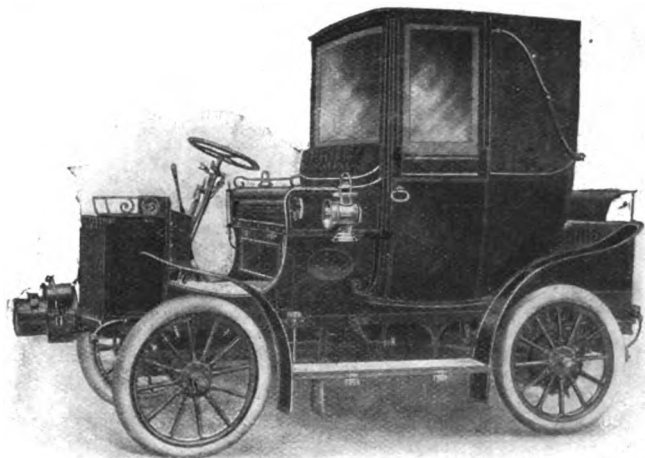


FIG. 5.—THE SPEEDWELL CO.'S SERPOLLET LANDAULETTE.

the steam is required is operated in a new manner. In the old model a series of cams on a shaft driven by the engine gave the pump more or less lift, so that more or less water was forced into the boiler to increase or decrease the speed of the car, as the case might be. This system has been replaced by an eccentric link and a slide valve, which gives a more gradual and easier regulation to the feed water. The second principal improvement is in the lowering of the boiler and the reduction in the number of the elements, which at the same time retain the same heating surface as before. The lowering of the boiler of course lowers the centre of gravity of the car, gives it a smarter appearance, and makes it easier to mount the carriage work. Other modifications include new lubricators, throttle valve, and a self-starting device. The cars on the stand include a 20-h.p. fast touring car on similar lines to the 40-h.p., a 6-h.p. tonneau, and a 6-h.p. car with a special body designed by the Speedwell Company. This is illustrated in Fig. 5, and takes the form of a landulette, which can be opened and closed at will.

Mr. C. R. Radcliffe is the agent for a car new to the English market. It is made by the United States Long Distance Automobile Company of New York, and in general arrangement is somewhat on the lines of the Oldsmobile. It appears, however, to be more powerfully built, being fitted with a 7-h.p. horizontal engine, the cylinder being 5-inch bore by 7-inch stroke. Three speeds forward and a reverse are obtained by a system of Crypto gears, held by hand brakes, on the engine shaft, a single chain conveying the power to the rear axle.

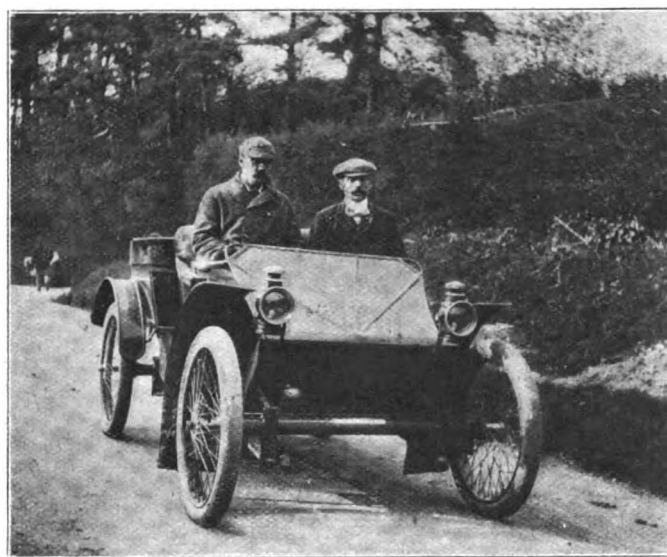
A new Automatic Boiler-feed Regulator is shown by the Fleuss Patent Automatic Boiler Feed and Motor-Car Syndicate, Limited, which can be fitted to any boiler or steam-car; it is a simple mechanical device, and is said to keep a constant level of water in the boiler under all conditions of running, without any attention from the driver. On the stand is a Milwaukee steam-car having this feed regulator fitted to it, which is stated to have run over 1,000 miles, during which time the water level has entirely taken care of itself, the hand regulator having been removed from the car. It is claimed for the device that the steaming power of the car is much improved, as the pressure is never lowered by the intermittent pumping in of a quantity of cold water. The feed is constant and regular, and the water is heated before it enters the boiler.

Two handsome cars are to be seen on the stand of the London Motor Garage Company, Limited—a 15-h.p. Pipe with tonneau body, painted in red and black, and a 20-h.p. Magnet tonneau, painted white, and fitted with a canopy. The Pipe car is the production of La Compagnie Belge de Construction d'Automobiles, and, generally speaking, closely follows the lines adopted in the Panhard vehicles. The motor is of the four-cylinder, vertical type, with the cranks set at an angle of 90 degrees. The valves are accessible by unscrewing a single bolt and without removing any tubes. The carburettor is of the ordinary float feed variety, but with the addition of a throttle controlled by a centrifugal governor. Transmission is by gears and chains, four speeds forward and a reverse being available, all controlled by a single lever. The brakes are two in number; the one on the differential is put in action by a pedal, whilst those acting on drums on the back wheels are brought into play by means of a hand lever. All hold equally well backwards and forwards; while when either of the brakes is in action the engine is put out of gear with the transmission. The 20-h.p. Magnet car is con-

structed on similar lines, the power being supplied by a four-cylinder motor fitted with the latest system of throttle governing, regulated from the steering pillar. The "cut out" is regulated to give intervals of 30 seconds between the explosions, thus making the engine practically noiseless when the car is at rest. Transmission is by gear and chains, four forward speeds and a reverse being available. The London Motor Garage Company also stage one of the Oldsmobile cars.

Among the exhibitors of motor-bicycles are the Borham Engineering Company, who show $2\frac{1}{2}$ and 2-h.p. motor-bicycles, with the Minerva motor placed below the lower main tube of the frame. The Longuemare carburettor is fitted to the $2\frac{1}{2}$ -h.p. machine, and that of 2-h.p. has a mechanically-operated inlet valve. To avoid loss of compression the combustion chamber and cylinder is cast in one piece without joint. The tank capacity is sufficient for a run of 100 miles. The "Hamilton" motor-bicycle is exhibited by the Hamilton Motor Company, Limited, in two sizes, viz., $2\frac{1}{2}$ -h.p. and $4\frac{1}{2}$ -h.p., the latter having a double-cylinder engine. The position generally adopted by the makers for the engine is practically vertical at the rear, but it is also fitted in the front inside part of the frame, on the down tube from the ball head to bottom bracket. The machine is belt driven, and the large size of the valves is a notable detail, the valve chamber being also separate from the combustion chamber. The East London Rubber Company direct attention to the Kerry motor-bicycle.

One of the largest exhibits is that of the Lanchester Engine Company, Limited, who have on view no less than a dozen of the Lanchester cars, including a chassis, which, in view of the novel arrangement of these vehicles, has been closely examined. The leading features of the Lanchester type of motor-car were dealt with in our issue of May 31st last. We may mention, however, that the engine, instead of being placed in the front of the car, is located under the front seat, one cylinder being on each side of the driving shaft, which is parallel with, and runs down the centre of, the car. The motor has two opposite cylinders, $5\frac{1}{2}$ in. bore by $5\frac{1}{2}$ in. stroke, developing 10-h.p. at a normal speed of 700 revolutions per minute. There are two crank shafts revolving in opposite directions, and connected by a pair of gear wheels at the rear end, a short spur wheel meshing on the under side of the lower one transmitting the power through worm gear to the rear live axle. The cylinders are air-cooled, two fans, driven by frictional contact with the fly-wheel, forcing air to the radiating fins on the cylinder walls. A governor which acts on the exhaust valves is fitted. Two fly-wheels, rotating in opposite directions, are carried—one on the upper crankshaft and one on the lower. The current for the electrical ignition is produced by a special form of magneto, the forward fly-wheel carrying two permanent magnets on its inside face, which rotate round a fixed armature set on a sleeve carried on the lower engine shaft. All the connections between the magneto and the plugs are of solid steel, no ignition wires of the ordinary form being used. A wick-type carburettor is employed to furnish the mixture. Three speeds forward and a reverse are provided; the power on the high speed is transmitted direct from



MR. C. DIXON AND MR. C. PEROWNE ON 10-H.P. LANCHESTER CAR.

the engine to the rear live axle through a friction clutch and worm-gearing; an ingenious form of epicyclic change gear for the lower speeds is provided, this running in oil. Tiller steering, located on the right side of the driver, is employed. The frame of the car is of channel steel; the body is supported on the front and rear axles by short plate springs, while between it and the frame are interposed rubber buffer springs, with a view of reducing vibration. The body is most comfortably designed and upholstered; it takes the form of a roomy tonneau. Two of the cars shown are provided with detachable brougham tops, forming an excellent covering for use in bad weather.

The latest types of Peugeot cars, ranging from a handsome 12-h.p. vehicle down to the Baby Peugeot, form the attractive exhibit of Messrs. Friswell, Limited. As has already been recorded in the *Journal*, the popular "Baby" has undergone a number of improvements for the 1903 season. The 5-h.p. vertical motor has a single cylinder 94 mm. diameter, by 100 m.m. stroke, and at a speed of 1,000 revolutions per minute develops $6\frac{1}{2}$ h.p. The water circulation is maintained by a centrifugal pump driven off the fly-wheel, with large radiators in front. There are three speeds forward and reverse, running in oil. On the top gear the power is transmitted direct to the differential on the rear live axle, which is of particularly strong construction. The new Peugeot 8-h.p. has a two-cylinder engine. The governor is of the ordinary ball type acting upon the admission of the gas; in conjunction with it is an "accelerator" lever on the steering column. The lubrication is automatically maintained by the water circulation, all the "greasers" being placed on the dash-board. The water circulation is of the latest type, with honeycomb radiators and ventilating fan, located in the front opening of the bonnet.

There are three speeds forward and reverse, actuated by one lever at the side, the top speed being direct on to the differential gear without intermission. Considerable interest is being shown in the new 12-h.p. Peugeot car, the main features of which were described in our report of the recent show in Paris. The car has a four-cylinder motor (100 mm. cylinder diameter by 105 stroke), running at a maximum of 1,200 revolutions per minute; four speeds and reverse, and stamped steel frame. Both electric and magneto ignition are employed. The admission valves are mechanically operated, the same as the exhaust valves, placed opposite each other, and are interchangeable, being of exactly the same dimensions. The governor is centrifugal, acting upon the inlet; in conjunction with it are provided a pedal "accelerator" and a hand "moderator" acted on by a lever on the steering column. The water circulation is of the latest type, with a honeycomb radiator in the front. The change-speed gear is of the usual type, with one sliding sleeve carrying three gears; the fourth speed being direct to the differential. The transmission from the countershaft is by side chains. There is a compensating brake on the hind wheels. It is operated through a bar placed across the car and pulled at its centre; at each end of the bar the brake rod of one wheel is attached, in such a manner that the rod takes a position which compensates the brakes and makes the friction on each one the same. The hand brake on the differential is of the progressive type, and works in oil. The approximate weight of the chassis is 14 cwt. From the foregoing it will be seen that the 1903 Peugeot cars are well abreast of the times.

The only heavy vehicle shown is the five-ton lorry of Dr. A. W. Brightmore, of Egham Hill, Surrey. This is of novel design and construction, the engine, boiler, and transmission being all mounted on a two-wheel tractor, which forms the front pair of wheels of the lorry, these wheels thus serving both for driving and steering; the forecarriage, being self-contained, can be taken out of one vehicle and attached to another. The carrying platform is connected to the forecarriage by a swinging hinge joint, so that each wheel always gets its proper proportion of load, however uneven be the road. By this means any communication of strain from the carrying platform to the machinery is rendered impossible. When unloaded over three-quarters of the weight is carried by the driving wheels. The steering is positive, and, owing to the short wheel base, the vehicle can be manoeuvred in restricted spaces. Owing to the power being always exerted in the direction of motion, there is claimed to be no side-slip. The boiler is of the fire-tube type and works at a pressure of 200 lbs. per square inch, coke being used as fuel. The engines are of the horizontal, compound type, the cylinders being 4 in. and 7 in. diameter by 6 in. stroke; at a speed of 450 revolutions per minute they develop 35 h.p. Provision is made for admitting high-pressure steam to both cylinders, in case of need. The connecting rods and cranks run in oil, a two-speed gear being enclosed in the same case. The differential countershaft conveys the power to the front road wheels by means of Renold silent chains. A novel feature of the vehicle is the steering; this is what Mr. Brightmore calls the "momentum" type, and reminds us of the two-wheel cycle of the early cycling days; each of the two halves of the differential shaft carries a sort of band-brake; by a slight movement of a hand-wheel either of these can be applied, and its half of the differential shaft, together with the corresponding road wheel, held rigid. So long as the two wheels revolve at the same speed the vehicle will take a straight course, but if one of the wheels be held more or less rigidly the other will travel faster than it, causing the vehicle to take a circular course. The Brightmore vehicle contains a number of other special features, and deserves the careful attention of all interested in the transportation of heavy loads.

The Motor Traction Company, Limited, have on view samples of the 15-h.p. four-cylinder and 7½-h.p. two-cylinder Germain cars, the Holden 3 h.p. motor-bicycle, and the "F. N." 1½-h.p. motor-bicycle, the features of which have previously been described in the *Journal*. They also stage two new types of cars, of 7 and 10-h.p., which they have named the "Salisbury." These follow the now generally-adopted lines of engines under a bonnet in front, clutch, gear-box, differential countershaft, and two side chains. One of the 10-h.p. cars has a two-cylinder motor, known as the "Monarque," the other is driven by a Buchet two-cylinder engine. Both vehicles are provided with three speeds and reverse motion, electric ignition, a governor which acts on the inlet, and other up-to-date fittings. The 7-h.p. Salisbury car is on similar lines, but is fitted with a single-cylinder Aster engine. These vehicles appear to be well finished, and doubtless more will be heard of them in the near future.

The Motor Manufacturing Company, Limited, have one of the largest

exhibits, comprising carriages varying in power from 8-h.p. to 20-h.p., two chassis, engines and sundry parts and accessories. Four types of motor-vehicles are displayed. First we may mention the M.M.C. 8-h.p. single-cylinder car, similar to that which gained the gold medal in Class C of the Automobile Club's 650 miles Reliability Trials. This is fitted with three speeds forward and reverse, and has recently been improved as regards the steering, which is now of the irreversible type. The wheel base has been lengthened and extra strong chains adopted. The gear is very easily changed, the pairs of gears being always in mesh. The car is an excellent hill-climber, and is at the same time very fast on the level. One of this type of vehicle is shown fitted with an American buggy top, and is intended for South Africa. The M.M.C. 10-h.p. two-cylinder car is now fitted with a new closed end motor, a patent governing device acting on the induction pipe. In connection with the latter it should be mentioned that when the throttle valve is closed, shutting off the supply of mixture, an auxiliary air valve is opened, thus allowing cold air to be drawn in and assist in keeping the valve chambers and cylinder cool. The vehicle has three gears, being always in mesh, controlled by one lever, equal 32 in. wheels, water-cooled brake, and foot accelerator. The design and finish of the carriage body and upholstery is well up to the M.M.C. standard. The M.M.C. 12-h.p. four-cylinder car is a well-known type. It has electric and tube ignition, four speeds forward and reverse, gravity feed to engine and burners, water-cooled brake, automatic lubrication, and equal 34-in. wheels. The engine in this car is so well balanced that the vehicle when running is practically silent, and no vibration from the pulsations of the engine is felt by the passengers. The largest car on the stand is a 20-h.p. four-cylinder vehicle, with the latest type of closed-end motor, governed on the induction. It has a foot accelerator, which cuts the governor right out; three speeds and reverse (the change gear being always in mesh), water-cooled brake, and mechanically-operated lubricator for the engine. It is geared to attain speeds up to 45 to 50 miles per hour on good roads. The particular 20-h.p. car we examined has been built for Mr. J. Joel, and is fitted with a most comfortable tonneau body, having ample room for three persons at the rear.

The British Automobile Commercial Syndicate, Limited, have two very large stands, on one of which are staged several Panhard cars, with Clement-Rothschild bodies, including 10-h.p., new long frame 7-h.p., and 15-h.p. vehicles. It is on the stand devoted to the new Clement cars that attention has, however, chiefly been centred, these ranging from a 5-h.p. voiturette to a 24-h.p. car. In the brief space at our disposal this week a full description of the new features of the 1903 Clement cars cannot be given. It must, therefore, suffice for the moment to state that they are being made in three sizes—9-h.p. two-cylinder, developing 11-h.p.; four-cylinder 12-h.p., working up to 16-h.p.; and 16-h.p. four-cylinder, giving 24-h.p. To merely tabulate the new points, these comprise a throttle on the inlet by means of which the speed of the engines can be varied from 120 to 1,200 revolutions per minute; the coolers are of the Beehive type, there being no water tank other than the cooler; behind the cooler is a fan to induce a draught through the tank; all valves are mechanically actuated, all the valve stems being operated off one cam shaft. The ignition is by magneto, driven by spur gearing. The chassis is of hydraulic compressed steel; the clutch is a new one, of the expanding and contracting type, the surfaces being metal against metal. Four speeds and reverse are provided, the top speed being direct, without the intermediary of any gear wheels. The transmission shaft runs on a phosphor bronze bearing the whole of its length. Any type of body can be fitted to the chassis, including tonneau, double phaeton, limousine; a novel one for England takes the form of a luxurious coupe, built by Clement-Rothschild. The B.A.C. Syndicate also show a useful little 5-h.p. delivery van, suitable for tradesmen; it is intended to carry loads up to 17 cwt.

The Burlington Carriage Company, Limited, display one of the latest De Dietrich cars—a 16-h.p. tonneau on the Turcat-Mery system, and also a chassis. Although combining many of the best points of the latest Panhard and Mercedes practice, the new car exhibits much originality in detail. Broadly, it follows the standard arrangement of vertical motor in the fore part of the frame, friction clutch, change-speed gear, and two side chains. The motor comprises four cylinders and develops 16-h.p. The governor runs in an oil bath case, and magneto ignition is employed. The cooling system is so arranged that, should the pump fail, natural circulation proceeds in a manner sufficient to allow the motor to be still driven. The carburettor is fitted with a regulator or throttle, by means of which, and the firing control, the motor is claimed to be as flexible as a steam engine. The various details have been carefully thought out, this being especially noticeable as regards the friction clutch, which can be adjusted with very little trouble.

Messrs. Stern Brothers' specialities are so favourably known to motorists that it is a matter of general interest to mention that their lubricating oils, etc., are now being put up in smaller quantities. The Sternoline spring-pressure lubricators and sight-feed lubricators for cylinders are also on view.

A good show of accessories is made by Messrs. Steiner and Company, who make a special feature of motor horns, one of the novelties being a combined lamp and motor horn. The blowing of the latter part of the device does not put out the light, thus providing a useful combination. Messrs. Joseph Lucas, Limited, have a varied collection of "motoralities," including lamps of every description for automobiles, horns, lifting-jacks, tyre repair outfits, valves, pumps, grease injectors, the Wells-Lucas "motoil," etc. "The King of the Road" head lamp occupies a conspicuous position on the stand.

CORRESPONDENCE.

NUMBERING CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Under the present Act a speed of fourteen miles per hour is provided for, and would be the legal limit, were the twelve mile regulation imposed by the Local Government Board withdrawn. This might well be done at once, and thus allow the working of the extra two miles allowed by the Act being tested in practice.

How any reasonable person can advocate that motor-cars should be disgraced by having to bear a prominent official number passes my comprehension. A properly-used and well-conducted motor-car should rank exactly as any other variety of gentleman's private carriage; it has an equal right on the road, and to be treated as any other vehicle. Because coal carts and railway goods luries, etc., never travel over four miles an hour, have they any right to claim that gentlemen's carriages, which rush by drawn by high-stepping and excitable horses at eight or ten miles an hour, etc., should bear identification labels, etc.?

Then why should these two classes unite and urge that motor-cars, which are under far better control, be subjected to the numbering indignity because they can, and do, travel at a higher rate of speed, and, as has often been tested, with perfect safety and under superior control?

If anything should be required when the speed is considerably extended or withdrawn, I would suggest that in cases of reckless driving "to the common danger," which, when brought before the authorities, were adjudged proved, and the driver convicted, fined, and cautioned, a second conviction (should the case appear serious) might, in addition to the fine, required the carrying an official identifying number for three months, and on a third conviction a fine and six months' numbering. This would speedily weed out reckless men, and all considerate users of the road would enjoy the same rights and privileges as other carriage owners.—Yours truly,

SAM'L. OKELL.

REPREHENSIBLE PROCEDURE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—We send herewith some interesting correspondence that has taken place between certain purchasers of our cars and ourselves, relative to bogus claims put forward by certain motor agents for commission on imaginary introductions. As this is a growing evil, it should be at once put down by manufacturers. The *modus operandi* is as follows:—An agent gets to know who is buying a car in his neighbourhood, and then, ascertaining the maker's name, writes to the latter to the effect that, after a lot of trouble, he has persuaded the purchaser to buy the said car, and expects commission on the sale. In one case we have had applications from no less than four agents. We do not say all agents are the same, far from it; but it behoves manufacturers to avoid those guilty of such practices, and to warn their clients from placing repairs in their hands.—Yours truly,

THE BEAUFORT MOTOR COMPANY.

[COPY.]

FROM AGENT TO COMPANY.

"GENTLEMEN,—We had hoped to have called on you with our client, —, but, owing to having been laid up for a few days, we could not meet him at your place. We shall be glad if you will kindly reserve us the usual introductory commission on the car he has ordered from you—12-h.p. car, to be delivered first week in January; and we also understand from him that you are supplying a driver. He has already on order from us a 12-h.p. of another maker, and we have also to get him a mechanic for this car. We may be in London to-morrow, and will call if we have time.—Yours faithfully,

FROM COMPANY TO CUSTOMER.

"DEAR SIR,—We are exceedingly sorry to trouble you, but we have had applications from three local agents for commission on the car sold you.

"Would you kindly say if our cars were introduced to you by an agent, or if such an agent persuaded you in your choice of a car?—Yours faithfully,

THE BEAUFORT MOTOR COMPANY.

[COPY.]

FROM CUSTOMER TO COMPANY.

"DEAR SIR,—In reply to your letter of yesterday, saying that you had received applications from three local agents for commission on car sold me. I wish most positively to state that your cars were not brought under my notice by any agent, firm, or private individual, and that every application to you for commission should be treated as an attempt to extort money under false pretences. I have only had dealings with one agent, who sold me a car, and cannot even guess who the other two are. I may add your car was brought to my notice by an advertisement in the *Motor-Car Journal*.—Yours faithfully,

PETROL STRAINER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to Mr. M. F. Lyons, the strainer I use consists of two discs of fine brass gauze separated by a washer, placed in the union of petrol

pipe to carburettor. The particular sample of gauze I used was the kind adopted in paper-mills for running paper pulp on, and of very fine mesh; in fact it was some "scrap" from a local paper mill. If such fine gauze is unobtainable from an ordinary metal warehouse it can be got from scientific instrument makers.—Yours truly,

R. W. BUTTEMER.

AN UNIQUE EXPERIENCE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—On Saturday afternoon I started with a friend on a 40-h.p. Panhard for Cobham, the afternoon being perfect, and the roads dry and very dusty. We arrived at Cobham, and having had tea got ready for the return journey. It was raining heavily and freezing at the same time. We waited some little while in the hope that the rain would cease, but, after finding that it did not do so, started for London. The road was slightly slippery at that hour, 6.30 p.m., and I proceeded with caution, but finding that the car did not slip much, increased the pace a little. Having traversed the Cobham Fair mile, I descended a hill, and up another, when, upon descending the next steep hill, I turned completely round three times, and the front of the car stopped right upon the bank, very quietly, and with the vehicle completely across the road. I got off the car, immediately falling down. When I got up again, I noticed that the car was gradually slipping sideways down the hill. I then reversed, and when I let in the clutch the car commenced to slide down the hill, broadside, and there we were unable to move, on a steep hill; not even able to start the engine, because the vibration made the car slide. After waiting an hour, and only seeing two cyclists, we had the luck to find a man with a cart, who helped



THE INDIAN CHIEF "WALK-UNDER-THE-GROUND" TRIES THE 12-H.P. DAIMLER.

[The Biograph Studio.]

us to push the car to the wrong side of the road, with the tonneau against the opposite bank, and we three actually pushed the front of the car into the gutter. The roads were completely covered with a layer of ice $\frac{1}{2}$ -inch thick. Having got into the gutter on our wrong side, my friend just pushed the car very slowly down the hill, no engine working, and the next hill took us exactly twenty minutes to ascend: down another hill with the motor not working, and the last hill into Esher took us over half an hour, all the wheels flying round at a tremendous pace, and the car moving about 6 feet in four minutes; at last I called out to my friend to place one of the rugs under the off-side wheels. He did so, and the flying wheel sent the rug back quite ten yards. At last we arrived at Esher, and decided to place the car at the Bear Hotel, which stands slightly higher than the main road, but to get there was another question, and, after cutting very many circles, and waltzing about in the middle of the road, with the old "40" roaring like a bull, we got some rope and tied it round the back wheels. At last we crawled into the yard, having taken three and a half hours to go from Cobham to Esher, a distance of about three and a half miles. Hundreds of people came round at Esher, and many laughed so much at our capers that they fell down. I think that this is an unique experience, and I shall not forget for many a day the car sliding gradually down the hill, like a sleigh, and being quite powerless to assist her, if she had once got away.—Yours truly,

JOHN D. HILL.

OFFICIOUSNESS REBUKED.

At the Croydon Borough Bench, George L. Warsop, of Croydon, appeared to answer a summons for acting as conductor to a metropolitan stage carriage, on December 12th, without a license. Police-constable 321 W said on December 12th he saw the motor 'bus, owned by the Bromley Autocar Company, in North End, with defendant riding behind and assisting passengers out. He had no badge, but admitted that he had collected the fares of the people inside. Defendant explained that he was a motor expert, and when the 'bus was brought down to Croydon he was employed to keep the mechanism in order. On the day in question he collected the fares of the two or three passengers, to help the driver. He had no conductor's licence, nor had he been instructed to perform a conductor's duty. The Bench, under the circumstances, dismissed the case.

A similar course was adopted in the summons issued against Jas. Ernest Carter, of 3, West Street, Bromley, secretary of the Bromley Autocar Company, Limited, for allowing Mr. Warsop to act as conductor without a license.

MR. C. JARROTT ON MOTOR RACING

MR. MARK MAYHEW, L.C.C., presided at the Automobile Club on Friday, the 16th, when Mr. Charles Jarrott read a paper on "Motor Racing: Sporting and Educational." Having given a history of the important motor races held since 1895, when M. Levassor drove a 4-h.p. carriage in the Bordeaux-Paris race—732 miles in just under forty-nine hours—Mr. Jarrott went on to speak of the value of motor racing to the manufacturer and to the public. It had been contended that the expense to the manufacturer of entering vehicles for the big races had grown to such enormous proportions that he lost more than he could possibly gain by having a racing programme. Of course, it followed that the longest purse had the best chance of winning, and the most moneyed firm might derive the greatest benefit from racing, yet the general benefit to the trade and the good derived by the industry more than compensated the many manufacturers for their outlay. They all remembered the consternation which was occasioned through the interpellation of M. Gautier de Clagny in the French Chamber of Deputies, brought about by the incidents which occurred in the Paris-Berlin race. The edict of the Government that in the future racing would not be allowed caused the greatest consternation among the French manufacturers and others interested in the business, as they foresaw the harm the French industry would sustain if racing were permanently stopped by the Government. The case set out by the various French papers was so strong, and the interests at stake so great, that it was impossible for the Government to fail to appreciate that it was to an enormous extent owing to the fact that France had organised and run the big motor races that she owed her position in the motor world. The claims of the manufacturers, the claims of the users, and the claims and large interests of the allied trades, were too great, and it was interesting to observe that the first race of last year was organised by the Government itself as a part of their programme for encouraging the use of alcohol in motor cars, thus making another source of income for the agriculturists of the country. It could not be doubted that the rapid evolution which had taken place in the automobile industry had been due to the French races. Instead of the unstable, short wheel-base cars which might have been used even to the present day, the increase of speed attendant upon the fitting of more powerful engines, built originally by the manufacturers solely with the idea of winning races made the building of much more stable cars an immediate necessity, and the comfortable touring cars they were using at the present day owed their inception to the racing cars of two or three years ago. The necessity of fitting wheel steering, longer springs, stronger axles, larger tyres, and the thousand-and-one improvements that could be mentioned in comparing an up-to-date car with one constructed five years ago, owed their origin to the consideration of these points by the manufacturers when constructing their racing models. It was only when they started to decrease the weight of their cars that tyre difficulties became somewhat less troublesome. He had heard it said that tyres to-day were much better than they were before, and that stronger tyres were used. Possibly they were; but there was a day when to drive out on a car fitted with pneumatic tyres was to make it more than a certainty that one would be repairing one or all of them before one could get back again. Cars were heavier, tyres were lighter, and it was from racing models the lesson was so quickly learned. With the enormous engines that were now being fitted to racing cars, and the construction and devices employed to crowd as much horse-power as possible into the 1,000-kilo. limit, the margin of safety was non-existent. Nevertheless, it followed without question that, if certain forms of construction would go through the trials attendant on a long and arduous race, and undergo strains far more trying than would be the case with ordinary use, they might be fairly certain they were right. Of course they knew perfectly well that the English manufacturer was rather inclined to allow his foreign brethren to do the racing, and then, when certain results had been obtained, make use of the knowledge so gained. But this always entailed being at least twelve months behind in England, and, although twelve months might not seem a very long time, nevertheless the importance of keeping right up-to-date must be apparent to all. He was not suggesting that it would be policy on the part of the English manufacturers to build cars for Continental racing; but, at the same time, it was well for them to realise the value gained in the participation in competitions with foreign competitors. Having given some personal experiences in Continental races, Mr. Jarrott concluded with some advice to those who would like to race,

yet did not like to participate because they could not win: "Race first, obtain the necessary experience, and, provided you have the necessary amount of skill and judgment, *that good luck* which at one time or another visits all of us who take part in competitive sport will visit you, and your turn as the winner of one of the big events will come!"

At the conclusion of the reading of the paper Mr. R. W. Wallace made an announcement as to the procedure to be adopted in securing that the Gordon Bennett race should be run in Ireland, and a hearty vote of thanks accorded to Mr. Jarrott closed the proceedings.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Newtown.....	*A. Barratt, Newtown, Wales	—	£1 etc.
Marlboro' St. (London)	H. M. Biddington, Regent's Park, N.W.	—	40s. "
"	R. Jebbett, Tottenham Court Road, W.	—	40s. "
Crawley	A. Payne, Clapham	—	£3 "
Winchester...	C. W. Whitburn, J.P., West Malling	21 m. p. h.	£5 "
Dumfries	H. Fenton, Paisley	22 m. p. h.	Dismissed.

Where no alleged speed is given it is understood to be above the legal limit.
*Motor-cycle case.

ALLEGED NEGLIGENT DRIVING.

At Brompton County Court (London), on Tuesday, before Judge Stonor and a jury, William Wilkins, a painter, of West Kensington, brought an action against Captain Kenneth Campbell, Queen's Gate, W., claiming £25 in respect of personal injuries and damage to plaintiff's bicycle and clothes, said to have been caused through the defendant's negligent driving of a motor-car. Mr. E. G. Mears appeared for the plaintiff, and Mr. Staplee Firth defended. The plaintiff stated that on November 15th last he was riding his bicycle along High Street, Kensington, towards Earl's Court Road. When near the new Cathedral, riding steadily on his near side, the defendant came along on his motor-car, and without giving any warning whatever "bashed" into him from behind. His (plaintiff's) machine was smashed up; his clothes were all torn to shreds, and his left wrist was badly injured. Next day the defendant offered to give him £2 and an old suit of clothes to settle the affair. Captain William Greig, of Kensington, stated that he saw the motor-car, without any warning whatever from the driver, "run down" the plaintiff. Witness asked defendant why he did not turn out to avoid the cyclist, and defendant said that the road was too slippery for him to do so. The defendant in evidence said that the plaintiff was riding his bicycle along the middle of the road, and as witness rode his car behind the man swerved suddenly to the left, in spite of witness shouting, "Look out." The offer which he made to the plaintiff was clearly explained to be without prejudice. The jury returned a verdict in favour of the plaintiff, assessing the damages at £7. His Honour gave judgment accordingly, and allowed costs.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

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THE Motor-Car Journal.

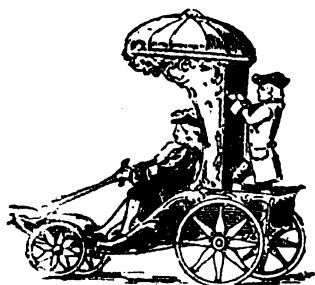
VOL. IV.]

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COMMENTS.



AT a meeting of the Literary Society at Auchterarder, the Right Hon. Sir J. H. A. Macdonald, K.C.B., Lord Justice-Clerk of Scotland, has delivered a lecture on "The Development of Power Traction on Roads," dealing particularly with the history of the motor-car and its development. He spoke of the difficulties and obstacles which had been placed in the way of the pioneers of motor traction, humorously referring to

the placing of large stones on the roads, the digging of cross trenches, and the imposition of prohibitive tolls, which had killed the movement in the beginning of the last century, and said that even yet much of the opposition to be encountered was due to ignorance and prejudice. He enumerated a large number of points in which the automobile was superior to the horse carriage, and prophesied a great and useful future for the former. The lecture was illustrated by limelight views of cars ancient and modern, a number of which were highly amusing. Mr. W. S. Haldane, W.S., of Foswell, presided over a large attendance. On the motion of the Rev. W. S. Muir the lecturer was accorded a hearty vote of thanks, while a similar compliment was paid to the Chairman on the motion of Councillor Campbell.

Motors for Men of Moderate Means.

IN the course of his paper at the Automobile Club last week, Captain Kenneth Campbell said he had found, since taking up motoring, a considerable saving in train fares and the attendant cabs in going to and from stations, tips, &c. On a touring car one went from one's own door to that of the friend one was to visit, and, at the same time, had the additional advantage of travelling rapidly through the beauties of English country scenery, instead of the boredom of being boxed up in a railway carriage. Upon long journeys, to Scotland for instance, 150 miles might be taken as a comfortable day's run. Many towns and charmingly-situated villages were passed through and comfortable inns visited. There was room for improvement in some of the inns, but as the motor industry grew in England more cars would be put on the roads, and the inns throughout the country would improve and derive benefit from increased business. Unfortunately a discussion such as that which followed can hardly be of practical value, so many factors entering into the conclusion of the matter.

A Vague and Hazy Discussion.

MUCH depends upon the way the car is driven; upon the character of the roads traversed; upon the weight of the car and the speed usually indulged in. Then again there is the necessity for accurate comparison of the horse powers of the cars as well as for an accurate system of book-keeping and of counting the mileage. If speakers could make definite statements upon all these points there might be something of a practical nature evolved; but, in the absence of any such general classification, we are afraid the outcome of the debate must be as vague as the notion of what constitutes "a man of moderate means."

Motor-Cars and Elections.

MR. HENRY NORMAN, M.P., writes to the *Westminster Gazette* a useful article on elections and motor-cars, mainly based upon the experiences of the successful candidate in the recent Newmarket election. In an ordinary rural constituency, he says, a candidate with a good car can make a round of the district during a morning—a saving of time that makes a material difference in a short campaign. There is, however, apart from the mere matter of convenience, another striking effect of the automobile at elections:—"A motor-car evokes enthusiasm—quite apart from the political issues of the fight. As it goes flying along, with its huge placard in front displaying the name of the candidate in letters a foot high, with its merry hum and the rousing blasts of its horn, everybody cheers it and waves his hat, the occupants cheer and wave back, and the train of enthusiasm it leaves behind is as evident as its own two broad tyre-marks in the mud. Enthusiasm on polling-day means victory." But the point occurs to us, what will happen when all political candidates, recognising the necessity of the motor-car, become possessed of such vehicles? Will he who reverts to the ancient coach and four be placed in a more favourable position?

Dismissals.

OUR list of cases of alleged furious driving is notable this week from the fact that no less than five dismissals are recorded. Evidently magistrates recognise that there are limits even to their own prejudiced feelings, and that common sense must be respected. At York, the Lord Mayor has expressed the view that the Act under which these cases come before the Bench "might, to some extent, be considered obsolete." At Cardiff, too, the stipendiary has said, "it was of the essence of the offence that someone must be in danger," and in the case against Mr. Thomas, of the South Wales Motor Company, "nobody was in danger, and the summons would therefore be dismissed." Verily a Daniel come to judgment!

Driving in Towns.

MR. HOPKINS, the magistrate at Lambeth, had a case before him on Tuesday which served as an opportunity for him to rebuke those motorists who ignore the police regulations in crowded places. They should discriminate between the city and the village, and remember that a pace which might be perfectly safe in the open country becomes an intolerable nuisance, if not an actual danger, when indulged in along a busy thoroughfare in a town. Fortunately the majority of motorists recognise this distinction, and we must confess to no feeling of sympathy towards those impatient drivers who disregard the safety of pedestrians and of horse-drawn traffic in crowded districts.

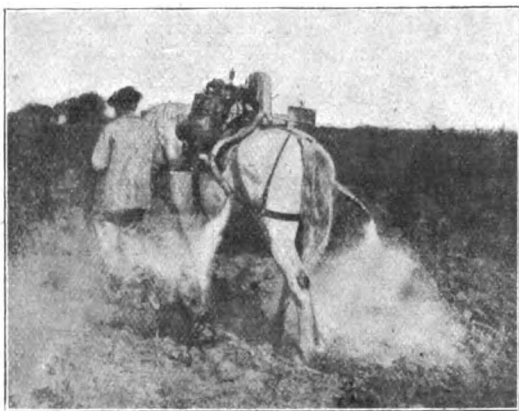
The Eastbourne Tenders.

CONSIDERABLE curiosity is being felt as to the development of the movement for instituting a service of motor-omnibuses in Eastbourne. Already we have mentioned that tenders have been received from various firms, and of these nine have been referred to the Electricity Committee for further consideration. The tenders for petrol cars, which are to be fully considered, are those of the Motor Manufacturing Company, Limited, Stirling's Motor Carriages, Limited, G. F. Milnes and Co., the Thornycroft

Steam Wagon Company, and Messrs. Karminski and Co. The claims of a petrol-electric vehicle on the Fischer system are also to be examined, as well as tenders for electric vehicles by Messrs. Salmon and Sons, the City and Suburban Electric Carriage Company, and the British Schuckert Electric Company.

A Novel Combination.

As we mentioned in a recent issue, the internal-combustion motor is steadily being adapted for other purposes than that of driving motor-cars. We were, however, hardly prepared for the novel application which has been discovered by an agricultural engineer at Nîmes, who was called upon to devise some means of spraying insecticide in a large vineyard in the wine-growing district of France. The land being of a hilly nature, the use of an instrument on wheels was not possible, so he hit upon the novel idea of mounting a petrol motor and sprayer on a horse's back. The motor is a horizontal one running



at a speed of 800 to 1,000 revolutions per minute. We give an illustration of this novel combination of horse and petrol motor, which, according to "La Locomotion," has been found to answer the requirements most satisfactorily. Our contemporary does not tell us what the poor horse thinks of its unusual occupation!

Look after the Car.

MR. HATHERLEY WOOD, son of General Evelyn Wood, V.C., is a motoring enthusiast, and although he has used an automobile constantly for four or five years, has never been late for an appointment through a breakdown. This immunity from trouble is attributed to the fact that he never starts on a journey without making absolutely sure that everything is in running order. If every motorist would take this precaution much delay on the road would be saved, and the character of the motor-car for reliability substantially advanced in popular estimation.

A Change for the Better.

WHILE our neighbours across the Channel have thoroughly appreciated the importance of clearly explaining the exact mechanical construction of their cars, with working drawings, British builders, except in a few instances, have not hitherto shown any marked tendency to reveal their methods of construction and the operation of the various working parts. The purchasers of automobiles are rapidly becoming educated in what may be called automobile mechanics, and are quick to appreciate a well-designed piece of mechanism. We are quite aware that pending patents and the like have in some cases restrained manufacturers from properly describing their cars, but these restrictions are not permanent ones, and every maker should endeavour to give the fullest and clearest information to the prospective user. A marked improvement has, we are glad to say, taken place in this direction during recent months. Whereas it was formerly, in the majority of new English cars,

only possible for us to publish pictures giving views of the outward appearances of new vehicles, drawings of the various parts being practically refused, the latter are now being furnished as a matter of course when any details of new automobiles or of improved models are sent us.

Useful Manuals.

ANOTHER change for the better on which we may congratulate several of our motor-car builders is the step they have taken in compiling manuals, giving clear descriptions of the various parts and methods of adjustment, etc., for the use of purchasers of their cars. Although in large centres motor-vehicles are generally purchased of agents or manufacturers' branch houses, many cars are despatched to residents of small towns and country districts. These purchasers in many cases must learn for themselves the way to operate their cars, a task which may be simple enough when properly undertaken, but for a man who does not know the exact difference between a four-cycle engine and an eight-day clock it is no easily self-tutored task. It is not possible for the maker to send an expert with every vehicle despatched from the works, hence the need for a clearly written manual which may act as a silent instructor. If properly written and compiled it should be sufficient to furnish the embryo automobilist with practically all the information needed to enable him to take to the road for the additional knowledge which experience alone can teach. The production of a really successful manual is not an easy task; it is almost habitual with many technical writers to forget that the elementary reader may know little or nothing of the elementary facts concerning the subject at hand. It is not enough to tell the prospective motorist what to do to certain elements of the car in order to start it. It should be assumed that he does not even know them by name. He should be told what they are for and why they are on the car. It is easier for him, knowing what their function, to determine what to do with them than it is for him to know what they are for by simply being told what to do with them. As we have said, the necessity of instruction books has now been recognised by several concerns, among these being the Wolseley, Duryea, and the Lanchester, the latter's book being referred to elsewhere in the present issue.

A Large Northern Show.

THE Liverpool Seventh Annual Cycle and Motor Show is not unlikely to compare favourably with some London exhibitions. There has been an unprecedented demand for space, the largest being that taken up by the Light Car Department of the Road Carrying Company, Limited. There will be an inaugural luncheon in the library, St. George's Hall, Liverpool, on Tuesday next, when it is hoped that Lord Derby, president of the Liverpool Self-Propelled Traffic Association, will be present and subsequently declare the Show open. The exhibits will include up-to-date examples of automobiles, and those of our readers in the North-Western, Northern, and Midland counties who may be unable to visit London should attend the Liverpool Show.

American Reliability Trials.

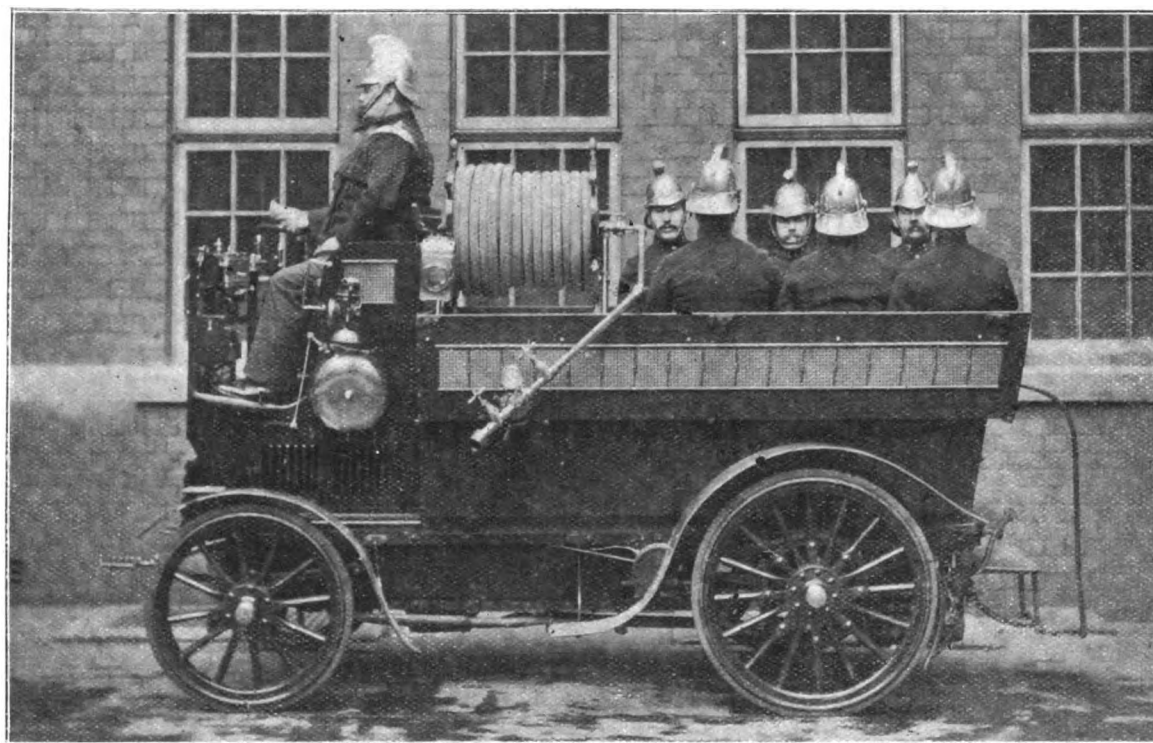
AMERICAN manufacturers are considering the question of future endurance contests in the United States, and they are being asked to consider the advisability of holding a Reliability Test from New York to Chicago in October, or a series of tests starting from a central point, and conducted somewhat on the lines followed in this country last year. Questions of appearance and comfort are hardly likely to be seriously considered in the contest, these being matters of individual preference. The one thing which the purchaser has difficulty in arriving at is how a vehicle will withstand in continuous service, and the object of a reliability contest should be to throw as much light as possible on this point. That the Americans are recognising the value of long trials as opposed to short runs is proof of the

advance that is being made on the other side of the Atlantic. The institution of endurance trials on British lines will probably influence the constructors of cars to modify the present light types and give their vehicles the stronger appearance associated with the automobiles of other countries.

Against Numbering.

ALTHOUGH they did not come to any resolution with regard to the numbering of cars, it was very evident at the last committee meeting of the Sheffield Automobile Club, that they considered the present state of affairs better than having automobiles labelled, as has been suggested in influential quarters. Already so many of the provincial clubs have declined to be associated with the agitation for numbering cars that we really think the time has come for the central organisation to reconsider its position in the matter. From our Correspondence columns this week it will be seen that Colonel Magrath—who will be remembered as one of the prominent participants in the 1,000 Miles Trial—has been communicating with the Club,

chairman of the general council of the Scottish Automobile Club, opened the discussion by explaining the draft of the proposed Bill. An animated criticism of the various points followed, and after a discussion of nearly two hours, in which the following took part—Messrs. John Wilson, Oliver, Connell, Dunderdale, Sleigh, Hunter, Croall, Townsend, and Hawkes—a resolution was proposed by the chairman of the Eastern Section, and seconded by Mr. Macmillan, honorary secretary, as follows:—“That the Eastern Section of the Scottish Automobile Club are of opinion that while they are in favour of the removal of the speed limits, they consider that it is a mistaken policy for the Automobile Club of G. B. and I. to introduce any Bill into Parliament; that the true policy for the Club to pursue is to act on the defensive and watch jealously any attempt to alter the present regulations; that the A. C. of G. B. and I. should continue its splendid work of impressing on motor-car drivers the necessity of not only driving with care, but with consideration for the safety of other users of the road, as well as of educating Parliament and other authorities as to the safety and convenience of motor cars.” This resolution was passed unanimously,



THE LIVERPOOL FIRE BRIGADE'S MOTOR CHEMICAL FIRE ENGINE (see page 1924).

suggesting that all members should have an opportunity of expressing their opinion on the subject. In answer it has been pointed out to him that this would mean communicating with two thousand people, while only those who can be present at the meeting would be competent to express an opinion on the contemplated Bill. This, however, seems rather an absurd position to assume, considering the matter has been so long before automobilists that practically every one of them has made up his mind on the subject. If the Club would institute a plebiscite of the members, there is no doubt that a general idea of the strength of the opposition could be obtained, and the Committee would be able to recognise how little it represents the opinion of motorists on this important subject.

Scottish Opposition.

EMPHASIS to our view of the matter comes again from north of the Tweed. Last week the Eastern Section of the Scottish Automobile Club had a discussion on the Hon. Scott Montagu's proposed Bill for the identification of motor-cars by numbers or otherwise. Mr. Norman D. Macdonald,

and the secretary was instructed to send a copy to the secretary of the A.C. G.B. I.

The Motor-Car to the Rescue.

ONE of the dangers inseparable from horse-drawn carriages, and at the same time the better control of the motor-vehicle, received illustration at Chorley last Saturday. A horse, frightened by a brass band, rushing madly along Preston Road, drawing a dog-cart with two alarmed and almost helpless passengers, knocked down and ran over a boy who happened to be playing in the road. The unfortunate youth was quickly taken to the local hospital on the steam car of Mr. G. T. Brown, J.P. (Ex-Mayor of Chorley and a member of the North East Lancashire Automobile Club), who happened to drive up just after the accident. Frequently have incidents occurred of the automobile coming to the rescue in most expeditious fashion. If an accurate census of the accidents due to restive horses could be made, it would probably prove a great factor in allaying the prejudice against the automobile.

The Derby Club's First Run.

THE opening run of the members of this newly formed club took place on Saturday afternoon, when twelve cars and a motor-cycle participated in a trip to Loughborough. The meet was held outside the gaol, and despite the extremely unfavourable weather there was a large attendance of the public. The members present were Mr. C. J. Allin (hon. sec.), 8-h.p. Rex; Mr. C. Turner Leech (hon. treasurer), 8-h.p. Deauville; Mr. G. F. Smith, 12-h.p. Gladiator; Mr. C. L. Schwind (vice-president), 10-h.p. Daimler; Mr. R. A. Wilson, 6-h.p. Gladiator; Mr. E. V. Clarke, 16-h.p. Panhard; Mr. C. H. Guest, 8-h.p. De Dion; Mr. F. H. Collumbell, Excelsior cycle; Dr. W. G. Copestake, 3½-h.p. Benz; Mr. W. P. Duncombe, 8-h.p. Daimler; Dr. R. J. Arundel, 8-h.p. Argyll; Mr. E. C. Clarke, 8-h.p. Progress, and Dr. Vaudrey (vice-president), 3½-h.p. Benz. Forty-two passengers were carried. The Bull's Head at Loughborough was made the termination of the run on the outward journey, and the repast provided there was presided over by Mr. Schwind.

Side Slip Competition.

WE understand that, in connection with the proposed side-slip competition, it has been decided to have an eliminating test for devices obviously unworthy of further test. Runs will be made on tracks prepared with a coating of slippery clayey or similar material, and longer trips will be arranged on limestone or other natural greasy roads—preferably in the Peak district of Derbyshire. More details have yet to be considered, but the foregoing suggestions will probably be made the basis of the competition.

Cordingley's Exhibition.

IN view of the short time that will elapse before the opening of the great Motor Car Exhibition of 1903 at the Agricultural Hall, London, it had been the intention to give a list of exhibitors this week; but the pressure on our space and the urgency of a page advertisement coming at the moment of going to press has prevented its fulfilment. The list will, however, be published next week, and will reveal the fact that the display will not only be the latest but also the largest of the three London shows for the present year. As has already been intimated, the space on the ground floor of the large hall and in the minor hall has been allotted; and the only vacant stands are to be found in the gallery, where many prominent firms will be located, and electric, steam, and petrol cars—the latter including Panhard, Prunel, and Pieper—will be shown. The staircases leading to the galleries are numerous, wide and easy, while the two-ton lift enables cars to be conveyed thither without trouble or delay.

Display by the Aero Club.

IN addition to the splendid show of automobiles, an attractive feature of the Exhibition will be a display of models of airships, balloons, etc., by the Aero Club of Great Britain and Ireland. A similar section at the Automobile Exhibition at Paris was a popular department, and the addition of aeronautical matters to the Agricultural Hall exhibition should prove equally acceptable in this country.

The Tyre Trials.

AFTER having inspected the competing tyres, both on the road and in the garage, travelled upon the cars, watched their running over a piece of road selected on account of its unevenness, examined the diagrams obtained by Professor Hele-Shaw with the British Association apparatus, witnessed the removal and refitting of an inner tube of each type of tyre, and devoted time to the examination of the covers and damaged inner tubes when removed from the cars, the judges appointed by the Committee of the Automobile Club have made recom-

mendations as to awards as follows:—First prize, £100.—The set of tyres (T. 2) entered by the Dunlop Pneumatic Tyre Company. Second prize, £50.—The set of tyres (T. 7) entered by the Collier Tyre Company. Third prizes of £10 have been awarded to each of the remaining four sets which satisfactorily completed the 4,000 miles test, and are, in the opinion of the judges, in order of merit, as follows:—Dunlop (T. 1), T. 3, and T. 4; Maison Talbot Tyre Syndicate, T. 6.

The Reliability Trials

THE sub-committee recently appointed to draw up formulae for the trials to be held by the Automobile Club has recommended that: (1) Marks shall be given for "Accuracy of advertised h.p.," which is to be taken from the best performance of the car on any one hill. (2) Three marks per mile are to be awarded for each day's run as Reliability marks; deducting one mark per minute for stoppages as before. 1500 marks allotted for "Cleaning, adjustments, and replenishing," deducting one mark per minute as usual, to apply to Crystal Palace deductions only. (3) Marks:—

3000 for Reliability.	500 for Speed.
1500 " Cleaning, etc.	250 " Dust.
1500 " Hill Climbing.	250 " Restarting on hill.
500 " Condition.	250 " Vapour or smoke.
250 " Brakes.	250 " Appearance.
250 " Steering.	250 " Accuracy of h.p.
250 " Silencer.	250 " Fuel Consumption.
250 " Vibration.	

(4) Fuel consumption marks to be:—Full marks for thirty miles per gallon for car weighing one ton laden: marks for ten miles per gallon for car weighing one ton laden. Full marks for forty-five miles per gallon for car weighing half a ton laden: marks for fifteen miles per gallon for car weighing half a ton laden. (5) For price deduct from the grand total one mark for every £1 sterling above the minimum of the class at which the car is entered. (6) Hill climbing formula =

$$\frac{S \times (P + 6)}{(\mathcal{L} + 2000)} \times \frac{A \times C}{N}$$

S = speed in miles per hour on hills; P = number of passengers carried; £ = price in pounds; N = the number of hills on which Trials are held. A = the average gradient in percentage; C is a constant (117). (7) Formula for speed:—

$$\frac{S \times (P + 6)}{(\mathcal{L} + 2000)} \times 3000$$

THE motor-cars taking part in last Saturday's 100 mile non-stop trial of the Automobile Club were a 12-h.p. Gardner-Serpollet, a 12 h.p. Humber and a 12-h.p. Farman.

WE hear that Messrs. Thornycroft and Company are building a heavy motor-wagon for the War Office. It will have a capacity of 5 tons, and be driven by a 45-h.p. heavy-oil motor.

THE Peninsular and Oriental Company are considering the question of establishing a motor-car service to convey the staff between their works at the Albert Docks, North Woolwich, and Tilbury.

THE proposed automobile racing track is about sixteen miles from London and will have a six and a half miles circuit. A financial scheme in connection with the matter is shortly to be considered by the executive committee of the Automobile Club.

THE Vulcan Motor Manufacturing and Engineering Company, Limited, has been registered with a capital of £10,000, to take over the business of motor-car makers and repairers, etc., carried on by Messrs. T. Hampson, J. Hampson, and E. Hope at the Drill Hall, Southport.

THE War Office has decided as a tentative measure to grant allowances to officers employing privately-owned motor-cars on duty, the rates being as follows:—For a four-seated vehicle 4d. per car mile, three-seated 3d., two-seated 2d., and one-seated 1d., and for a car having more than four seats, in addition to the four-seated rate, 1d. a mile for each passenger in excess of four for whom travelling expenses are allowable.

M. SANTOS DUMONT'S "NO. 9."

SINCE the discovery of the present shaped balloon by the brothers Montgolfier, aerial ascents have always formed exciting episodes to those who have once tasted the pleasures of standing in the car of an aerostat, perhaps watching, on a cloudless day, the earth passing in a panorama before them, listening from aloft to the hubbub of the noisy world; or, should the day be cold and cloudy, ascending into the ethereal regions and basking in the bright warm sunshine, pitying the poor worldlings shivering and suffering on the mere terrestrial sphere. Ballooning, like motoring, is looked upon by the man in the street as dangerous, but statistics prove that, considering the many thousands of ascents, very few fatal accidents indeed have happened. These have mostly been through the use of the obsolete "inflammable air" vessels or through theorists arguing and essaying to prove their arguments, that as birds fly by means of the strength of their pectoral muscles, so could a man perform similar functions by the aid of wings adjusted on like principles. Hence the reason of many so-called flying machines being built.

The ancients, according to all accounts, experimented but little in aviation, although some of the Grecian philosophers appeared to think that there was a similarity between navigation and aerostation, their theory being that the atmosphere was of no great height, and that when the top of this was reached the vessel or airship would float as the ships float on the sea.

Archytas is reputed the father of aeronautics, according to Horace, who states that it was reported that this mathematician had constructed a bird, with internal machinery so nicely balanced, and "air so cunningly concealed," that it would soar aloft and around and return to the same spot from whence the philosopher had caused it to ascend. In the dark ages flying was usually left entirely alone, and only witches, etc., were supposed to use the air, and this for the purpose of carrying on their nefarious practices, for which they usually paid the penalty in some drastic form or other.

The improvements up to the present on the Montgolfier balloon have been relatively but few, the introduction of valves by Mr. Green—the inventor also of the trailing-rope—and the substitution of coal-gas for fire being the chief. Even in the eighteenth century journeys of over 100 miles were not infrequent, while in the earlier portion of the nineteenth century a voyage by Leonardi of over 400 miles was made in this country. And now, with the introduction of the petrol motor, it remains to be seen what the results will be in this twentieth century. Aviation seems a study that seizes people, and for a time becomes a craze, and then languishes; but at the present moment money and brains are being expended in various quarters, and although these experiments have not been altogether so successful as wished, yet the fact that dirigible balloons have been successfully steered round the Eiffel Tower by M. Santos Dumont, and by Mr. Spencer across London, leads us to hope for successful developments in the near future.

The leading builder of air-ships is M. Lachambre, of Vaugirard, on the outskirts of Paris. His mighty sheds and extensive uncultivated grounds are on the top of a hill. Here are invented and made those pneumatic toys of which the Parisians are so fond, and use so freely on *fete* days. Here also the modern dirigible airship is made, and a visit to his manufactory is one to impress the beholder with amazement. Scores of balloons are hanging deflated, from lines, yards high, and the cheerful and skilled guide, recognising each, rapidly runs through the names of their owners. To the amateur they are so many lengths of a light-coloured tarpaulin, but to the professional they are specimens of the finest work in Japanese silk, sewn and varnished as can only be done in this interesting and highly scientific manufactory.

From this hill, among others, has set out, full of life and hope, M. Severo, going to his death with a smile on his face; M. Bradsky with his assistant, to that dreadful fate so fresh in the memory of our readers; and here, lying cheek by jowl with M. Santos Dumont's "Number Nine" is the debris of the wreck—the two

absolutely touching each other. The great four-cylindere petrol motor, cracked and broken, the burnt petrol tank, the twisted piano wire—portions of which many Parisians are wearing as scarfpins—the partially burnt silk, the debris of the cage, etc.; but here the plucky little Brazilian works, not daunted by the evidences of his predecessors' gruesome fate. Beside M. Severo's apparatus M. Dumont's looks but a toy, and to gaze at it imagining a human being ascending to the heavens with such a machine cannot but cause the observer to shudder. The sight caused a feeling of vertigo to the writer, and Colonel Templer, head of the Balloon Department of the War Office, who was present, exclaimed that he would feel a criminal if he sent anyone "up" in such a frail looking thing.

The total weight of the whole apparatus, with motor, spirit and "all on" is 180 lbs.; the shape is like a whale, with the basket near the front, and so narrow as only to hold the slight person of



A SNAPSHOT AT PONTARLIER, FRANCE.

(Le Chauffeur.

the aeronaut; a tin steering-wheel, set vertical fashion, two levers on wheel, one for the sparking and one for the clutch. The motor is a two-cylindere V-shaped, air-cooled, similar to those used on the Clement bicycle, and gives 3-h.p. This is placed at the rear of and on a level with the floor of the basket; the dry batteries being between the two. The petrol tank is in front of the basket, and the silk-lined bamboo-framed propeller at the rear. The motor is hung on slight steel stays, and is held in position by piano wire. It drives an 18-feet hollow shaft, running on bicycle ball-bearings, the whole length of the slight V-shaped wooden frame. The distance from end to end is 27 feet, and the rudder is in the shape of a bamboo screen at the rear of the whole, and is operated by piano wire. The impression given is that it is a beautiful toy—but not a machine to conquer the aerial regions—although M. Dumont is of opinion that the present No. 9 is still too heavy, and he is now at work on No. 10, which will be of a much lighter design. Developments must therefore be awaited, and as the inventor has already been "up" so many times it is to be presumed that he has full confidence in his own skill and is aware of the risk he is running.

D

A SPARKING PLUG "DISCOVERY."

A CURIOUS and interesting feature connected with sparking plugs is described by M. Baudry de Saunier in a recent issue of "La Locomotion." It appears that for some time past the men whose duty it is to test the motors in Messrs. Panhard and Levassor's works in Paris have been in the habit of arranging the high-tension wire from the coil, which is usually attached to the ends of the sparking plug, in such a way as to set the end of the wire about one or two millimetres from, but not attached to the outer end of the central rod of the plug. The men found that this arrangement afforded them two advantages. In the first place they are able to see if the current is passing properly to the plug, and in the second they benefit by the interesting and hitherto unexplained fact that when the circuit is completed a spark jumps across the gap between the end of the high-tension wire and the central rod of the plug, and also across the platinum points of the latter within the cylinder, however much the points may be sooted or covered with oil.

It was quite by chance that this interesting discovery was made. Messrs. Panhard and Levassor conceived the idea of protecting the exposed ends of sparking plugs by means of an ebonite cap C (Fig. 1). Under the top of the cap was fitted a metallic boss K, the cap itself being attached to the sparking plug as shown. A light copper spring connected the boss K with the end of the plug to complete the circuit for the current. One day, upon taking off

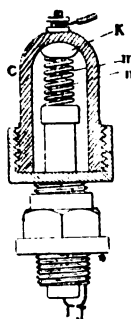


FIG. 1.

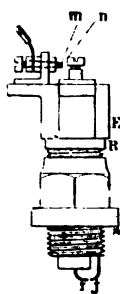


FIG. 2.

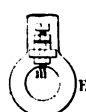


FIG. 3.

the ebonite cap from a plug it was found that the copper spring conductor was absent, but, notwithstanding the change in the cylinder to which the apparently faulty plug was fitted, fired perfectly. This was not particularly remarked at the time, as the spark given off by the coil at atmospheric pressure was about 15 mm. in length, and the distance it was required to jump by the absence of the conducting spring was not more than 2 to 3 mm. It was, however, noticed that, no matter how much the particular sparking plug served by this apparently faulty connection was smothered in oil, it sparked as well as ever, while it altogether failed to spark when connected up in the ordinary way. M. de Saunier leaves the explanation of this phenomenon to electricians, but shows by means of the drawings (Figs. 2 and 3) how motorists may adapt their plugs to permit of the oil-defying jumping spark. A shaped collar E, made in ebonite, or in some substance which is a non-conductor of both heat and electricity, is screwed on to the plug as shown. It carries on its projecting arm a small copper angle piece drilled and tapped to receive the terminal M, to which the high tension wire from the coil is attached; the terminal should be so made that the point N can be brought within 1 to 2 mm. of the rod projecting from the end of the plug.

The new arrangement does not, says M. de Saunier in conclusion, in any way increase the power of the engine, but it certainly causes the plug to spark properly notwithstanding any deposit that may form on it due to over-lubrication, while it considerably simplifies the work of searching for faults in the ignition circuit.

THE 1903 ARGYLL CAR.

FOR the coming season the Hozier Engineering Company are devoting attention to two types of "Argyll" cars, one fitted with the Clement two-cylinder 10-h.p. engine, of which we give an illustration on the following page, and one fitted with a De Dion 9-h.p. motor. The improvements in the 1903 models comprise a self-adjusting friction clutch, claimed to be absolutely free from end thrust. The inner ring which is mounted in the fly-wheel is made to slide, and is held in position by three bolts round the fly-wheel. In this way, after the clutch has worn considerably, the inner conical ring can be forced further into the fly-wheel and so put a greater tension on the clutch spring. The inner ring can also be easily withdrawn from the fly-wheel for the purpose of thoroughly cleaning the leather face of the clutch. The gearing has been considerably enlarged, the depth of the clutches being increased and dovetailed on both sides so that there is no tendency for them to fly out, even when the car is driving the engine downhill. The earlier arrangement of gear wheels is preserved, but the method of actuating the forks has been redesigned, and a link motion takes the place of the old cam system. The lever which operates the second and third change speed fork is made flexible, and should the gear be forced the flexible lever yields and prevents any damage being done to the clutches. The change-speed hand lever moves from a central position in three opposite directions. When it is pushed outwardly across the car the first speed is introduced; when it is pulled towards the driver's seat the second speed is engaged, and when pushed forward the third speed is obtained. In each direction the change-speed lever goes to a full stop, so that there are no notches to find and therefore a mistake cannot be made in changing gear even in the dark. The lid of the gear box is held down by two "dogs," and it is only necessary to unscrew two nuts to remove it. The gear can then be easily lifted out, no pit being required. A separate lever is fitted to actuate the reverse. For the two-cylinder engine a very large cooling bonnet has been designed on the well-known Argyll system. To those who prefer a pump this can also be fitted, and should the pump break down the car can be driven just as well without it, the circulation continuing on the thermo-siphon system. The back axle runs on large roller bearings. We may add that all the Argyll cars are now fitted with an aluminium cover under the mechanism, so protecting the latter from mud and dirt.

A CATALOGUE of the Chenard and Walcker cars has been issued by the Weston Motor Syndicate, in which are specifications of the 10 and 14-h.p. touring carriages introduced by the firm. The illustrations include a chassis and also a sectional drawing of the combination clutch and brake, which is one of the special features of these vehicles.

MR. P. H. SELFE, of Hull, sends us a sheet of drawings illustrating a new spring frame for motor-cycles and cars he has designed and patented. For the car a novel form of central driving wheel is provided. Mr. Selfe claims that his arrangement, in addition to reducing the vibration, entirely gets over the skidding difficulty.

THE New York Telephone Company has just adopted a heavy electric motor-wagon for the hauling and handling of big cables. Hitherto it has been necessary to cart the cables, on their drums, to points of distribution. There manually-worked windlasses were secured in position and six men put to work drawing the cable through the underground pipes. The manholes are approximately 280 feet apart, and it takes the six men thirty minutes to pull a cable through, in addition to the time occupied in setting up and taking down the hand windlass at each point of operation. With the electric wagon and its windlass the cables are conveyed to the point of entering and then the truck moves on to the next opening. Here an electric windlass is brought into action, and the 280 feet are negotiated in seven minutes, this being as fast as the cable can be fed.

SOME USEFUL NOTES.

AFTER grinding in the exhaust-valve the compression is sometimes unaccountably poor. This may be due to uneven grinding, so that part of the valve does not fit closely to the seating. To test this, smear the seating with a thin film of oil coloured with red lead, and place the valve *gently* in position. Now remove the valve, and notice whether the coloured oil is uniformly distributed round it. If any part is left uncovered, this indicates the badly fitting portion, where the leak of compression takes place. The valve must then be reground, the operator's pressure being so distributed as to remedy the defect.

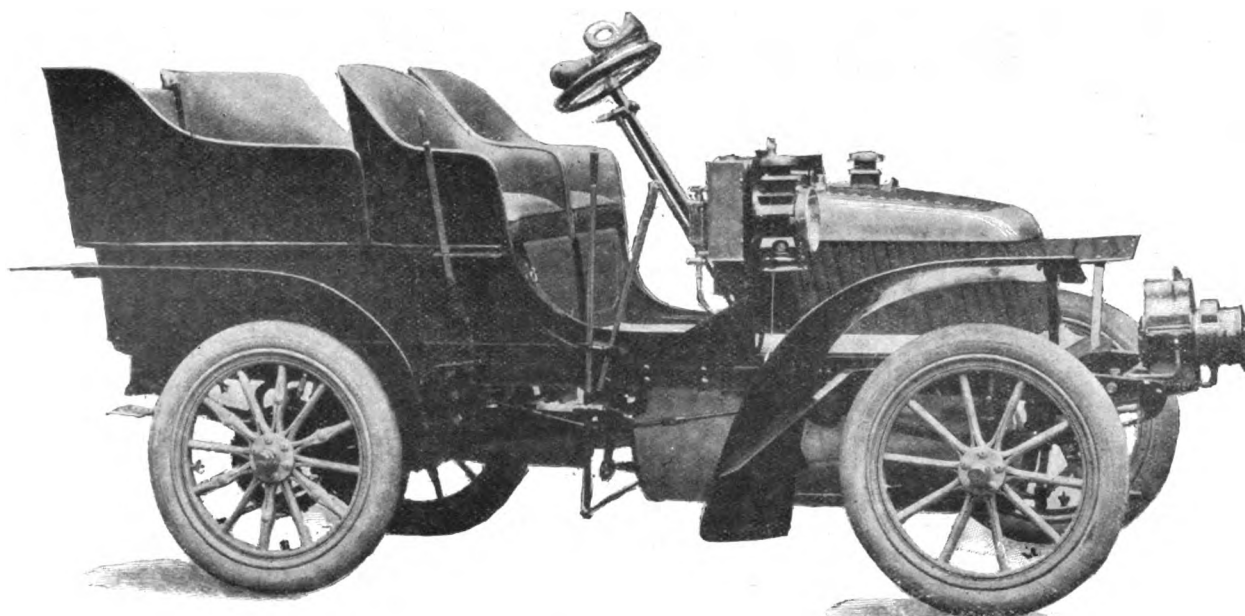
COMPRESSION is never very good when tested immediately after the exhaust-valve is ground in, when the engine is cold. It is only after the engine has run for a time, and the valve and seating have grown hot, that they become thoroughly adapted to one another, and the compression is appreciably improved.

NEVER use rubber tubing in the petrol connections, because (1) petrol is a solvent of rubber, consequently it will become contaminated by the dissolved material; (2) petrol will percolate through the rubber, causing much waste and a possible danger

WHEN the inlet-valve spring is not strong enough, the valve does not close with sufficient sharpness, and some of the mixture is swept back, by the rising piston, through the inlet pipe, towards the carburettor. Great care should be exercised in seeing that the inlet-valve spring is sufficiently strong in cars of the $3\frac{1}{2}$ -h.p. Benz type, in which the carburettor is near the contact-breaker, and has its air-inlet so situated that a draught blowing through the inlet pipe, *away from* the engine, will spray petrol vapour out of this air-inlet on to the surrounding mechanism. When this occurs, the petrol may be ignited by a spark from the adjacent contact-breaker, and a serious conflagration result.

THE water in acetylene lamps is best preserved from freezing by dissolving calcium chloride in it. But if this precaution is not taken and the water is frozen, a little saliva on the carbide will produce enough gas to light it and thaw the water, and so allow of a permanent light to be obtained.

WE have been asked several times for a recipe for removing tarnish from brass when it would not give way to an ordinary polish. We offer the following: Take a strong oxalic acid and rub on freely, let stand for one minute and wash off with water. Polish with an ordinary brass polish.



THE 1903 ARGYLL 10-H.P. CAR. (See page 914.)

from fire; (3) small particles of rubber may become detached from the tube and be swept into the carburettor, where, sooner or later, the symptoms of a blocked spray will develop.

IN cars in which there is much vibration, and in motor-cycles, ignition troubles are sometimes due to shaking loose of the insulation in the coil. This can usually be remedied at the cost of a few shillings, but the job should only be entrusted to a repairer of assured experience.

WHEN the spray-chamber of a carburettor is opened, droplets of water are often found adherent to its walls. This frequently causes needless mental perturbation to the novice, for water in the carburettor is usually held up to him as one of the bogeys of the motorist, and that it is so is true enough, but only if the water is present in the spray-chamber in considerable quantity, or in the float-chamber, and has free access to the spraying nozzle, which it may block. The vaporisation of petrol in the spray-chamber produces a very low temperature, and the presence of water (which should be periodically soaked up with blotting paper) is due to condensation of moisture from the air drawn in. This has no appreciable effect on the running of the motor, unless allowed to accumulate for some time. Water can only reach the float-chamber *via* the petrol-tank.

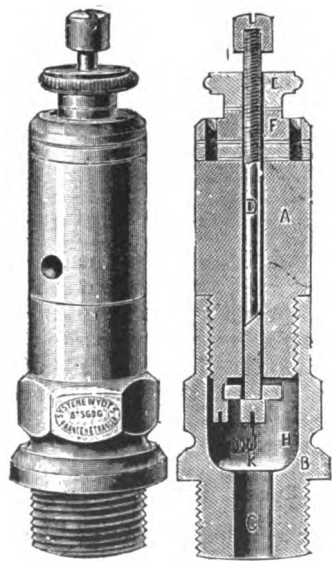
MR. H. G. CLIFFORD writes:—"When reading 'Useful Notes' in your practical *Journal*, an important hint *re* care of pneumatic tyres when stabling cars occurred to me. It is concerning the weight of the car resting on one portion of the tyres, which are in most cases deflated from gradual leakage. The kink formed in the outer cover by the rim of a heavy car pressing it to the ground can have nothing but a damaging effect on the rubber and fabric at this one spot, and anyone wishing to carefully stable his car, if for only a few weeks, would do well to see that each axle is jacked up so that the tyres are at least half an inch from the ground."

THOSE who purchase motor-cars for use on all kinds of roads will do well to see that the vehicles they purchase are fitted with good brakes. Double-acting brakes are better than single-acting ones, and two brakes much better than one, but the point of greatest importance is that the brake be thoroughly well made, so that the sudden thrust with which it is likely to be applied in an emergency will not strain any of the parts.

If a Michelin valve leaks in spite of the tight screwing-up of the dustcap, remove the central wire of the valve and apply a little grease to its conical rubber extremity. In most cases this will establish a permanent cure.

THE WYDTS ELECTRO-CATALYTIC IGNITER.

THE electro-catalytic igniter was presented to the public for the first time at the 1901 Salon in Paris, where it excited much curiosity by reason of its great novelty, similar interest being aroused in motoring circles in this country by the description which appeared at the time in the *Journal*. In the interval, the device has been the subject of much experiment, and is now being put on the market in a perfected form by Messrs. H. M. Hobson, Ltd. The electro-catalytic igniter, as its name implies, utilises at the same time as electricity the effects of catalysis offered by metals of the platonic series. Certain alloys of these metals, such as iridium, rhodium, palladium, osmium, ruthenium, etc., possess in a high degree the catalytic power. The alloy which enters into the composition of the electro-catalytic igniter is claimed to possess this property of automatically igniting the gases of explosion motors in the highest degree. The igniter (Figs. 1 and 2) consists essentially of a body, B, screwed outside to the thread of the ordinary sparking plugs, with an inside passage C, leading to a chamber H in which is fixed a coil K of a special alloy, producing by its intense incandescence the ignition of the gases driven into the chamber by the compression stroke of the motor. The coil K is supported by the piece A screwed in the body or shoulder B. At E is a milled nut under which the wire *d* (Fig. 3), conveying the electric current to the device, is clamped. The apparatus is entirely of metal, porcelain being wholly excluded, so that there is no fear of breakage. The fitting of the apparatus is extremely simple. It can be effected in a few seconds in the following way:—1. Screw the igniter C in the place of the ordinary sparking plug; 2. fix, by means of a screw, within reach of the driver, at the most convenient spot for operation, the small rheostat P (Fig. 3); 3. place the small accumulator or battery G in its usual place; 4. connect the terminal A of the rheostat P to the igniter C by means of an insulated wire *d*; 5. connect the terminal R of the rheostat P to any one of the terminals of the accumulator G by means of an insulated wire H;



FIGS. 1 AND 2.

6. connect by means of a third insulated wire *f* the remaining terminal of the accumulator G to earth by attaching it to any point of the motor T. To start the motor with the new ignition, after having carefully regulated the carburation, the slide M of the rheostat P is placed about midway between A and R (advance, retardation) and the starting-handle turned. If after a few attempts the motor does not start, the slide M is moved a little more towards A and so on. When the motor is started the

advance or retardation of the sparking is obtained by shifting the slide of the rheostat P towards A or R. After some time, when the igniter is quite hot, if the carburation is perfect, the electric current can be cut off by bringing the slide of the rheostat right over to R, when the ignition will be effected automatically, simply by the catalytic effect. The advance of the sparking will also be effected in this case by moving the slide of the rheostat towards

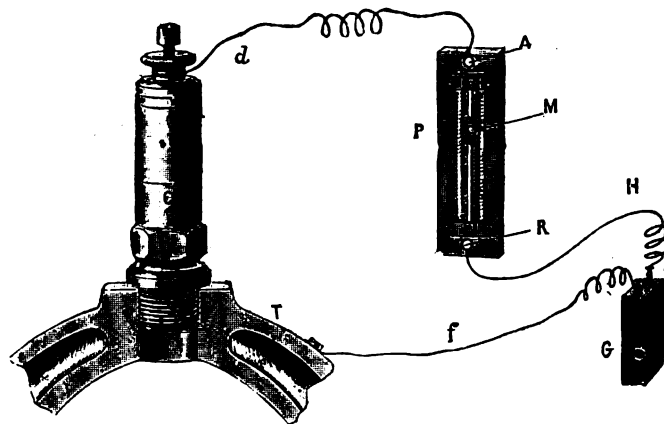


FIG. 3.

A. The motor is stopped by suppressing the admission either by interrupting the carburation or opening the compression-valve—after first cutting off the electric current by bringing the slide of the rheostat to R. Among the advantages claimed for the electro-catalytic igniter are: 1, entire absence of porcelain; 2, no trembler or induction coil is necessary; and, 3, advance and retardation of the sparking obtained instantaneously. If the electro-catalytic igniter is used on a motor-cycle, the adjusting rheostat can, if necessary, be dispensed with: in its place a simple switch is inserted, which may be the ordinary switch-handle on the handle-bar of the machine. In this case the speed is adjusted either by varying the exhaust, if the motor has such adjustment, or by varying the cut-off of the gas, or by slightly varying the carburation.

FIFTY friends of the Earl of Kinnoull presented a motor-car to his lordship on the occasion of his marriage on Saturday.

A PUBLIC service of motor-omnibuses has just been started between Orvieto and Albegna, Italy, to connect two different lines of railway.

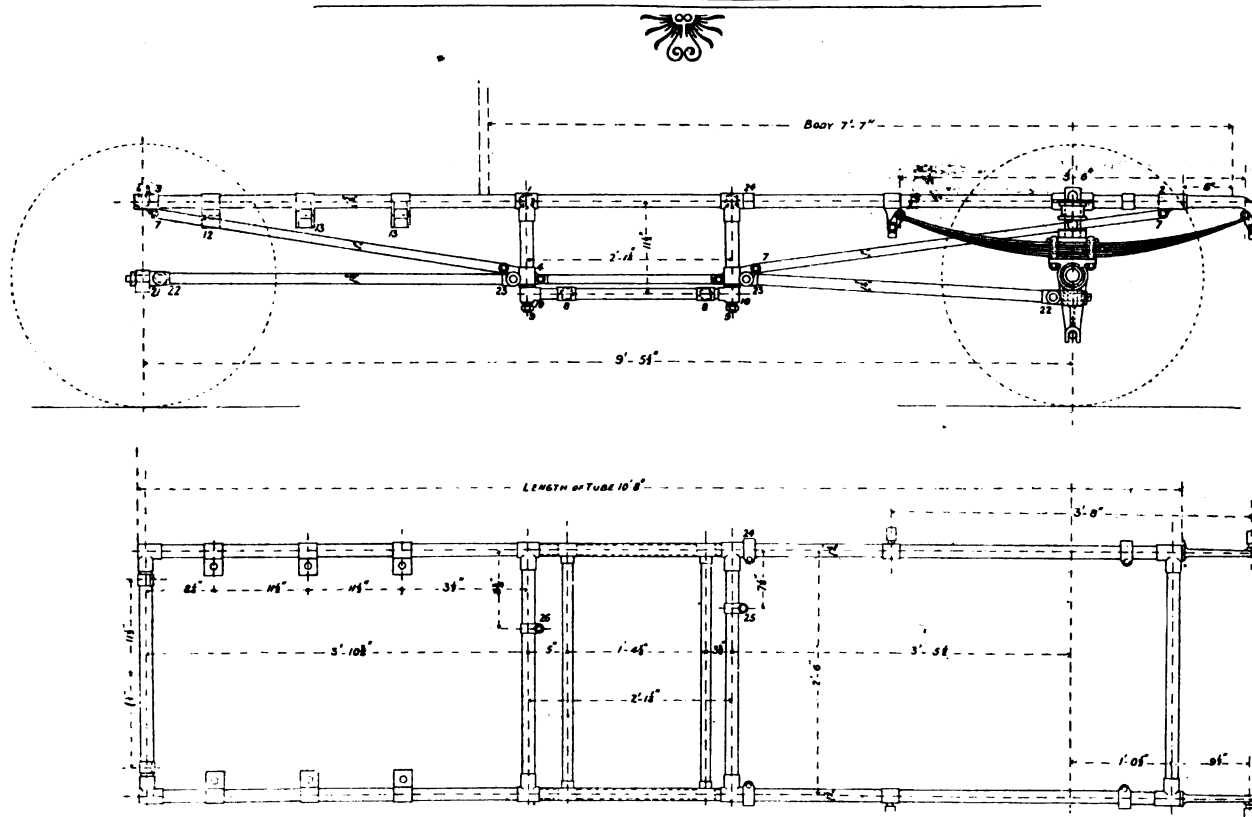
THE DUKE OF SANTO-MAURO, the President of the newly-formed Automobile Club of Spain, has just made the journey from Paris to Madrid by road, covering the 930 miles which separate the two cities in 49 hours.

OWING to increasing business the Wilkinson Tyre and Tread Company, the makers of the Wilkinson non-slipping cover, are removing from Princess Street, to larger premises at Chapel Hill Mill, Huddersfield.

AT the annual general meeting of Friswell, Limited, held on the 20th inst., the balance-sheet was presented to the shareholders. The sales amounted to £68,666, and it was decided to pay a dividend of 6 per cent. on the preference shares and 10 per cent. on the ordinary shares. The balance of £3,260 was carried forward.

THE Lanchester Engine Company, Limited, have sent us a copy of a descriptive manual they have just issued of the Lanchester motor and carriage. It gives a clear description in non-technical language of the various parts of this novel vehicle, together with illustrations of the chassis, motor, and many of the details. A good deal of time and trouble has apparently been spent on the production of the manual which will be found invaluable by all users of Lanchester cars.

The Humber 20-h.p. Car.



FIGS. 1 AND 2.—ELEVATION AND PLAN OF FRAME.

It has been known for some time that the Humber Co., Ltd., were at work on the production of a 20-h.p. car, of which we are able this week to publish a description and illustrations. The general appearance of the vehicle is very striking,

wide, 5 ft. 8 in. high; and the weight about 21 cwt. The frame (Figs. 1 and 2) is of tubular construction; it is constructed to give great strength combined with lightness, and one of the principal features is the method of attachment of the gear box. The

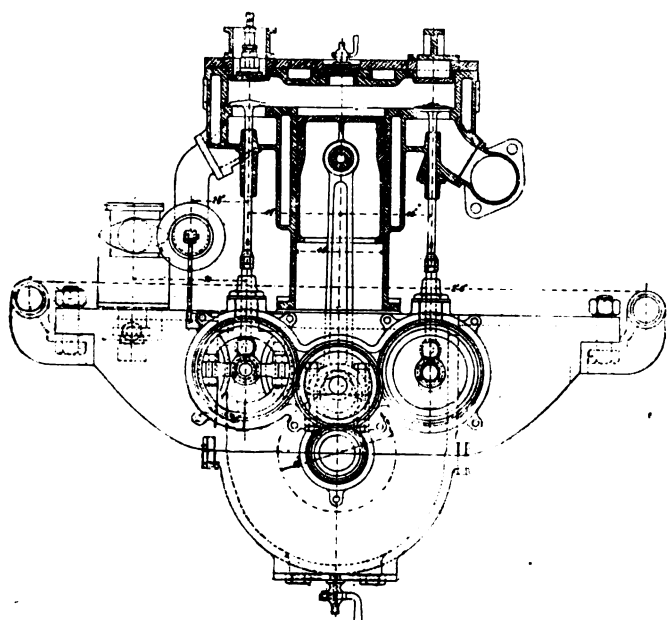


FIG 3.—CROSS-SECTION OF HUMBER 20 H.P. FOUR-CYLINDER MOTOR, SHOWING MECHANICALLY-OPERATED VALVES.

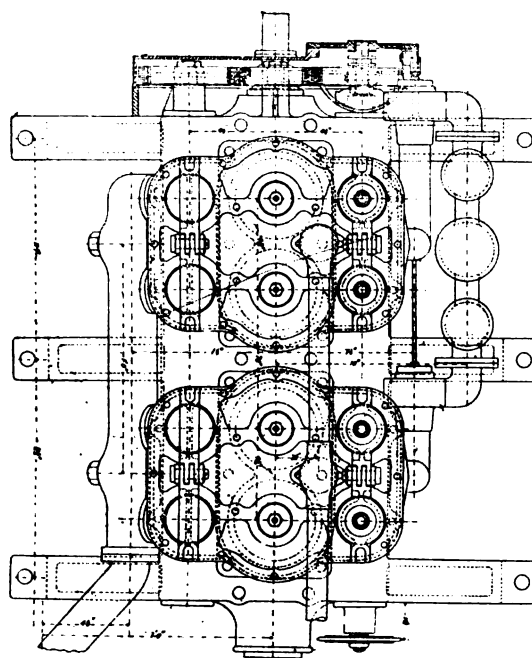


FIG. 4.—PLAN OF HUMBER 20-H.P. FOUR-CYLINDER MOTOR.

on account of its fine body and long wheel base. The centres of the wheels are 9 ft. 6 in. apart, the track being 4 ft. 3 in. The over-all dimensions (with body) are 13 ft. 6 in. long, 5 ft. 4 in.

latter is supported on a cradle, so arranged that, by the removal of the four nuts supporting it, the whole may be lowered to the ground without interfering with the body or the gear. It is

fitted with a transversal front spring at the front, and two semi-elliptical springs at the rear, two horizontal tie rods to the bottom of the gear box taking the shocks of the road from the springs.

The four-cylinder motor (Figs. 3, 4 and 5) has cylinders $4\frac{1}{2}$ in. diameter by $5\frac{3}{4}$ in. stroke, and although nominally rated at 20-h.p., is capable of giving 26-h.p. on the brake at a speed of 900 revolutions per minute. It embodies all the latest improvements in motor practice, including mechanically-operated inlet valves and throttle governor. The valve chambers are placed one on either side of the cylinder, the valves being operated by the usual arrangement of cams and cam shaft, driven off the crank shaft by means of gear wheels. One of these wheels carries the governor, which is connected to a throttle valve located in each of the two inlet pipes. The governor and gear wheels are enclosed in an oil-tight case and placed in front of the crank case in an accessible position. The Longuemare carburettor is carried on the crank case arms and immediately beneath the inlet valve

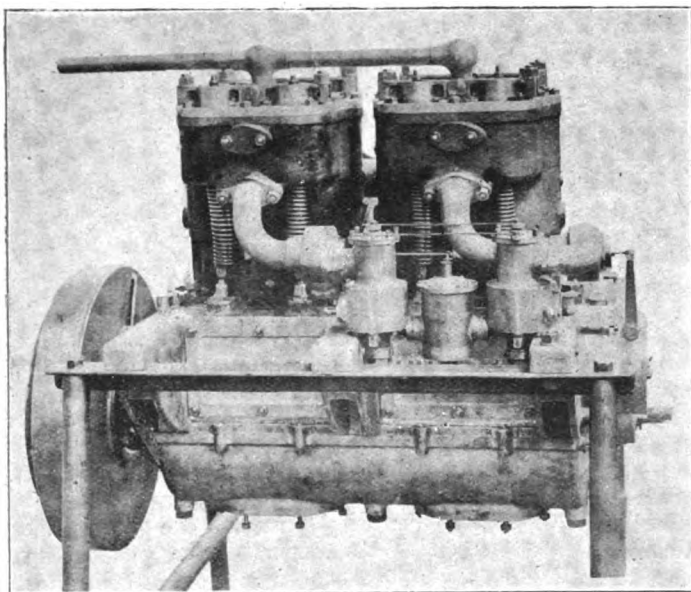


FIG. 5.—GENERAL VIEW OF HUMBER 20-H.P. FOUR-CYLINDER MOTOR—INLET VALVE SIDE.

box, and contains separate valves for the regulation of gas and air, controlled from the dashboard. The valve covers are so constructed as to hinge in the centre, and all that is necessary to examine either valve is the removal of one nut. The contact breaker, placed conveniently on the dash, is driven by a chain from the cam shaft, and has a neat arrangement whereby the wires remain stationary when the ignition is advanced or retarded. The aluminium crank case is well provided with inspection doors, reducing the work of examining the movable parts of the engine to a minimum.

The ordinary radiator with water tank, or the new honey-comb type radiator, can be fitted, coupled with a fan which sends a strong current of cool air through the bonnet. In either case the radiator is arranged to swing down by the patent Humber method, and the bonnet is being hinged to the dash so that it may be swung quite clear, allowing perfectly free examination of the working parts of the engine. The water is circulated by means of a semi-rotary pump.

The drive is taken through an aluminium conical clutch, so arranged that no end thrust comes upon the shafts. A flexible shaft connects it to the gear box, and thence through a Cardan shaft to a live back axle of special construction. The thrust due to the bevel wheels is taken up by a ball race and an adjustable thrust bearing on the end of the pinion shaft. Four speeds forward and a reverse motion are provided, controlled by a single lever.

The steering is of the worm and segment type, and capable of adjustment, both as regards the position and angle, so that the driver can alter it to suit his requirements.

The body contains several novel features. The front footboards are protected by side doors, which give increased comfort to the passengers and a neat appearance to the body. On either side of the tonneau, and easily accessible from the outside, are special compartments, one of which is used for the carriage of spare petrol, while the other may be utilised as a receptacle for tools, inner tubes, or other useful articles not required regularly. Underneath the footboard of the tonneau is a compartment large enough, and intended for the reception of a spare outer cover, and affording room for a considerable amount of other spare parts, etc.

The brakes are powerful and double acting, both being interlocked with the clutch. Among the other notable details of the car may be noticed the single arm steering wheel, which gives ready access to the mixture and throttle valve levers; and

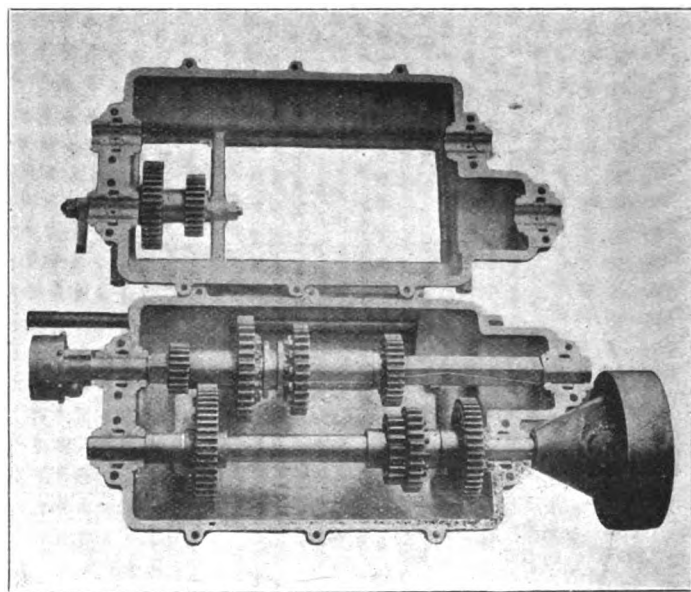


FIG. 6.—THE HUMBER CHANGE GEAR BOX.

the drain cock, which serves the double purpose of drain cock and oil lever gauge, fixed on the dashboard in such a position as to show at a glance the height of petrol in the tank.

THE Locomobile Company of Great Britain, Ltd., have been appointed agents in Great Britain for the Waverley electric cars.

WE understand that Sir Edward Jenkinson has resigned both the chairmanship and directorship of the Daimler Motor Company, Ltd.

MOTORISTS, balloonists, and others will be pleased to hear that Mr. Frank Butler has safely returned from his trip to Morocco.

WE hear that Messrs. Ewart-Hall, Ltd., of Nottingham, have placed a large order for Charron-Girardot-Voigt cars, for which they have secured the British agency.

IT is announced that Panhard cars for the American market are to be assembled in the United States. The complete motors, gears and parts comprising the chassis are to be imported and put together in a factory near New York.

IT is reported that the Wolseley Tool and Motor-Car Company has been awarded a War Office contract for a number of khaki-coloured motor-cars, each vehicle being equipped with powerful searchlights capable of instant adjustment.

CONTINENTAL NOTES.

BY "AUTOMAN."

WHERE and when will the Gordon Bennett International Cup Race be held? This is the question which is being discussed and re-discussed continually in all its different aspects by the Continental automobile press, in the affiliated clubs, and wherever *chauffeurs* are gathered together. Two countries besides Great Britain wish the race to be run on their roads. As a matter of course, France wishes it. All possible and imaginable arguments are being raked up and the rules of the competition are being read in Paris with a view to forcing the hands of the A.C.G.B. and I. to adopt a French course. It means, of course, a great deal less expenditure to Panhard and Levassor and to Mors to dispute the Cup at home, and in addition to this it will be considerably easier for them if the race is run in a country where their drivers know every inch of the roads, as well as the language and the racing customs. To the average Frenchman it is an awful thing to have to cross the Channel; it is an undertaking. He thinks seriously of insuring his life, and bids a fond adieu to his family and friends in case he

Belgium, which is regarded as a neutral country where England, France, and Germany, at any rate, could meet on nearly equal terms. The Ardennes course would be ideal for the purpose of the race, and the event itself is of sufficient importance now to call for its being run by itself and not in connection with any other event; especially if the Americans, Austrians, and Italians come in as regular competitors, which is quite probable. The A.C.G.B. and I. have communicated with the A.C.B. on this subject, but the A.C.F. are not, however, very likely to agree to the proposal.

WITH regard to the fixing of the course over which the race must be run, Article 12 deals with this question, but it is not quite as clear as it might be. It runs as follows:—"The race should be run in the country which holds the Cup. This club, however, shall always have the right to have the race run in France." The article does not say this club must have the race run in France if it cannot have it run in its own country, but only says it shall have the right to. Now supposing it were impossible to get the French Government's permission to run it in France, and also impossible to get the English Parliament's

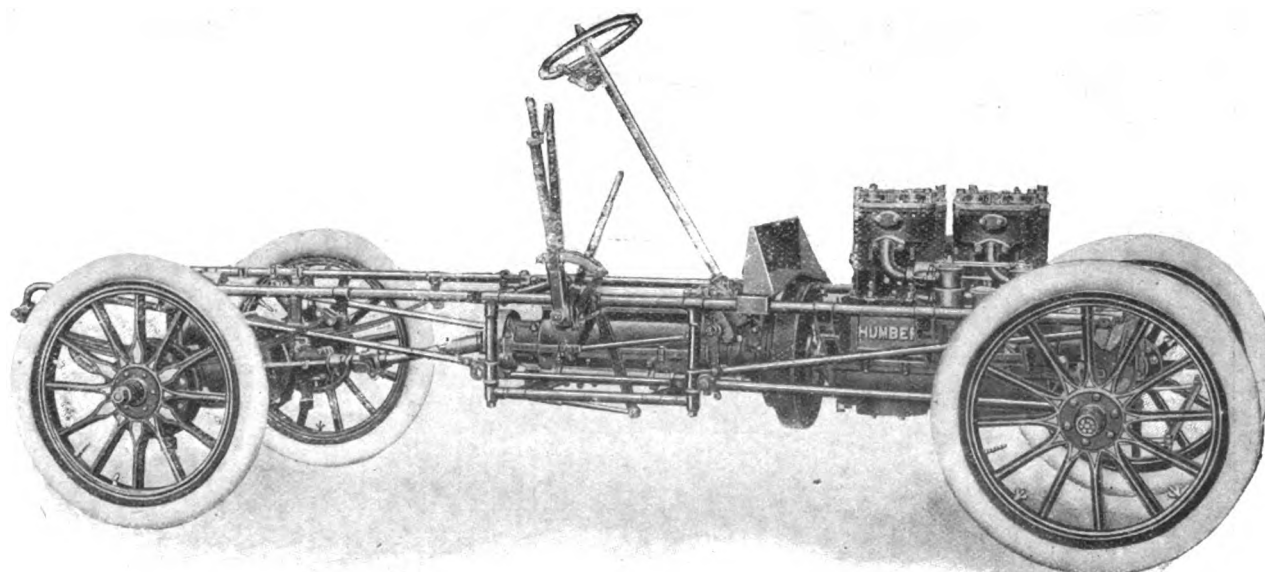


FIG. 7.—THE HUMBER 20-H.P. CHASSIS (See page 917).

might not come back. Whether the A.C.F. will be able to succeed in its opposition is a moot question, but there is Article 5 of the Cup regulations to be got over. This runs as follows:—"The cup shall be raced for every year between the 15th of May and the 15th of August. The exact date shall be fixed by mutual agreement between the clubs interested in it, and this date shall be fixed before the 1st of February each year." The date of the race must therefore be fixed by "mutual agreement" practically before these notes appear in print. The rules do not, however, provide in any way whatever for the case of there being no mutual agreement as to the date, and, therefore, should the A.C.F. refuse the date which the A.C.G.B. and I. propose, or should no date be fixed before February 1st, a very awkward situation will be provoked. Nothing in the rules provides for this case, and there is, strange to say, no arbitration clause.

BELGIUM, although not a competitor for the Cup this year, is watching the progress of the negotiations between the English and French clubs with a special interest. Some few weeks ago I communicated the invitation thrown out to the A.C.G.B. and I. by the Baron Piere de Crawhez in a conversation which I had with him at Rheims. The Baron requested me at the time to make known in England the desire of the A.C.B. to have the Gordon Bennett race held not only this year, but every year, in

consent to run it in Great Britain, evidently then it would have to be run in Belgium or in any other country where permission could be had. The English club might, therefore, read this rule not to debar it being actually run in Belgium, though this reading would be perhaps difficult to sustain.

THE first important event of the season is to be the "Criterium de Consommation," which is to take place on February 19th under the organisation of the "Auto." The competition was first held in the year 1900. This year the course will be 100 kilometres (sixty-two miles) in length. There are twenty-nine entries so far. In addition to the prizes offered in connection with the consumption of petrol, and also of alcohol, there is to be a special prize for the car that shall have cost the smallest amount of money for fuel according to the kilometric ton, and in the competition for this prize it will be easy for the public to judge which of the two fuels—petrol or alcohol—is the more economical in use. This is a much disputed question, and one that has as yet never been satisfactorily decided.

THE opening of a new automobile garage is now regarded in Paris as an event of public interest. Invitations are issued and accepted by deputies, municipal councillors, military men, aristocrats, and heads of large automobile factories. An orchestra

is engaged, champagne flows freely, and the manager of the new concern receives his guests with white kid glove covered hands, as if he were the President of the Republic receiving his citizens. Such was the scene last Saturday, when a new garage was inaugurated in the Avenue de la Grande Armée, and literally hundreds of people thronged to the opening, the visitors including the presidents of both the "Chambres Syndicales."

ANYONE who has taken part in or seen a big automobile road race will remember the constant difficulties and mishaps that occur with the various cards and papers which the competitors are obliged to carry with them, and which have to be given up, inspected, or signed at the various stopping-places. The driver insists that the mechanic has them, the mechanic is just as positive that the driver has the papers. Both, with

as La Turbie. One test will be for wheel brakes, and another for an emergency brake acting direct on the back wheels, and unconnected either with the motor or the differential gear. The trial is only open for cars weighing at least 650 kilos., including all accessories, and, in addition, carrying four passengers or their equivalent weight. The wheel brake competition will consist of a sudden stop whilst running ahead, a stop whilst running backwards, and finally an endurance test on a descending course of 8 kilometres at a minimum speed of 15 kilometres per hour. The emergency brakes will be tested running forwards and backwards, and consideration will be given by the judges to brakes which are applicable to all classes of vehicles.

THE Alcohol Challenge Cup, given by Prince d'Arenberg, will this year probably be run off in connection with the Paris-



MR. CLARENCE GRAY DINSMORE ON HIS 40-H.P. MERCEDES, WERNER, THE WINNER OF THE 1901 NICE-SALON RACE, AT THE HELM. Mr. Dinsmore, who represents the United States on the International Race Committee, is reported to have purchased one of the special cars the Cannstatt-Daimler Company are building for the 1903 Gordon Bennett Contest.

[Allgemeine Automobil Zeitung.]

dusty hands, lift up their *parapluies* or other unpocketed garments, and vainly search all the pockets in their several coats and waistcoats, whilst precious time is flying by. Finally, from behind an oil-can, and held down by a dirty spanner in some odd corner of the car, a greasy, disfigured, and smeared bunch of papers is discovered, and a document detached, often the wrong one. All this is to be a thing of the past, and there is to be attached to every car in the Paris-Madrid race a box to carry the documents. A suitable model has been examined by the A.C.F. and definitely adopted, and I feel sure every *chauffeur* who hears of it will heave a sigh of relief and feel that at least one worry has become a thing of the past.

THE Nice Automobile Club is organising a brake competition on the 28th March. It will be held on the hilly road known

Madrid race between Paris and Bordeaux. The cup is offered for French vehicles using a 50 per cent. alcohol mixture as fuel over a course of not less than 300 kilometres in a single stage. The present holder is M. Rene de Knyff, who won it last year in the Paris-Vienna race between Paris and Belfort.

FOLLOWING the example of the "Nice week," the Automobile Club of the Rhone proposes to hold the "Aix week" from the 5th to the 12th of July. The programme includes a tour from Lyons to Aix, kilometre trials on the banks of Lake Bourget, and a hill-climbing competition.

MADAME LE BLON, who accompanied her husband on his record-breaking trials on a Serpollet steam car last season, will, it is reported, drive a car herself in the races at Nice.

MOTOR-CYCLING NEWS.

IN our issue of the 17th inst. we reproduced a photo of Master Carter, the ten-year-old son of Mr. C. E. Carter, of Grays, Essex, describing him as probably the youngest motor-cyclist in the country. This statement has brought us a letter and photograph from Mr. J. Bond, of Bishopston, Bristol, who informs us that he has a son just turned six years of age who rides a motor-bicycle, "managing it with perfect ease." Master Ernest Bond



MASTER E. BOND, AGED 6 YEARS 3 MONTHS, THE YOUNGEST MOTOR-CYCLIST IN THE COUNTRY.

can, we think, safely claim to be the youngest motor-cyclist in the country; the photograph reproduced herewith shows him on his machine, which was built throughout by his father. The engine has a cylinder 2 in. diameter by 2 in. stroke. The bicycle has a 16 in. frame, with 18 in. wheels. The young *chauffeur* made an early start in the wheeling world, for his cycling career dates from the time when he was only two years and nine months of age.

It seems somewhat strange that a firm of motor-cycle builders should find a "talking point" in the steadily increasing weight of their productions. Yet one motor-bicycle concern in the United States is drawing attention to the fact that its 1900 machines weighed only 75 lbs.; the 1901 model 90 lbs., that of 1902 105 lbs., while the 1903 machine turns the scale at 125 lbs. It is, perhaps, only right the fact that a much more powerful motor is now being used should be pointed out, but we think the makers in question are somewhat ill-advised in converting their machines into ponderous monsters weighing over a hundred-weight.

WITH reference to the challenge of the Automobile Components, in last week's *Journal*, Mr. John J. Leonard writes that, "failing their meeting with a firm to take up the challenge. I shall be most happy to accommodate Fournier with a fifty-mile match, no stakes. The conditions to be a stock machine as supplied to the public for ordinary road use *minus* mudguards, and saddle over the back wheel of the machine; the machine to weigh under 50 kilogs. in running order, less petrol, and the event to be run off at the Crystal Palace, Herne Hill, or Canning Town track."

A MEETING of motor-cycle traders will be held at the Automobile Club, on Wednesday, the 11th prox., at 5 p.m., to enable the trade to elect their own representatives on the organising committee of the Motor-cycle Reliability Trials to be held in

August next. Firms who wish to be represented on this committee should make a point of sending a representative to the meeting. In thus arranging for the trade to elect their own delegates, the committee of the Automobile Club have taken a wise course.

MR. S. F. EDGE has accepted the presidency of the Motor Cycling Club.

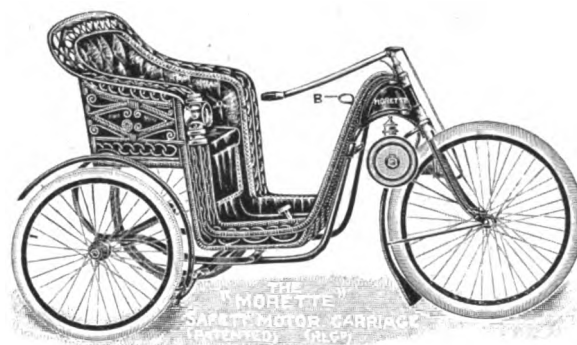
THE National Cyclists' Union has decided to adopt a proposal as to the institution of motor-cycling sections. Free licenses will be granted to riders in their first year of racing.

ON Saturday, M. Fournier tied his own mile "track" record for the Alexandra Palace track by completing the distance in 1 min. 38 1-5 sec. He also rode twelve laps in 1 min. 23 sec.

THE inaugural dinner of the Motor Cycle Union of Ireland will be held on the 18th prox. Mr. W. F. Peare is interesting himself in the formation of a Waterford branch of the Union.

THE Prince of Monaco has just acquired a 2 3/4-h.p. Humber motor-bicycle through Mr. R. Asbury, of Queen's Road, Bayswater. The machine was sent to the Prince's yacht at Portsmouth, and will probably be first used in France.

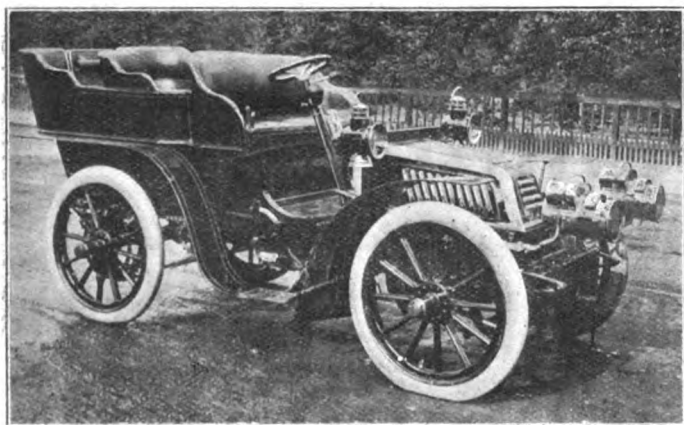
THE novel little vehicle illustrated herewith has just been put on the market by Mr. B. E. Dickinson, of the Toledo Engineering Works, Birmingham. It is known as the Morette, and has been designed to carry one person at speeds up to 12 miles an hour, and is likely to become popular with ladies and those who prefer the comforts of a three-wheeler. The frame is built of steel tubing, the front forks being strongly made. The engine is an Ixion two-cycle motor, developing 1 1/2-h.p.; the fly-wheel carries on the inner side a rubber-covered driving wheel in frictional contact with the front tyre. The motor is carried by a bracket behind, and attached to the crown of the front fork. It is carefully balanced on both sides of the wheel, and is lubricated on the drop-feed principle, the oil being atomised as it is carried into the engine with the petrol mixture. The F.N. spray carburettor is used, and sufficient petrol for a run of 70 miles is carried in a tank over the motor. The catalytic system of ignition is employed.



On starting, the ignition is by temporary electric current from small dry battery, but afterwards it is automatic. The engine is started by pulling the lever B towards the seat. This lever operates through clutches on the hubs of the rear wheels, and at each pull impels the carriage forward. The driving pulley being in frictional contact with the front wheel is thereby rotated and the engine started. The carriage is steered by a tiller, which also controls the friction driving roller. By raising the tiller handle the engine pulley is freed from contact with the front wheel. Efficient brakes are provided, and vibration is considerably reduced by the insertion of a vulcanised buffer-rubber at the point where the engine is attached to the bracket, thus intercepting the vibration to the frame. The weight of the Morette is about 90 lbs. When desired the vehicle can be enlarged and strengthened so as to carry two persons, a higher-powered motor being in this case, of course, attached.

THE BEAUFORT 18-H.P. PETROL CAR.

At the Depot of the Beaufort Motor Co. the other day we had an opportunity of inspecting the new double tonneau car illustrated herewith. It is known as the Beaufort Alexandra, and has comfortable accommodation for six persons. The frame is of stout channel steel, no wood being used in its construction. The motor is of the vertical double-cylinder type, running at the moderate speed of about 800 revolutions per minute and developing 18-h.p. Ignition is effected by means of a Bergmann magneto machine, rotated by a chain from the engine shaft. The cooling of the engine is effected by means of a radiator and rotary pump, the latter being driven direct off the fly-wheel of the engine. By an ingenious arrangement the exhaust valve is automatically made to open early or late, as the ignition is advanced or retarded. Silencers of very large size are fitted. The exhaust gases pass three times through annular chambers fitted in the silencer before emerging into the air. The chambers are of ample dimensions, and are claimed to cause a minimum of "back pressure," while they render the exhaust practically noiseless. The speed of the engine is automatically regulated by a governor working in oil, and acting on a throttle valve fitted in the inlet pipe. When desired the governor can be instantly "cut out," while control is also obtained by the driver raising a foot-pedal which closes the throttle



valve on the inlet pipe. As regards lubrication, a pipe from the exhaust is brought into the top of the oil tank; immediately the engine begins to run pressure is automatically brought to bear on the surface of the oil, causing it to rise and drop through sight-feed lubricators on the moving parts of the engine. By this arrangement the faster the engine runs the greater the pressure, the flow of oil being thus adapted to the speed of the engine. When the motor stops the pressure is removed, and the flow of oil ceases.

Four forward speeds and a reverse motion are provided. The power is transmitted through a clutch to the gear box, and thence by bevel gear to a differential countershaft, the latter being connected with the rear road wheels by side chains. The whole of the change-speed gear runs in oil and on ball bearings, which reduces friction to a minimum. The change-speed gear is controlled on a new and simple system, by means of a small lever on the steering pillar. Two independent brakes are fitted, one acting on drums of large diameter and width, fixed to the rear road wheels, and applied by means of a hand lever. This brake is, by a system of rods and levers, made compensating, so that equal pressure is at all times exercised on each of the two brake drums. The other is a foot brake, acting on the transmission shaft. The road wheels are of the artillery type, all being 36 in. in diameter, and shod with $3\frac{1}{4}$ in. tyres. The steering is controlled by a hand wheel, fitted to an inclined pillar, acting through a pinion on a worm. The body is built of aluminium, with a wood frame, the vehicle complete weighing

about 19 $\frac{1}{2}$ cwt. The details appear to have been well thought out, special attention having been paid to the bearings, with the object of turning out a speedy durable vehicle.

IRELAND AND THE RACE.

If the Irish members had the settling of the matter in their own hands, there could be no doubt that the Gordon Bennett race would be run in the Emerald Isle. As we mentioned last week, Parliamentarians who agree on few things are practically unanimous in their eagerness to see the great contest take place in Ireland. Colonel Nolan, M.P., as a member of the Agricultural Board for the country, will "welcome any step which tends to introduce cheap transit," and rightly recognises that the popularisation of the automobile is a step in that direction. Mr. Conor O'Kelly, M.P., the chairman of the Mayo County Council, declares that everyone "appears to be delighted that Ireland has been suggested for the race, and I think you can count on every assistance being given you in removing the obstacles that at present stand in the way." The Kilkenny County Council has also welcomed the suggestion.

Some particulars about the proposed route will be of interest. The start would probably take place outside Naas, the assize town of Kildare, and for many generations the royal seat of the Province of Leinster. The first control would be at Newbridge, on the way to which are five half-mile stretches of "straight" roads. Then a spin of nearly five miles to Kildare would take the cars across the Curragh—a great down of five thousand acres and the military centre of the country. Kildare is one of the most historic towns in Ireland. Thence to Monasterevin prepares the way for a straight run of eight miles to Maryborough, with ample room for the cars to pass. Maryborough was founded in the reign of Queen Mary, and has since been the scene of many fierce contests between the Irish and the English. Fitting, therefore, is it that the people of both nations should meet in the streets to cheer the British representatives in an international contest. Then through Stradbally is another straight road for six miles, up the Windy Gap, and another straight run meets the Athy-Kilkenny road. At the former town, which dates from the thirteenth century, there will be an inward control. Between Athy and Carlow the road is full of turns, and, as the representatives of the Automobile Club who have gone over the course report, "a high speed on it would not be possible." Carlow is one of the most considerable towns on the route. The next four miles are winding; but after they have been negotiated there are several straight courses on the return to Naas—a distance of 90 $\frac{1}{2}$ miles—which should provide good opportunities for high speeds.

Altogether the course is admirably selected. "I know the country parts well," reports Colonel Nolan, M.P., "and I am certain that personal dangers can be reduced below those of the London streets." Such being the case, no wonder Mr. T. M. Healy, M.P., says, "Your committee may rely on the sportsmen being welcome amongst the country people. Don't begin the race at 3 a.m. Give the people a chance to see the start." As it is desirable to have the road surface in as perfect a condition as possible, and as it is also likely that a small expenditure would materially improve the course at certain points, Messrs. John Hutton, Sons and Company, and other Irish firms have expressed their willingness to subscribe to any fund opened for this purpose.

MORE news of Mr. E. J. Pennington, who has been charged with making a trip to Cincinnati in a special car with a dozen attendants, engaging the best suite of rooms at the Nicholas House, running up a 900 dollars board bill at that hotel, issuing cheques for the same, and then suddenly departing.

AFTER much deliberation it has been definitely decided by the Automobile Club of America to hold a contest for commercial vehicles in the spring. The Contest Committee of the Club has prepared a letter and sent it to all known makers of self-propelled commercial vehicles in the United States, asking for their co-operation.

HERE AND THERE.



A PUBLIC service of motor-cars has just been started between Balham and Brixton, S.W.

THE 1903 Mors racer will, it is reported, have a body on the line of the Serpollet "Easter Egg."

THE Maudslay Motor Company, Limited, has been registered with a capital of £15,000 in £1 shares.

MR. REGINALD EGERTON has completed his run from John o' Groat's to Ipswich on a Primus car.

THE carriage work of the Velox car recently described in our columns was by Mulliner's, of Northampton.

THE number of motor-cars in Italy, in respect of which the licence fee was paid last year, is returned at 1,472.

AMONG the entrants for the Paris-Madrid race we notice the names of Mr. Mark Mayhew and Mr. S. F. Edge.

"MORE races, more business and more progress" appears to be the motto of motor-car builders in France.

AT their garage in Tulketh Street, Southport, Messrs. Bell have accommodation for more than a score of motor-cars.

AN Aberdeen engineer has been fined £5 for recklessly driving a motor-car and seriously injuring two women.

ON Thursday, Mr. R. W. Buttemer, M.A., was announced to give a lecture to the Portsmouth Automobile Club on "Ignition."

It is reported that Baron Forest, Count Zborowski, and M. Degrais have been chosen to drive the German cars in the Gordon Bennett race.

THE Mid-European Automobile Club of Berlin proposes to organise a reliability trial from Berlin to Konigsberg and back, to be held during the coming spring.

ANOTHER motor-car depot is about to be opened in Long Acre, W.C., the former home of horse-drawn carriages. The newcomer is the Ariel Motor Company, Limited.

A NEW explanatory circular of the Motor Exchange comes to us from the proprietors, the International Motor Car Company, Limited. This office undertakes the sale and purchase of cars.

THE Benz Company, of Mannheim, Germany, are reported to have decided to enter the racing field this season, and with this view are building a specially powerful car with four-cylinder vertical motor.

MR. J. BAILEY, who has secured the agency for Clement cars in his district, is opening a large new motor-car depot in Market Street, Stafford, where he will be able to undertake repairs of all kinds.

THE contributor of the motor-car notes in the "Globe" is keenly against the labelling of automobiles, and points out "that so far as this paper is concerned the numbering scheme, in its present form, has been opposed from its inception."

THE famous Baker electric racing torpedo, which was the cause of a serious accident at a race meeting in the United States last year, is now in this country. It is probable that the car will be taken over to France, where exhibitions of its speed will be given.

MORE than forty motorists have already expressed their intention of joining the Norfolk Automobile Club, a preliminary meeting of which is being held to-day (Saturday) at the Royal Hotel, Norwich. Mr. G. N. C. Mann is interesting himself actively in the matter.

FROM the Autocar Company, of Ardmore, Pa., U.S.A., comes a copy of their new catalogue, describing their latest production. The car has a double cylinder horizontal 10-h.p. motor under a bonnet on the front end of the frame. They have also sent us an artistic 1903 calendar.

AN Ottawa correspondent reports that there are only three automobiles in that city, which has not an agency of any kind. He considers that if one were established quite a number of vehicles would quickly be sold. Ottawa is, he reports, a wealthy city, being the capital of Canada; and the roads in the district are good.

THE annual dinner of the American Automobile Club was held at New York on Saturday, one of the striking features of the event being an exhibition of the skilful steering of a motor-car around the tables. Subsequently its career was ended by a policeman—for this occasion only—arresting the occupants and marching them from the room in triumph.

AT the request of the Sirdar a steam motor-wagon has been sent to Khartoum by Messrs. Jesse Ellis and Co., Limited, of Maidstone. Messrs. Ellis have also received an order from Sir Horace Pinchin, K.C.M.G., of the Headquarters Staff of the Egyptian Army, for a similar wagon, but fitted with water tank and distributor, and body for sanitary work.

THE new edition of the "London Manual," published by Edward Lloyd, Limited, is a comprehensive guide to the various governing bodies of the metropolis. From the chapter on locomotion in London we learn that metropolitan omnibuses carry 450,000,000 passengers every year—proof of the field there exists for the development of motor-vehicles in the public service.

THE result of kite-flying experiments on a steamship off the west coast of Scotland last summer has just been communicated to the annual meeting of the Royal Meteorological Society by Mr. Dines, who carried out the experiments. The greatest height attained was 15,000 feet by means of four kites on one wire. The temperature gradient over the sea was considerably less than its average value over the land, being about one degree for every 300 feet of height. As a general rule the humidity increased up to a level of about a mile, and then decreased.

GEORGE POLKEY, Limited, has been registered with a capital of £15,000 to acquire the business carried on by Mr. G. Polkey at Hockley Lamp Works, Pitsford Street, Birmingham. The manufacture of a special lamp for motor-cars is included among the activities of the company. In this the oil is contained in the foot of the lamp, and the oil-feeder is outside. There is a circular burner with attachment to prevent the wick from lowering, and the glass has a diameter of $7\frac{1}{2}$ inches. This motor headlight burns paraffin, and has the advantage of being without complicated parts.

SHOWROOMS have been taken at 45, Great Marlborough Street, W., by the Ivel Agricultural Motors, Limited, of which Lord Willoughby de Eresby, M.P., is chairman. Several well-known motorists are on the board of directors, and an advisory board has been formed, consisting chiefly of farmers. Among those interested in the success of Mr. D. Albone's agricultural motor are the Marquis of Tweeddale, the Marquis of Granby, Earl Brownlow, and Lord Alwyne Compton, M.P.

A COMPANY has been formed at Lincoln to carry on the business of automobile manufacture. It is almost entirely a private one, and its pioneer is Mr. J. R. Richardson, who will be the managing director. The shareholders, eight in number, are:—Mr. J. R. Richardson, Mr. W. S. Richardson, Mr. C. W. Pennell, Mr. W. R. Pennell, Mr. Henry Newsum, J.P., Captain H. E. Newsum, Mr. W. J. Cannon, and Mr. F. N. Sherwood (London). Mr. C. W. Pennell and Mr. W. S. Richardson will be associated with Mr. J. R. Richardson on the directorate. The capital, which has been privately subscribed, amounts to £10,000, and is divided into £100 shares. Steps to acquire a site and erect the necessary works will be taken as soon as possible.



NEXT week the King and Queen will probably take a motor-car trip from Chatsworth House to Hardwicke Hall.

THE offices of the Star Motor Agency, Limited, just registered with a capital of £2,000, are at 16, Upper St. Martin's Lane, W.C.

A REDHILL J.P., Major Kingsley Foster, has become a motorist, having on order a 16-h.p. Ariel car with a double tonneau body fitted with seven seats.

H. M. HOBSON, LIMITED, has been registered with a capital of £2,000 to acquire the business of Mr. H. M. Hobson and E. A. H. de Poorter and to carry on the business of motor-car builders, agents, etc.

THE Leeds Motor Car Company has been registered, with a capital of £600, to carry on the business of manufacturers of and dealers in carriages to be worked by mechanical and other power. The registered office is at 5a, King Street, Leeds.

THE White Mail Delivery Van, which was described in our issue of the 10th inst., has given such satisfaction to the G.P.O., that the officials have decided to continue its use for some time longer than the period originally fixed for the experiment.

AN inquest has been held at Westminster on a man who was fatally injured by a motor car at the corner of Ashley Place,

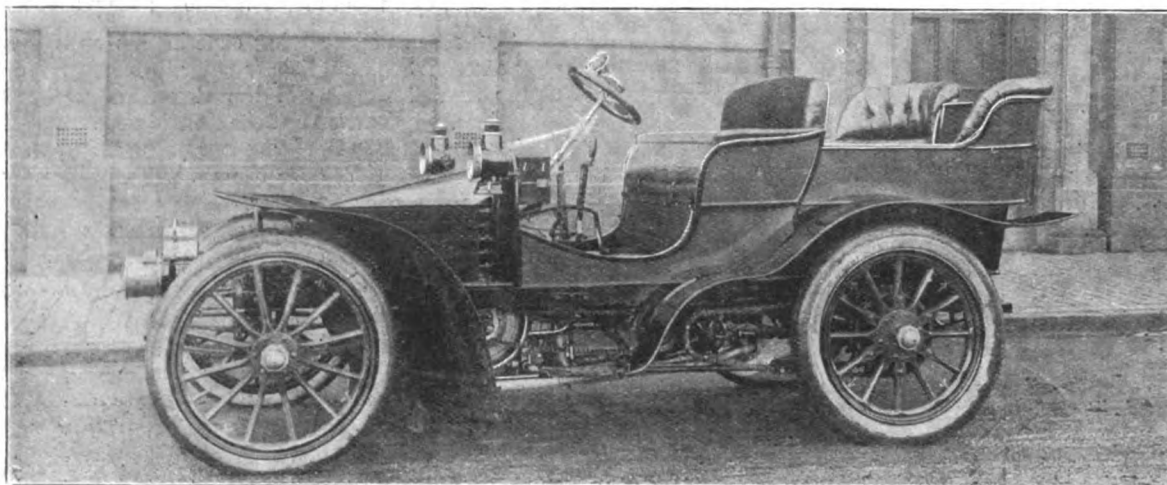
MOTORS FOR MEN OF MODERATE MEANS.

CAPTAIN KENNETH CAMPBELL read a paper on this subject before the Automobile Club on Friday, the 23rd inst., the Duke of Sutherland presiding. The following excerpts will be of general interest:—

The first difficulty is in defining what income constitutes a man of moderate means as opposed to the rich man or the poor one. I do not propose to answer this question, but shall give my own experience, dividing the subject into headings, as follows:—

(1) Cost of car and extras. (2) The ordinary running expenses of the car. (3) Adaptation of ordinary coach-house for the storage of a motor-car. (4) Training a groom for motor work. (5) Cost of groom and coach-house per annum.

The upkeep of motor-cars would be considerably reduced if the "repairer sharks," as they are called in America, were more reasonable in their demands, and in some cases less dishonestly inclined. I shall illustrate my last remark by telling an experience I had with a "repairing shark" in London. My car had just returned from a general overhaul by the makers, but a small adjustment had been left undone. Not having the necessary tool I ran the car to the nearest repairing garage, and pointed out what was required without going into particulars. Presently someone in authority appeared upon the scene, uncovered the engine, and looked very wise. "Your armature is loose," he said. "Fly-wheel not running true. Bearings want tightening up. Gears are not right: they work from side to side." I remarked, "There appears to be a good deal wrong with this car; how long will it take to put matters right?" "Four days," he answered. "When will you let us have the car?" By this time I had put myself into the driving seat and got ready to start. I answered, "Thanks, the car has just come from the makers, where it was thoroughly overhauled. Good morning." His jaw fell. The car did some 2,000 miles of hard work after that without an overhaul.



THE 30-H.P. WOLSELEY TONNEAU—PROBABLY THE FASTEST TOURING CAR YET BUILT IN ENGLAND.

S.W. The vehicle in question was "crawling" at the time, and the deceased was caught in the mudguard while crossing the road. A verdict of accidental death was recorded, the jury exonerating the driver from all blame.

ON Friday, the 23rd, an outbreak of fire occurred in the paint shop of the Wolseley Tool and Motor Car Company, Limited, Adderley Park, Birmingham. The place was full of carriage bodies being got ready for exhibition, and only the promptitude of the works' staff prevented serious consequences. The mishap, however, is very inconvenient coming at the present time.

SEVERAL complaints have lately been published in the Kentish newspapers with regard to the pace that motor-cars travel in that county. Probably this is not due so much to any excessive speed of the motor-vehicles, as, in Kent, express trains rarely exceed the limit allowed by law to motor-cars. A contemporary excuses the fears of the inhabitants on this ground.

ON page 911 of the present issue we reproduce a photograph of the chemical engine, the latest addition to the equipment of the Liverpool Fire Brigade. The engine is mounted on an 18-h.p. Daimler chassis supplied by the Road Carrying Company, Limited. Mr. Thomas, the Chief Superintendent of the Brigade, who is seen in the illustration seated on the box-seat at the side of the driver, has, Mr. Shrapnell Smith informs us, already become an expert chauffeur.

I am basing my statistics upon accounts extending from the time of purchase of my present 10-h.p. petrol car, of the touring type, or for nine months from April until December of last year, and taking the distance travelled, viz., 6,600 miles, as the basis of calculation. This distance is made up of long and short journeys in town and country over every description of road to be met with in Great Britain. Under the first heading, "Cost of car, and extras," I find:—

Price of car	£	s.	d.
Extras, carriage rugs, &c.	525	0	0
Tips, &c., and learning to drive	26	15	2
Delivery of car from makers	3	17	5
	3	18	10

These items are the first cost of the car as opposed to the "running expenses," as follows:—

Petrol	£	s.	d.
Lubricants	21	15	8
Maps			
Sundries			
Repairs to car body, frame, and engine	6	16	7
	0	5	0
	9	17	2
	67	0	5

This works out at about 2½d. per mile, and includes accidents, which resulted in two bent axles—one due to side-slip and the other to running into a ditch to avoid a collision. The side of the car was also kicked through by a horse, the owner of which compromised by paying half the damage done.

£ s. d.
Tyres, including four new tyre covers, one new inner tube, and fitting two old tyres with "treads" 48 6 0
Or 1½d. per mile.

Making a total of £154 0 10
for running expenses of all kinds for nine months, or, at same rate, £205 7s. 8d. per annum. For the 6,600 miles' run it comes to 5½d. per mile.

There are two points under this heading which I have not touched upon, viz. :—Depreciation and insurance.

Economies may be effected in tyres by having those which are too much worn for "drivers" covered with "treads," vulcanised on, and used for front wheels. In the matter of saving in one's ordinary expenses, I have calculated that in travelling by car instead of going by train, taking the cost of railway fares for a number of journeys which my wife and I would have taken in the ordinary course of events during the summer holidays if we had not had a car to carry us, visiting friends, shooting, &c., the saving has amounted to £26 19s. 10d.; tips to railway porters and cabs on these journeys, £5 12s.; or a total of £32 11s. 10d. There is thus a saving in cab and bus fares and the hire of livery stable carriages, which would amount roughly to about £40 per annum. Again, supposing the average Londoner of moderate means goes out of town once a month or so for the week end, he would save a considerable sum in railway fares, tips, and cabs if he goes by motor-car, also he travels more pleasantly, with the additional benefit to his health.

The feeding, clothing and shoeing of a horse in London is about £50 a year. One motor-car will do the work of many horses and never get tired. The cost of coachman or groom, rent of stables, &c., would be, if anything, a little more for the horse than for the motor-car; the first cost of a carriage and wear and tear must also be taken into account.

My stable is situated in mews in South Kensington. The accommodation consists of coach-house and three stalls. The coach-house, without alteration, is all that is required at present for the storage of the car. My man came to me in May last as a groom. He had never seen a motor-car before, except in passing in the street. Engines being a hobby of mine, the groom was not allowed to touch them at all at first. After being with me for about a week I taught him to drive the car, in a short time, well enough, to trust him to bring it from the coach-house to my door, where there is little traffic and the streets are broad. He was then sent for about a week to the makers, who gave him instruction in the care of engines as a matter of courtesy, and he soon picked up quite enough to be competent to take ordinary care of the machinery, i.e., wipe it over and file the igniters, examine for loose nuts, replace broken balls on the wheel bearings, and do the necessary greasing to parts not lubricated by the automatic lubricator. He is now a very trustworthy driver, and can handle the car with skill. Besides his pay, he gets livery, plain clothes, and boots once a year. Light water, and furnished quarters are found, but not coals or food. These he finds for himself while in London; on the road he is found in every thing.

The cost of motor groom and coach-house per annum is as follows :—

	£	s.	d.
Wages of motor groom at 25s. a week	65	0	0
Livery, clothes, and boots	20	7	3
Licence for groom	0	15	0
Licence for motor-car	2	2	0
Rent of stables	30	0	0
Taxes on stables	8	17	4
Light, say	1	0	0
Water	1	12	4
Christmas present	0	10	0

Total £130 3 11

The landlord does the insurance, but it is a condition I do not store petrol on the premises. My motor groom is not employed solely to look after the car. It was understood when he was engaged that he would make himself useful in other ways if called upon to do so, and to be generally willing and cheerful about his work. He performs other duties, such as brushing boots and clothes, and does odd jobs about the house occasionally. These small matters make a difference to the man of moderate means. A handy man about saves a considerable part of his wages to his employer in the course of a year. I figure out that to keep a car running efficiently will cost, all told, about £335 per annum, not including painting and varnishing.

Opening the discussion Captain Bowman-Manifold said he had run a 7-h.p. New Orleans car 7,000 miles at a cost of 2½d. per mile.

Mr. Ashton Jonson had had a steam car which had worked out to a cost of 1s. 9½d. per mile. (Laughter.)

The Secretary read a communication from Mr. J. H. Knight, of Farnham, whose expenses had been £35 5s. per annum, running about 2,000 miles in that time.

Mr. R. E. Phillips pointed out that there were two factors to be considered, viz., the weight of the car and the speed at which it was driven.

Mr. J. E. Hutton having pointed out the differences in drivers,

Mr. W. J. Peall said he had kept a record, and found that he had travelled 3,750 miles at a cost for tyres alone of 2½d. per mile, despite the fact that he drove with every consideration for his tyres. He employed a coachman to look after his car, which in appearance was equal to any horse-drawn vehicle. If motorists would pay more regard for the appearance

of their vehicles, and also stop the motors when the cars were stationary, it would be to the advantage of the industry.

Mr. H. Sturmer believed that the coachman would be found more amenable to reason than the *mecanicien*, who was inclined to think he knew more than he actually did.

Major Lloyd pointed out that little had been said to define "the man of moderate means." He proposed a vote of thanks to the reader of the paper, which was heartily adopted. The proceedings then closed.

THE STANLEY SHOW.

(Concluded from page 906.)

THE well-known Germain cars were well staged by the British Germain Motor Car Company, Limited, the exhibit comprising examples of the 7½-h.p., 10-h.p., 15-h.p., and 20-h.p. types. The two smaller sizes are provided with two-cylinder engines, 95 mm. diameter by 130 mm. stroke in the 7½-h.p., and 105 mm. by 140 mm. in the 10-h.p., the normal speed being 800 revolutions per minute. Four speeds forward and a reverse motion are provided, the countershaft being connected to the rear road wheels by side chains. The two larger cars have four-cylinder engines, governed on the inlet and covered by the latest type of square bonnet with the radiator in the front opening. Four speeds and a reverse are provided. The carriage work of these vehicles is of the highest class; the 15-h.p. car on the stand took the form of a Limousine, painted green with black and white lines. The front seat is hinged to allow of easy access to the petrol tank. The 20-h.p. car had a tonneau body of the Roi des Belges type, painted cream with blue lines. To meet the demand for a "popular" light car, the Germain Company have secured the agency for a little French vehicle to which they have given the name "Staughton." The engine is of the single-cylinder, vertical type, developing 8-h.p. It is placed forward under the bonnet. Three forward speeds and reverse are provided, the transmission being by means of an universally-jointed shaft and bevel gear to the rear live axle. The brakes on the rear wheels are of the internal expansion type. The car itself is designed to hold two persons, a pair of bucket seats being provided. The body is attached to a channel steel frame, and the wheels are of the artillery pattern and of equal size. The water circulation is maintained by pump and radiator, while the steering is controlled by an inclined hand wheel.

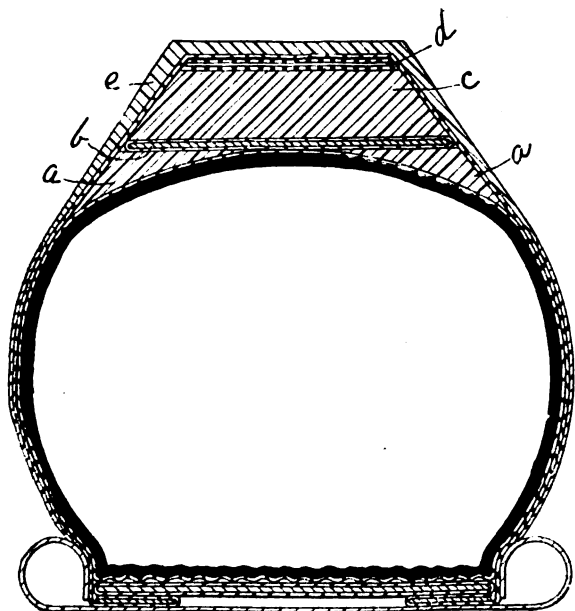
Messrs. Haynes and Sons, Limited, have taken up the agency for the Wartburg cars, which are of German construction. Several types are made, one being a little two-seated car, fitted with a 5-h.p. two-cylinder vertical water-cooled motor, located in the rear of the tubular frame. Three speeds forward and a reverse motion are provided, the power being transmitted through a clutch and bevel gearing to the rear axle. The little car is neatly finished, and can, it is stated, maintain an average speed of nineteen miles per hour. A similar car with the engine under a bonnet in the front was also shown. Although a two-seated car, the usual three speeds forward and one backwards are provided; the desired speed is obtained by a hand lever on the left of the steering column, the maximum being twenty miles per hour. The gear box is built in one with the differential case and is made of aluminium, all gears being enclosed and running in oil. The steering is controlled by a hand wheel on an inclined steering post. The brakes are the usual foot and hand-operated, and are very powerful. A novel little parcels delivery vehicle with the same underframe as the first car above alluded to, was also shown; it is adapted to carry a load of from two to three cwt., and is well adapted to the requirements of tradesmen. A useful feature of the Wartburg cars is the free use made of draw-off cocks, these being provided to each coil of the radiator and the cylinder water-jackets, so that there should be little danger of any water being allowed to remain in the radiator or jackets in extremely cold weather.

Probably the first American car built on Panhard lines to be seen in England was that shown on the stand of the Petrol Power Company. It is a 20-h.p. car built by the Peerless Motor Car Company, of Cleveland, Ohio, and that it is up-to-date will be seen by the fact that the motor is governed on the inlet, and that the water-tank is combined with the radiator, which is set in the front opening of a square bonnet. The 20-h.p. motor, however, comprises but two cylinders. Three speeds forward and a reverse are controlled by a single lever, the power being conveyed through a pedal-operated clutch to the gear-box, and thence by an universally-jointed shaft and bevel gear to the rear live axle. The various details appear to have been well thought out, a useful feature being the hinging of the steering column just below the hand-wheel to allow of easy access to the driver's seat. The same firm exhibited the Rambler car illustrated in our issue of the 29th November last. A number of improvements have been introduced in the 1903 models, these comprising the adoption of a 7-h.p. motor, and artillery wood wheels in place of those of the cycle type. The wheel base has been lengthened six inches, and the body brought two inches lower. A new carburettor with float feed has been introduced, while the cooling system has been enlarged so that there are now nearly 400 radiating tubes instead of 200. The axles are heavier, and mudguards to all wheels are now being fitted.

One of the most successful types of electric carriages in France is that of Messrs. Ch. Mildé et Cie., whose system is now being introduced into this country, the Lancaster Motor Garage, which is opening a depot at 1A, Lancaster Gate, London, W., having been appointed sole agents over here. The Mildé Company manufacture electric coupés, single and double landauletts, victorias, omnibuses, and light delivery vans, but confined their exhibit to a well-finished coupe. A compound-wound Mildé motor of the differ-

ontial type, carried at the centre of the hind axle, drives both rear wheels through internal spur gearing, the motor shaft being extended and having pinions on each end which engage with gear rings bolted to the spokes. The battery is carried partly under the driver's seat in front and partly beneath the passengers' seat behind, and is made up of 42 Heinz cells of 115 ampere-hour capacity. It furnishes sufficient energy to drive the car about 40 miles on a single charge. The steering is effected by a hand-wheel fixed to a vertical pillar to which the controller is also attached. The latter is operated by a short lever moving beneath and concentrically with the steering wheel, its different movements giving nine forward speeds, two electric brakes and two recuperation positions, and three speeds backwards. The average speed is 12 miles an hour. The Milde Company are also introducing a new combination petrol-electric car, which we hope to describe in a later issue.

Considerable interest was taken in the Rucker pneumatic vehicle tyres, a transverse section of which we reproduce. In this, *a* is a plano-concave strip of soft rubber, *b* a transversely inflexible, longitudinally flexible and compressible band, and *c* is a thickening of soft rubber; *d* is a longitudinally inextensible band, which materially compresses the tyre circumferentially, and *e* is an outer layer of rubber which can be renewed when necessary. The "Rucker" air tube embodies a principle of construction that deserves a wide trial among motorists. Around the tubes is wound transversely a layer of very strong thread, which may be either embedded in the rubber before vulcanisation, or applied to the surface of a completed tube. The thread is creased by a special process, so that, when inflated, the tubes readily expand till the creased threads are pulled straight, after which, when inside an open cover of a tyre to prevent elongation, they will withstand a high air pressure, the limit of expansion being about



TRANSVERSE SECTION OF RUCKER TYRE.

- | | |
|--|---|
| a.—Plano-concave strip of soft rubber. | d.—Longitudinally inextensible band, materially compressing the tyre circumferentially. |
| b.—Transversely inflexible, longitudinally flexible and compressible band. | e.—Renewable outer layer of rubber. |
| c.—Thickening of soft rubber. | |

25 per cent. above the normal transverse circumference of the tube. When a tube is inside a tyre and inflated, the cover is distended and grips on the rim in the ordinary way, but, should it burst when in use, the result is not a burst tyre as hitherto, but only a tyre with a burst cover. This is due to the fact that the air tube only expands a little beyond the inside size of the cover, and then itself withstands the pressure of the air within it, maintaining the efficiency of the tyre till the cover can be conveniently repaired.

A glance at the stands occupied by tailoring firms showed the advance that has been made in motorists' clothings since the days of the grotesque. Messrs. Burberry's were the first to attract attention with a motoring coat known as the "Slip-on." This is easily put on or removed, and is made in five varied ways to suit our changeable climate. For summer wear it is composed of Gabardine lined with silk; for rainy, stormy days the Gabardine is lined with camel fleece. Other special forms include Winter, Blizzard, and Arctic—the latter being a combination of Shetland frieze and camel fleece that might have been used for ordinary walking purposes during the early days of the show. Messrs. Lovegrove and Company had a capital display, the central feature of which was the "Drimosit" rug, which has already been described in our columns. This is for use on motor-cars or when travelling by rail. Its ingenious arrangement protects the seat from dampness in wet weather; while the termination in coverings for the feet withstands the draughts that often occasion so much discomfort. The firm also showed the "Ideal" motor coat, preserving the appearance of an ordinary

coat and giving all the protection needed when riding, and a large assortment of accessories. Leather clothing for motorists was the main feature of Mr. Alfred Dunhill's display, the "Regent Leather" employed for the bulk of the garments having a good surface grain. Wind and rain proof coats, the motorists' patent apron, and the familiar umbrella coats being also on the stand. Among the great variety of miscellaneous exhibits was a silk gauze fan, about a foot square, specially designed for the use of ladies in dusty weather. Garments for ladies were conspicuous on the stand of Mr. C. R. Base, these including pony-skin costumes, fur-lined coats, silk hoods, motor hats with dust protection for the hair, and fur lined capes. A speciality is milled Melton motor coats, absolutely wind and rain proof. Mr. Base appeared for the first time as an exhibitor of accessories, having decided to stock goggles, masks, gauntlets, and everything required by the up-to-date motorist. Clothing for motorists was also shown by the British Automobile Syndicate, Limited, who made a special feature of the new patent combination livery, termed the "Viceroy," and comprising overcoat, jacket, and rug. Automobile coats in various furs were also exhibited by the Furriers' Alliance, Limited.

An attractive-looking 6½-h.p. car was to be seen at the stand of Messrs. Waddington and Sons, Middlesbrough, who made their first appearance at a London show. It is driven by a 6½-h.p. Linon engine, located under the bonnet in the fore part of the frame, driving through the usual system by a gear-box, universally-jointed shaft and bevel gear to the rear live axle. Three forward speeds and a reverse are provided, and on the top speed twenty-five miles an hour can be attained. The car is of large size, having a long wheel base, and with a wide platform at the rear for luggage or a spider seat. The car is up-to-date in every respect, and in view of its relatively low price should meet with a large sale. The same firm also staged a 9-h.p. tonneau with De Dion single-cylinder motor and Lamplugh body, and a new 10-h.p. car. The latter is fitted with a two-cylinder engine, governed on the inlet; it has four speeds forward and a reverse controlled by a single lever, the power being conveyed direct to the rear axle by bevel gear. At the same stand was shown a 3-h.p. motor-bicycle. The motor is fitted vertically in between the main tube and the bracket, the crank case being bolted to special lugs. A wide flat belt, made of two thicknesses of raw hide, conveys the power to the rear wheel. The ignition is by coil and accumulator. A 1½-h.p. machine on the same general lines was also displayed.

The Motor Car Co., Ltd., had on view one of the 20-h.p. four-cylinder Deauville cars, the details of which have already been described in the *Journal*.

The Prunel Company had a two-cylinder chassis on view, fitted with a 12-h.p. Aster motor. A main frame of wood with steel fitch plates supports an angle under-frame for the engine. A 10-h.p. car, with Herald motor and tonneau body, was also on view, the drive in all the cars being by ordinary change speed gear, power being taken by outside chains from the countershaft to the rear wheels. These cars have three speeds and reverse.

Motor roller chains, made with bushes drilled from the solid bar, were the feature of the Coventry Chain Company's exhibit. There was also a patent drive for motor-bicycles, this consisting of a combination of leather and metal.

M. Bardies showed Bleriot lamps, including the Eclairer Elliptique and the Lenticular projector—both have the advantages of solidity and great illuminating power.

Motoral, Elephant motor grease, indiarubber solution, motor-cycle repair outfits, and calcoid specially prepared for motor lamps, formed the varied display made by the Elephant Chemical Company. On another stand the Nugget Polish Company, Limited, had their specialities, including a cycle enamel polish of good grade. The Page Manufacturing Company made a feature of Silvo, a tyre renovator they are introducing.

A varied display was that of Messrs. David Moseley and Sons, Limited, who exhibited inner tubes and outer covers for motor-car tyres. The tubes are jointless, and were shown in various sizes and weights. Rubber footmats and other rubber goods for motorists were also on view at their stand. The Diamond tyres for motor-cars were shown by Messrs. Shippey Brothers. At their stand the North British Rubber Company drew prominent attention to the fact that they have made arrangements with Messrs. Michelin and Co. for the manufacture of the Clincher-Michelin tyres for sale in the United Kingdom.

The West London Cycle and Motor Repository made a feature of the 2-h.p. "Rocket" motor-bicycle, with a vertical engine, fitted to a frame of heavy gauge weldless steel tubing. This has a spray carburettor, and transmission is secured by a twisted rawhide belt. An efficient valve lift is fitted, enabling the rider to start with great ease. This motor-bicycle is said to have a tank capacity for 150 miles.

The Oilmobile was shown by the English Motor Company. This is a two-seated vehicle, similar to the car of somewhat kindred name which is already familiar in this country. The motor is of 5-h.p., the mixture being supplied through an automatic induction valve. The transmission gear is operated by a lever placed to the right of the driver, the drive being conveyed from the countershaft to the live back axle by a chain. Electric ignition is fitted, and there are two speeds forward and one reverse. There are two brakes actuated by foot levers, one being applied by a clutch band to a flange attached to the driving sprocket, and the other being an emergency brake acting directly on the rear axle. The capacity of the petrol tank is five gallons, and the maximum speed is given at 25 miles per hour. Although shown without mudguards, these can be fitted if desired.

Messrs. Ewart-Hall, Limited, showed the Oldsmobile cars and parts, and also their 2½-h.p. motor-bicycle. A spray or surface carburettor is fitted as desired and an exhaust valve lift is provided. The lubrication is by means of a sight feed pump, and the engine can be lubricated whilst travelling at top speed. The machine carries petrol for a 120-mile journey, the capacity of the lubricator being sufficient for 100 miles.

CORRESPONDENCE.

REPREHENSIBLE PROCEDURE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The old plan of sending in bogus claims is easily thwarted. We would recommend our friends, the Beaufort Motor Company, to do as we have always done, viz., appoint a certain firm in each district, and supply only that firm as agents. If a firm holds a good agency, it is soon known to others in the district. We have adopted this plan for the last five years with our agencies, and have never had the slightest trouble. If a trader who is not our agent wants to buy our cars he must go to the appointed agent, and get him to make terms to suit the occasion, a proceeding which no one would object to.—Yours faithfully,

INTERNATIONAL MOTOR-CAR COMPANY, LIMITED.

THE NUMBERING PROPOSALS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Herewith copy of a letter I addressed to the Automobile Club. In reply I was informed that the Committee cannot see their way to get the opinion of all the members of the Club regarding numbering motor-cars, and that it is expected that those who attend and hear the reasons will be in favour of numbering. I am informed by a gentleman who was present at the last meeting that, notwithstanding strong opposition, it was recorded that numbering was "passed unanimously." To me it is incomprehensible why the Committee seemingly wants to ride rough shod over all the members.

If the majority of the Club, or of those interested in motor-cars, decided to have numbering, I would loyally accept their decision, but I object to have so important a matter decided by a small number of men, who are led astray through the howlings of a few nervous people. Every one knows that in any supposed danger, one nervous old woman will make more noise than dozens of sensible men and women, but no one heeds the advice given by such a woman. Now, on most county councils, and on some benches, there are nervous individuals, wearing bifurcated garments—though they would be more appropriately clothed in petticoats—who announce that they, or some of their friends or relations, were nearly run over by motor-cars. You never hear of this *actually* happening. Therefore motor-cars must be hampered in every way! These are *not* the stamp of people who compelled the world to call Britain, Great Britain, and made the British name respected throughout the world. We, who pride ourselves on being Britons, should not truckle to such nervous creatures, who ought to be carefully packed in wool, and put away in some safe place where motor-cars cannot get at them. When Rome allowed itself to be influenced and guided by nervous, invertebrate people, its downfall commenced. Is this to be the fate of Great Britain?

Because hitherto speed on roads *could not* exceed twelve or fourteen miles an hour, is progress to be stopped because a few nervous people cannot see beyond their noses? And stopped, or severely checked, it undoubtedly will be, if motor-cars are numbered, for these thoughtful and considerate drivers will be so harassed and fined that they will be forced to give up motor-cars. Again, why should motor-cars, which do not injure roads one-tenth as much as horse-traps, be required to pay five shillings extra tax? I do hope that every member of the Automobile Club, and everyone who is interested in motor-cars and objects to numbering, will give expression to his views.—Yours faithfully,

J. R. MAGRATH, Colonel.

QUERY RE DRIVING SHAFT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Has any owner of a Swift voiturette found a means of improving the plain bearing on the driving shaft, just in front of the gear box?

I find that the bronze bush in it very quickly wears away, and that as soon as it is a little worn the gear box works loose on the back axle. The driving shaft is of mild steel, and is getting very worn also, and as I have to turn it down true each time a new bush is fitted, I shall soon have to replace the shaft.

I have fitted a cup lubricator directly on the bearing, so that it gets sufficient oil, but that does not prevent the excessive wear. Since getting the car I have had to replace the large bronze gear wheel with a steel one, and to bevel the faces of the positive clutch so as always to change speed at the first attempt; in other respects I consider the car has proved satisfactory.—Yours truly,

A. LESTOCK REID.

STANDARDISATION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have been reading with interest the valuable articles which have been appearing lately in your columns on the subject of the up-to-date

motor-car, and would like to point out the one point that is paramount to me, and that is the lack of standardisation. There is too much copying and guess work in the present day motor-car, whereas, should the experts get their heads together, and discuss and study the vital points of automatic output and interchangeability, we would soon regain our lost ground in a business in which we should now be leading the world.

There is no universal standard of any sort. Of course it will be said that the motor business is still in its infancy, and no standard parts can be set, or agreed on. This is only the case with regard to the most unimportant parts of motor-cars. Bodies, bonnets, etc., are secondary matters, and I will admit, are affected by style, but the essential parts of cars, such as axles, wheels, tyres, springs, coils, etc., need not change any more than the chains, bolts, nuts, etc. However, the most important parts of the motor, as enumerated above, are the main considerations, and are not governed by style, but by laws set down by mathematical calculation. The capricious moods of the non-practical buyer should not be allowed to affect these points.

The lack of standardisation is principally the cause of our falling into the slow pace we seem to be following. In engine building, frames, bodies, etc., we can hold our own with any country, but we forget our attention seems to be arrested there. We are forgetting the means whereby cheapness is effected. Each and every maker has his own idea of motor-car construction, and the result is that there are dozens of useless styles, sizes, and patterns of axles, wheels, tyres, coils, bolts, etc., etc., and they are still changing.

The outcome of it all is plain. The axle maker cannot make up his axles to standards, yet he knows exactly what is best. The wheel maker cannot make up standard sized wheels for stock, which would expedite deliveries. The spring maker, the tyre maker, the coil maker, and others who supply parts to the manufacturers are compelled to make moulds and patterns, jigs and gauges, of peculiar shapes, and in useless sizes, to suit individual makers or concerns.

This sort of business prevents cheapness of output, guaranteed deliveries, interchangeability and satisfactory business relations. On the other hand, it retards progress. It invites the thrifty foreigner to infest our market. It robs us of the premier position in a class of work in which we should lead all others. It also prevents the important study of the point of accessibility. The expert is handicapped in the assembling, and his templates and blue prints become of little use.

When sifted down we find the root of it all seems to be the lack of organisation. We are losing our ground, *not from lack of knowledge* so much as lack of study of means and ways. The Teuton, the Yankee, and the Frenchman seemed to have grasped the fact that *system, and system alone*, gave them their chance, and they have made good use of it.

Standard sizes, interchangeability, and balance can only be got by universal adoption of system. Cheapness is got by use of jigs and gauges, and accessibility is due to arrangement, and balance on lines of theoretical and practical law as already set down, which we have known for years and cannot change. Strength for weight cannot be altered by fashion. On a basis of this sort we will alone be able to produce sound and reasonable work for home and abroad.—Yours truly,

BERNE NADALL.

SIDE SLIP,

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As the question of side slip is now so prevalent, I have pleasure in giving you a recent experience in relation thereto. I drove from the Club, in Piccadilly, one night a short time ago, when the roads were in as greasy a condition as they possibly could be, and I was riding on a car with a short wheel base. We took sharp corners very quickly, and, in fact, utterly disregarded the condition of the road, and the car clung to the surface as if we were on a bone dry road.

I have had a set of "skid knot chains" put on my car, and in driving through South London this week I encountered some very nasty incidents of traffic on the other side of the Thames. The roads were very greasy, and I had been travelling over tramway lines, and took some very sharp turns in going in and out of the traffic, such as I should not have ventured to have done under ordinary conditions.

At one very complicated crossing by Vauxhall Bridge (south side) a tramway car was approaching from one direction, a bus from another, and a brewer's pair-horse lorry coming from still another direction on his wrong side of the road. I was completely hemmed in, and had to do some very quick manoeuvres to save a collision, and so quickly had the car to be turned in three different directions, one after the other, on the greasy surface, and across the tramway lines, that it would have been hopelessly impossible to have negotiated the very awkward predicament unless I had had the non side-slip chains.—Yours truly,

T. W. STAPLEE FIRTH.

DELIVERY VAN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should be much obliged if any reader would give me his experience of a motor delivery van, and what kind of van would be most serviceable to me as a baker in Devonshire. The hills around here are rather steep and rough. The daily distance I travel with horse and trap is about twelve miles. I usually take a load below 5 cwt., or with myself and lad

say about 8 cwt. at the most. I have between eighty and ninety customers to call on. These usually take me with horse and trap four hours, one stoppage being enough to serve two or three customers in some places. As the journeys have to be done every day without fail, can a motor be depended on, or would the number of times stopping and starting be too much for the machinery?—Yours truly,

J. M. PRATT.

"X." WRITES:—I shall be very glad if some of your readers will give me their experience of the consumption of petrol in single cylinder 8-h.p. cars.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED	RESULT.
Ryde.....	*C. P. Dean, Yarmouth, Isle of Wight	—	2s. 6d., etc.
Hove.....	F. W. Norman, Burgess Hill	26 m. p. h.	£2, "
Walslow ...	H. Summers, Stalybridge	20 m. p. h.	Dismissed.
Brentford.....	C. Watt, Hutton	—	£2, etc.
"	A. Rackham, Grosvenor Square, S.W.	—	£2 2s.
Glasgow	J. Macdonald, Glasgow	—	£3.
Guildford.....	P. H. Joseph, Harley St., W.	21 m. p. h.	Dismissed.
Tewkesbury	W. Jordan, Harpur House, near Gloucester	20 m. p. h.	"
Portsmouth..	G. Wilder, Stansted Park, Hants	16 m. p. h.	40s., etc.
Lambeth	W. Symmonds, Brixton	—	10s., etc.
York.....	R. Baldwin, Hull	—	Dismissed.
Cardiff.....	P. Thomas, Cardiff	—	

Where no alleged speed is given it is understood to be above the legal limit.
*Motor-cycle case.

SQUIRE WILDER, of Stansted Park, Hants, was on Saturday last again summoned before the Havant magistrates for furiously driving a motor car. The alleged offence took place on January 13th, a constable, who was in plain clothes at the time, declaring that the Squire turned a corner in the centre of the town at a speed of at least sixteen miles an hour. After hearing the evidence the magistrates dismissed the case.

At the York Police Court, the Lord Mayor (Alderman E. Gray) referring to a motor-car case before him, said that the proceedings seemed to have been taken under an Act, passed in the reign of the late Queen, which might, to some extent, be considered obsolete; still they had to administer it, and wished it to be understood that twelve miles an hour must not be exceeded in the city.

In a case in Essex, a summons against a motorist has been dismissed because no sealed copy of the Local Government Board regulations had been put in. The Bench had no judicial knowledge that there were such regulations, and the case was therefore dismissed. A fresh summons has, however, been applied for against the defendant.

LEAVING A CAR ON THE HIGHWAY.

At the Wimborne Petty Sessions, Frederick Long, motor-car driver, in the employ of Lord Wimborne, pleaded not guilty to leaving a light locomotive on the highway without taking proper precautions. Police-sergeant Saint stated that on the 12th he saw the motor-car standing outside the International Stores, and the machinery was in motion. Defendant said he took precautions to throw everything out of gear before leaving it, so that no one who did not understand the machine could have started it. The case was dismissed, and the Chairman said in future every precaution should be taken.

DAMAGING THE ROAD.

At the Blackburn Borough Police Court, the Road Carrying Company, Limited, of Liverpool, have been summoned for causing a locomotive to be on the Yew Tree Brow "the tyres of which were not in accordance with the regulations under the Locomotive and Highways Act, 1896." Mr. Holt, assistant solicitor to the Corporation, stated that according to the Act the tyre of the wheel should be smooth and flat, but in the present case it was fitted with a steel stud which could be raised or depressed. When projecting it tore up the macadam road, and smashed every stone sett it passed over. The Corporation had suffered much damage by such contrivances, as it cost 2s. 6d. to replace each broken stone sett. The defendant company's locomotive had sixteen of the studs, but only four projecting, and these tore up the road for about a quarter of a mile. Mr. Carter admitted that an offence had been committed. He reminded the Bench that the

defendant company were engaged in a new industry, and the vehicles were more or less in an experimental stage. The primary object of the studs on the wheel was to enable the cars to get over land covered with snow. The Bench said it was a serious case, and inflicted a fine of £5 and costs, intimating that a similar case in future would be more severely dealt with.

ALLEGED NEGLIGENT DRIVING.

At the Brompton County Court, London, on Friday, the 23rd, before Judge Stonor. Mr. George May, contractor, 29, Red Lion Square, W.C., brought an action against Captain Loeck, 63, Cadogan Square, Chelsea, S.W., claiming £15 odd in respect of injury to a horse and damage to a governess trap, said to have been caused through defendant's negligent driving of a motor-car. In conjunction with this case was tried a cross action, in which Captain Loeck claimed £3 odd from Mr. May in respect of damage to the motor car, alleged to have been caused through negligent driving of the trap. The Judge came to the conclusion that there was negligence on the part of the defendant, yet he could not but believe also that the plaintiff might have stopped and avoided the accident if he had been driving at a proper pace. He thought he ought to have pulled up long before he did. He therefore found for the defendant on the ground of contributory negligence on the part of the plaintiff, and should allow no costs on either side.

LEARNING TO DRIVE.

A CHARGE of stealing a motor-car, value £300, the property of Mr. H. F. Acland Hood, of 10, West Eaton Place, S.W., was preferred at Westminster, on Tuesday, against a young man named Arthur Billings. Prosecutor said he understood prisoner was a brother of his (Mr. Hood's) late driver. Witness had his car stabled at Kensington, and the prisoner got it by the false pretence that he was authorised to take it out. Prisoner: I wanted to get a situation, sir, as a driver, and I thought I would practise on your car. The prisoner drove the car, dirty and damaged, on Monday evening to premises in New Bond Street, where it was purchased. The accused was remanded for a week.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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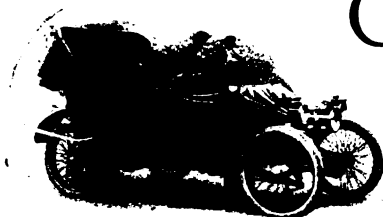
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COMMENTS.



CLEARLY London magistrates are displaying more wisdom in their attitude towards the automobile than are the unpaid justices of the rural districts. These latter have shown a bias against the motorist, which has been almost entirely absent when similar cases have been heard before stipendiary magistrates. This week mention is made in our list of cases of alleged furious driving of two cases heard in London courts where "sweet reasonableness" prevailed. At Marlborough Street Police Court, Mr. Kennedy dismissed a summons against Lieut. L. Walker Munro, reminding the police that pedestrians frequently "lost their heads" when seeing motor-cars. At the City Summons Court an alderman pointed out that a motorist who pulled up "in about the length of his car" could not be driving to the "common danger"—a view that led to the dismissal of the case. Evidently the Metropolis is becoming the only safe place for reasonable speeds on motor-cars.

Irish Approval Extending.

FOLLOWING what we said last week of the interest which the international race is exciting in the Emerald Isle, news comes of the consideration of the matter by various local authorities. The Antrim County Council has decided to do everything possible to assist the matter, and a long discussion on the subject has taken place at Wexford. At the meeting of the latter council several speakers declared that, though the proposed route did not pass through their district, they would do what they could to influence the local authorities on the line of the race in a favourable direction. The Dublin County Council has also been equally gracious.

Benefit to Ireland.

THE enthusiasm with which the Irish people are regarding the proposed contest on their roads suggests the possibility that had the present agitation been fomented immediately after the British victory in the Gordon Bennett race something definite would have been known long ere this. The present uncertainty is hardly pleasant; although the discussions should serve to attract touring motorists to the Emerald Isle whether the international event is run there or not. At the same time the experience gained should urge those responsible for the national prestige to take time "by the forelock"—if motorists may legitimately use such an expression—and arrange everything in good season.

The American Competitors.

REPEATED efforts were made during the recent show in New York to learn what the candidates to represent America in the Gordon Bennett contest are building in the way of racers, but they were all careful not to give out any information of consequence. The "Motor World" states:—Messrs Mooers, Harkness, and Matheson all were free enough to admit that they would use four-cylinder engines, but would give no idea of their horse-power. Winton will use a horizontal engine, but what its horse power or location in the car will be is not known. From whisperings here and there it is believed that Mooers and Matheson will have cars of a very big horse-power, something probably in the neighbourhood of a hundred. Harkness admitted that his car is being built in New York city after designs of his own. It will not be a replica of any particular make, but will embody all the latest improvements. From what he said he does not favour very high horse-power, believing it to be unnecessary. Winton, the most reticent of all, is understood to agree with Harkness about high horse-power being unnecessary. One gratifying thing seems certain, which is that none of the cars will be freaks. From what could be gathered the Winton candidate will probably be the only one with a specially-designed racing shape of body. Harkness will, it is said, enter his car in the Paris-Madrid race, whether he is selected for the Cup race or not. Matheson is very confident about the success of his vehicles. If one of the two cars he is building is selected, he will drive it himself, and if not chosen for the Cup contest will enter for Paris-Madrid.

Result of the Tyre Trials.

LAST week we gave the results of the Tyre Trials organised by the Automobile Club, and must confess that "the man in street" will probably be confused to learn that one firm obtained first prize, while another losing the fewest marks gained the second place. Of course the reason is clear to those who peruse the elaborate report prepared by the judges; but it would have been better had provision been made against the possibility of any such ambiguity. Another suggestion that seems to meet with approval is that the restriction as to limiting the number of types entered by any one maker which has been adopted in connection with the car trials should be followed in connection with tyre contests.

On Pneumatic Tyres.

REPORTING with regard to pneumatic tyres the judges make the following observations:—It is claimed for the pneumatic tyre that by its great resiliency and consequent reduction of vibration, the engine, gear, and carriage work are preserved from the constant succession of shocks from road contract which must arise from speedy travelling over the

highway; and that consequently cars shod with pneumatic tyres are not so liable to breakdown from engine, gear, or frame failure, and the life of the motor and carriage is considerably prolonged; whilst the comfort of riding and facility of steering are greatly increased. It is beyond argument that the reason why motor owners incur the very considerable additional expense which is involved by the employment of pneumatic in preference to solid tyres, and are willing to suffer the delays and annoyance which may arise from puncture of pneumatic tyres, is because of the additional speed and general smoothness of running which result from the property of absorbing obstacles, which is the main characteristic of a pneumatic tyre. It is possible to manufacture a pneumatic tyre which is practically unpuncturable; but if, in order to avoid puncture, the tread and walls of the tyre are so thick and so unyielding, and therefore sluggish, that the tyre fails to absorb concussion better than a solid rubber tyre, nothing is gained by the use of such semi-solid tyres."

The Youngest Motorist.

IN our issue of the 17th ult. we reproduced a photo of Master Carter, the ten-year-old, son of Mr. C. E. Carter, of Grays, Essex, describing him as probably the youngest motor-cyclist in the country. This claim was soon overthrown, for last week we gave a picture of Master E. Bond, of Bishopston, Bristol, just turned six years of age, who rides a motor-bicycle. While he can, we think, safely claim to be the youngest motor-cyclist in the country America has even a still younger motoring prodigy in the son of Mr. D. Ogden, of the Western Union Telegraph Company, at Columbus, Indiana. Master Hubert Ogden, who is only three years and four months of age, is shown on his "car"



in the accompanying illustration, for which we are indebted to the "Horseless Age." The vehicle has a live rear axle carrying the differential gear, with a band brake upon it. The power is supplied by a 1½-h.p. petrol-motor, which is located in front. The body is 38 inches long and 16½ inches wide, and is carried on 20-inch wheels. The speed is controlled by a forward pressure on the lever shown at the left, which operates a friction drive giving a variation in speed from one to seven miles per hour. The brake is operated by the foot, and the steering is controlled by a tiller. The little *chauffeur* handles the levers very skilfully, although, we may add, his father always accompanies him on a bicycle.

The Oxford Club.

MATTERS are moving rapidly in connection with the Oxford Automobile Club. Only a few days ago the idea was mooted by Mr. W. L. Creyke, and already a preliminary meeting has been held, at which Mr. J. E. McPhail was elected hon. sec., with Messrs. Creyke, Biscoe, Rippon and Walsh as a committee to draft rules and prepare other initiatory details.

The headquarters of the club will probably be located at the Clarendon Hotel, Oxford. The promises of membership exceed thirty.

Alien Motor-Garments.

IF the enterprise of British tailors were equal to the skill and elegance for which their handiwork is notable, they would be masters of a branch of trade now largely in the hands of the foreigner. Speaking at the fortieth annual dinner of the West End Foreman Tailors' Society, held on Saturday at the Hotel Cecil, London, Mr. J. W. Lovegrove said that the West End firms nearly all refused to recognise that making motor-clothing was a branch of the trade. "Oh, no," was a common remark, "we are not here to make up leather garments." French, and more especially German, firms had not been slow to seize such a neglected opportunity, and had now nearly the whole of the trade in motor-garments in their own hands. The few English firms engaged in this department were nearly all manufacturers in other lines, who could hardly be expected to turn out the same fit as an experienced tailor. These Continental makers had a great advantage over the English firms, as they were not controlled by trades unions, and so did not have a fixed standard of wages. If they were once allowed to secure the whole trade, with this important point in their favour, it would be difficult for the Britisher to offer any competition at all.

A Motor-Car Service for Ireland.

DURING the coming summer several motor-car services will be established at various seaside resorts, and already we hear rumours with regard to one or two fashionable watering-places on the south and east coasts, while the result of the tenders now being considered at Eastbourne is being watched with considerable interest. In Ireland, too, some important developments are on the way, and a number of influential men in the Midleton district have decided to inaugurate an automobile service between Cork and the seaside resort of Ballycotton. Capt. Donelan, M.P., has placed the matter before the Chief Secretary for Ireland, who has forwarded the appeal for a Government grant to the Department of Agriculture. Seeing that grants in aid have been made to several local light railway projects we do not see why similar help should not be rendered to this motor-car service. Anyhow, it is satisfactory to note that the Department of Agriculture is sympathetically inclined towards automobilism, and the enthusiasm which has grown over the proposal to hold the Gordon Bennett race in Ireland should go a long way towards assisting the establishment of this seaside service.

Affiliation with the A.C.G.B.I.

AN informal conference of representatives of provincial automobile clubs and of the parent body has been held at the Club-house in Piccadilly, when it was agreed: (1) The Motor Union continue to perform work similar in nature to that which it now carries on. (2) All automobile sporting fixtures (other than motor-cycle events) of a national description to be administered by the Automobile Club Sporting Committee. This committee to be of a representative nature, and to consist partly of members of affiliated clubs to be elected on a basis to be considered hereafter. (3) Affiliated clubs to be asked to form committees of a similar nature and construction to perform the same kind of work for local and district sporting events, which must be held under the competition rules of the Automobile Club of Great Britain and Ireland.

Motor Cycle Events.

WITH regard to motor-cycling matters it was agreed that in order to meet the desire of motor-cyclists generally, who wish to belong to some corporate body, a Motor-cycle Association or Union be formed which shall be open for purposes of membership to all classes. This body shall be governed by a

Motor-Cycle Racing Board, to be elected on a basis to be determined hereafter. It was decided that the Motor-Cycle Association should make rules which would govern the sport throughout the United Kingdom; that the Motor-Cyclists' Union of Ireland and the Scottish Cyclists' Union of Scotland should be asked whether they intend to govern motor-cycling in their respective countries; that they should be informed that if they do not intend the Club is prepared to administer motor-cycling there by means of the new organisation; if they do intend, they should be asked if they would be willing to be represented on the central body, with a view of framing rules affecting motor-cycle racing throughout the United Kingdom, on the understanding that the two societies should administer these rules in their respective countries.]

The Eastern Counties Club.

ALTHOUGH only founded a few days ago, the Eastern Counties Automobile Club has already twenty-two members, and now that the meeting has been held to draft rules a great accession of strength should be reported at no distant date. The Club is to consist of members, honorary members, and associates, and is to be governed by a committee of six, with the officers, comprising president, five vice-presidents, hon. treasurer (Mr. F. L. Bland), hon. secretary (Mr. C. K. Moseley), and hon. solicitor (Mr. E. P. Ridley), ex officio. The annual subscription has been fixed at £1 1s. for members and 10s. 6d. for associates. In the original draft of the rules the Club was described as "the Eastern Counties' Branch of the Automobile Club of Great Britain and Ireland," but this clause was struck out at last week's meeting at the Great White Horse Hotel, Ipswich, owing to the question of the amount of the affiliation fee.

Lecture on Ignition.

MR. R. W. BUTTNER has been enlightening the members of the Portsmouth Automobile Club on the subject of ignition. Commencing with a brief description of the early forms of ignition in use on internal combustion engines, and a passing reference to tube ignition and the ingenious variation thereof due to Messrs. Lyons and Whitmarsh, the author proceeded to describe, with the aid of diagrams, the principles of the ordinary high-tension system with accumulators and coil. Elsewhere we give an abstract of Mr. Buttner's useful paper, which concluded with a demonstration of the effect of an outside spark-gap, the points of a dirty plug being separated till the spark took a course over the sooty porcelain; on inserting an external spark-gap in the circuit, the spark returned to its usual path between the points. A discussion followed, in which a member stated that while he had found the external spark-gap effective with an 8-h.p. Deauville, it had failed with a 6-h.p. De Dion. A hearty and well-deserved vote of thanks was accorded to Mr. Buttner on the motion of Mr. Koozens, seconded by Colonel Dawson. Mr. G. C. Vernon Inkpen presided, and there was a large gathering.

An Automobile Track.

WITH reference to certain statements as to the proposed automobile track we may now state that the site is at Purley—a spot familiar to all acquainted with the road from London to Brighton. Mr. Mark Mayhew regards it as a "sporting course," and describes it as follows:—"There are two or three flat stretches and a couple of stiff but by no means impossible hills, and we shall be able to get for timing purposes a flat straight with a good start. It is an extremely pretty piece of country. The course for some distance is almost straight, running along a valley and closely following the railway. Then it climbs up over the railway tunnel and down again into another valley, then mounts again, and finally, after a curve too great to be felt even at high speed, follows the same line back to the starting-point." It is intended that the track shall have a gravel surface, and as the subsoil is chalk, flint, and gravel, it should be

dry going even in wet weather. The lie of the land makes the course an excellent one from the spectator's point of view, and there is one point at which a grand stand would command two miles of double track in each direction. The ground is offered to the Club on rental, the owners to have a share of the money, and a certain number of meetings to be held in the course of the year. According to the "Manchester Guardian" the track is to be sixty or seventy feet wide and about seven miles long.

The Yorkshire A.C.

THE Yorkshire Automobile Club has now a membership of 120, and should the Gordon Bennett race be held in Ireland will send a large contingent of spectators. At the annual general meeting held last week at the Great Northern Hotel, Leeds, officers were elected as follows:—President, Earl Fitzwilliam; vice-presidents, Lord St. Oswald, Mr. Harrison Benn, Mr. T. E. King, Mr. A. W. M. Bosville, and Mr. H. R. Kirk; committee, Mr. A. J. Greenwood, Mr. R. Winn, Mr. E. Faiers, Mr. W. Jackson, Mr. H. A. Jones, Mr. J. Whitaker; hon. secretary, Mr. A. W. Dougill; hon. treasurer, Mr. L. Hey; hon. solicitor, Mr. Claude Leatham. During the past year the receipts amounted to £140, and there is a balance of £20 in hand. At the meeting, Mr. H. A. Jones—who is to describe the features of the Panhard car to the Club on the 19th inst.—drew attention to the proposal to construct a tramway from Keighley to Shipley, and thence to Ilkley. In certain districts in the West Riding the tram-rails were of the same width as the wheels of a motor-car, and in some parts were considerably below the surface of the roadway. He had had a very awkward skid at Dewsbury on a portion of road where the rails were actually 1½ inches below the surface of the roadway. This is a growing evil in the vicinity of many great towns.



MRS. CLAUDE PAINE ON HER CLEMENT CAR, WHICH SHE HAS DRIVEN OVER 5,000 MILES.

"All Motorists Now."

MR. AND MRS. CHAMBERLAIN have become converts to automobilism, and have been visiting some of the interesting places in Kimberley and the district on a motor-car. But for the convenience afforded by the automobile it is probable that their tour of inspection would have had to have been considerably shortened, so that we may anticipate on his return the Colonial Secretary will join the ranks not only of theoretical but also of practical motorists. During last week the King and Queen had several motor-car trips, but the illness of his Majesty

has prevented the carrying out of his projected motor-car programme in Derbyshire. But so rapid has been the conversion to automobilism of those in high places that, to vary a famous phrase of Sir William Harcourt's, we may say "We are all motorists now."

The Norfolk Club.

ON Saturday the Norfolk Automobile and Launch Club was formed at a meeting at the Royal Hotel, Norwich. Mr. G. M. Chamberlain was elected chairman of the committee, which has been constituted as follows:—Baron de Barreto, Messrs. E. T. Boardman, E. Estcourt, W. W. R. Spelman, J. Griffin, G. Sillem, H. R. Fletcher, and the following district representatives—Mr. H. Chamberlain, Yarmouth, Lowestoft, and Beccles District; Mr. Frank Morriss, Lynn District; Dr. Belding, Dereham District; Colonel Eden, Cromer District; Rev. J. A. L. Fellowes, Thetford District. Mr. G. N. C. Mann was elected hon. secretary, Mr. H. L. Clark being associated with him to look after the launch sector. With regard to affiliation with the A.C.G.B.I. it was pointed out that the capitation fee of half a guinea was "beyond all reasonable idea," and the hope was expressed that association with the central body might be possible on more equitable terms. Among those who have already joined the Norfolk Club are Lord Battersea, Dr. F. W. Burton-Fanning, Colonel Eden, Colonel Barclay, the Rev. P. N. Clark, and the Rev. J. A. Fellowes.

Scottish Trials.

THE Scottish Automobile Club has decided to hold 100-mile trials on seven days' notice being given to the secretary. Mr. R. G. Smith, Glasgow has been selected as the starting point, and the route will be *via* Bearsden, Dumbarton, Helensburgh, Whistlefield Hill, Arrochar, Tarbet to Crianlarich, then back *via* Ardlin, Luss, Bonhill and Clydebank, without stopping. No speed in excess of twelve miles an hour will be recognised except on ascending Whistlefield Hill. Controls will be established, within which no speed in excess of eight miles an hour will be permitted, and within these controls a competing car may not pass another vehicle in front of it, providing the leading vehicle is travelling at eight miles per hour. The trial will include a hill climbing trial on Whistlefield Hill, and certificates will be issued by the judges.

A Generous Offer.

THE luncheon which preceded the ceremony in connection with the Liverpool Cycle and Motor Show on Tuesday was made notable by a generous offer by Sir Alfred Jones, K.C.M.G., whose interest in self-propelled traffic dates from pioneer days. Sir Alfred said that the development of the automobile would be a powerful factor in the success of the port of Liverpool, and urged that every encouragement should be given to local industries. With that object in view he offered to give a 20-guinea cup for the best locally built motor-car. Further, to stimulate the makers of vehicles for heavy traffic, he proposed to offer, through the Liverpool Self-Propelled Traffic Association, a 100-guinea cup for the most useful improvement on motor-vehicles suitable for commercial purposes. These generous gifts by Sir Alfred Jones should induce manufacturers to put forth their efforts, and should have a good effect on the future of self-propelled traffic.

The Liverpool Show.

SEVERAL well-known men were present at the opening ceremony, over which the Lord Mayor, Sir W. B. Forward, presided. Mr. J. C. Robinson has acted as chairman of the Show, and his supporters when Professor Hele-Shaw, F.R.S., declared the exhibition open included Mr. G. H. Cox (chairman Road Carrying Company, Limited), the Hon. Arthur Stanley, M.P., Mr. W. E. Moss, Mr. F. Salisbury (Postmaster of Liverpool), Mr. Charles Cordingley, Colonel William Walker,

Chief-Superintendent Thomas (Liverpool Fire Brigade), Messrs. T. Thorneycroft Vernon, E. Shrapnell Smith, T. H. Barker (secretary, Liverpool Incorporated Chamber of Commerce), and Thomas Price (secretary). Professor Hele-Shaw predicted that for the general public the motor bicycle would be the vehicle of the future. The Hon. Arthur Stanley, M.P., proposed a vote of thanks to the Lord Mayor for presiding. This was seconded by Mr. Moss, the newly-appointed secretary of the Liverpool Self-Propelled Traffic Association, and enthusiastically adopted.

"Alas! my Poor Brother."

AN elephantine sort of comedy was enacted at Bexley the other day, when two motor-wagons were in sad distress. A portion of the road was up in order to receive a new main belonging to the local water company. Into this sank the wheels of a motor-wagon belonging to Messrs. Scott and Bratton and engaged in conveying paper from London to Gravesend. There it seemed likely to remain until hope came in the shape of one of Whiteley's motor-vehicles. This was hooked on to the victimised motor-wagon in the hope that the combination of power would extricate the unfortunate. But, alas! the connecting chain broke and the attempt was soon abandoned. The would-be rescuer was in similar difficulties a short distance further, but managed to resist the temptation to delay. The original laggard awaited in sulky mood the arrival of horses to draw it from the trench. Then, being relieved of its load, it was able to resume. Evidently horses are still of some use.

THURSDAY, July 9th, is the suggested date of the Gordon Bennett race.

LAST week we referred to the formation of an automobile company at Lincoln. This has now been registered under the title of J. R. Richardson and Company (Lincoln), Limited.

MR. CHAS. G. GLIDDEN, the well-known American motorist, who last year made a tour of Europe on a Napier car, has just purchased a Pope-Robinson touring car, built by the Robinson Company, of Hyde Park, Mass., U.S.A.

WITH regard to the report referred to in our last issue, Mr. E. M. C. Instone, of the Daimler Motor Company, writes that "I am desired by Sir Edward Jenkinson to request you to give a denial to the report that he has resigned both his chairmanship and directorship of the Daimler Motor Company."

THE sparking plug "discovery," described in our last issue, is attracting considerable attention. The Ariel Motor Company, Limited, have already altered the wiring on one of their motors so that there is a gap between the high-tension wires and the sparking plugs, while Messrs. Gamage have just introduced the "New Idea Spark Intensifier" to give the same result.

ON Tuesday several members of the Chatsworth house party went motoring. In the first car were the Duchess of Devonshire, Lord Rosebery, Lady De Grey, and Lady Howe. In the second and third cars were Lady Norreys, Rear Admiral Lambton, Lady Mar and Kellie, the Duchess of Manchester, Mr. Alfred de Rothschild, and the Hon. R. Lister.

MESSRS. MARSHALL AND COMPANY, of Manchester, have recently completed a motor-van, with which they are carrying the mails between Manchester and Altrincham under contract with the G.P.O. authorities. The van has a four-cylinder 24-h.p. motor and can carry a load of from 25 to 30 cwt. It has been at work for some little time past, and is, we hear, giving most satisfactory results.

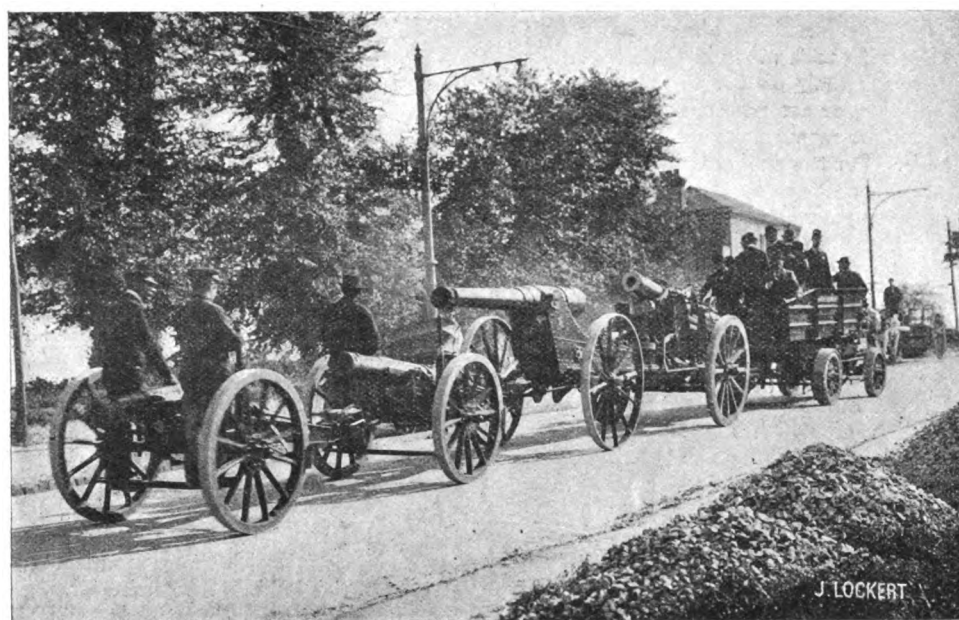
THE Mayor of Portsmouth has been re-elected president of the local automobile club for the ensuing year, and the vice-presidents have been re-elected with the addition of Col. Isherwood. Mr. Ernest Sapp, the energetic hon. secretary, and the treasurer, Mr. F. J. White, were again asked to accept the offices which they had so successfully occupied since the Club's inauguration. The committee was appointed as follows:—Alderman G. Ellis, Alderman J. H. Dean, Dr. K. H. Clegg, Councillor Vernon-Inkpen, Messrs. A. Langdale, A. Glasier, A. G. Clark and H. Barnes.

HINTS ON IGNITION.*

PERHAPS the most serious of the troubles experienced with ignition by the average driver is in connection with the accumulators, which, while fairly long-lived under careful treatment (I have some that have been in constant use on a car for over four years), are easily injured by neglect. In the case of a new accumulator being received empty, it should, after examination to see that no fragments of paper, straw, or other packing material has gained entrance, be filled with dilute sulphuric acid, made by pouring one part of pure acid ("brimstone" acid should be asked for, the commercial acid made from pyrites being unsuitable) into about five parts of water, so that the density of the mixture may be 1.190 when tested by a hydrometer. A convenient form of this is sold, enclosed in a pipette, for a few shillings, which enables a sample of liquid to be drawn, if necessary, from the cell. The accumulator should be charged as soon as filled. The method of doing this from an electric light circuit was then explained. A 10 ampere-hour accumulator—small bicycle size—would require the current from two 16-c.p. lamps in parallel on a 100-volt circuit for about

while, if lost by spilling, more dilute acid should be used. Sulphating, shown by whitish patches on the plates, is caused by over-use with infrequent charging, and can only be cured by repeated over-charging, and then only if not serious. The addition of about 10 grains of carbonate of soda to the pint of dilute acid helps to prevent it. The practice of foreign makers in putting instructions and data regarding an accumulator on an indestructible label attached to it should be followed by English makers, who, if they vouchsafe any such, too often put it on a paper label that soon succumbs to the acid.

The successful action of the induction coil and its trembler depends largely on a rapid break, and tremblers on the principle of the Charpentier are being widely adopted. The principle of all these lies in mounting the armature that is attracted by the core of the coil on a weak spring, while the contact points are on another spring separate from the former. The armature, on being attracted, does not touch this latter till it has partially completed its travel, and so is already moving fast. Thus a more rapid break and more powerful spark is obtained. In the Eisemann system a magneto generator is substituted for the accumulators, the current being sent in the ordinary way through a coil. It was not, however, necessary to have a coil, or rather



A PETROL MOTOR WAGON'S NEW OCCUPATION AT HAVRE.

ten hours in order to charge it, with an expenditure of electrical energy of about one unit. In the case of a 200 or 220-volt circuit, the current from three or four lamps in parallel would be required to charge it in the same time, with nearly twice the expenditure, only 1-25 or 1-50 of the energy being usefully employed. This was therefore a wasteful method, though sometimes convenient. The positive pole should, of course, be connected to the positive pole of the battery, and could be found by connecting both terminal wires to strips of clean sheet lead, dipping in dilute acid similar to that in the cell. The positive strip would be indicated by turning brown. More accumulators were injured by running down too low, and then being left for a time without re-charging, than by any other cause.

When the electrolyte is required to be gelatinous, as in cycle cells, it can be made by adding one part of silicate of soda to three of the ordinary dilute acid. The liquid in all cases slowly evaporates, and cells require the addition of a little distilled water from time to time to keep it above the tops of the plates,

the secondary winding, as on breaking the primary circuit a high-tension current was induced in it. To utilise the spark from this, however, the break had to take place in the cylinder itself, and this is the principle of most magneto ignitions, of which the Simms-Bosch is perhaps the most widely known and used. In the reciprocating form of this (an example of which, with its plug, was shown) a coil of wire is alternately screened and exposed to the magnetic flux of a powerful pair of magnets by an oscillating screen of soft iron. The break in the cylinder is adjusted to take place as the screen begins to uncover the coil, the result being a powerful and efficient spark. The advantages of the magneto should be peculiarly noticeable on cycles, where the electrical arrangements are too often cut down to the lowest limit of efficiency, and it is probably in most cases more efficient than the high-tension system as usually fitted. With regard to sparking plugs, a broad surface of insulation inside, whether obtained by grooving the porcelain or otherwise, diminishes trouble from fouling. Sparking across the outside surface, sometimes troublesome in damp weather, may be cured by the application of vaseline.

* Abstract of paper read by Mr. R. W. Buttemer before the Portsmouth Automobile Club, Jan. 29, 1903.

CONTINENTAL NOTES.

BY "AUTOMAN."

THE entries for the Paris-Madrid motor-car race have reached the first hundred, and are still steadily rolling in, leaving no doubt that the field will be larger than either Paris-Vienna or Paris-Berlin, and the struggle far more interesting. To the annual fight between the two giants, Panhard and Levassor, and Mors, has been added a new interest, and more than one foreign country will contest for the supremacy. There are several new French firms which will be heard of before the lists are closed. Between twenty and thirty large manufacturers are combining capital, skill, and labour to produce cars which shall be the best of their kind, and which shall form for future years the model to be copied for pleasure and business cars. The problem to solve is strictly utilitarian, and is regarded as follows:—How can I combine the greatest horse-power and solidity with the least weight, in order to give me first of all the reliability necessary to cover hundreds of miles at full speed over good, bad, and indifferent roads, up hill and down dale, and with all this the speed to enable me to take and keep the first place?

ALREADY the roads from Paris to Madrid are being examined, reported upon, chosen or discarded, and in almost every case the local authorities are vying with each other in their eagerness that the race should pass through their districts. If the roads in their territory are not suitable, or are not in good condition, the unfortunate engineers who are responsible for the discarded road will have a bad time of it. For the gold which follows along the track of the race, and which benefits all the towns and hamlets through which it passes, will have gone into other hands, and the populations will have good cause to call their local councillors to account for having neglected their obvious duty, and thus bringing discredit and distress on their constituents. But to turn back to the manufacturers preparing for the contest. Let us see for a few moments how far-reaching is the result of the coming race. In the first place, there are the steel forges and foundries. The largest of them in the country are at work on the problem, the best solution of which means the victory. Nickel steels, chrome steels, and nickel chrome steels and silico-manganese steels, etc., are being prepared, tested and carefully employed. Cast steels and wrought steels are also being studied and perfected. The iron and brass foundries are busy with both malleable and ordinary castings from the patterns on which the pattern-makers have been busy for weeks and months past. The aluminium founders have their hands full, making phenomenally light gear boxes and base blocks. The wheelwrights are choosing their best seasoned wood for the spokes of the racing wheels. The body builders have also their problem of lightness and strength, the cushion makers, the liners, the trimmers, the painters, all have their part of the work to do. The great india-rubber companies have also their problem, which is not the least important, and they are preparing to spend tens of thousands of pounds—yes, tens of thousands—in prizes, premiums, expenses, repairs, relays, and advertising in connection with the race. Of the organisation I will only say that it is a colossal task and keeps a large staff busy for weeks, not only in Paris, but also in Madrid and all along the route. The makers of all kinds of accessories, such as lubricators, taps, indicators, springs, bolts, nuts, screws, lamps, tanks, gauges, etc., have also their share of work, whilst in the premises of the twenty or thirty competing firms, from the chiefs to the errand boys, all have their interest in the result. When the race takes place thousands of vehicles are requisitioned in Paris alone to enable the crowds to get a glimpse of the start. The boulevards are awake all through the preceding night. The local trains are crowded bringing people in to see the start, or taking them out short distances along the route. The country inns for fifty miles along the road have had all their rooms bespoken for weeks, and every available bed in the villages is requisitioned. At least one special train, crowded to its full capacity,

follows or precedes the race from start to finish. All along the route for twenty miles on each side of the road the population turns out, the school-children are marshalled beside the roads; it is a public holiday, and money changes hands everywhere for food and refreshments and shelter. What shall I say for the winning-post, Madrid?

IF we are to judge by Vienna last year, Madrid will be taken possession of by the French. Vienna is a much larger city than Madrid, has very extensive hotel accommodation, and is accustomed to a sudden influx of visitors from time to time. Yet on that memorable Sunday morning when the special train brought us to Vienna to see the arrival of competitors, the hotels were full to overflowing, and sitting-rooms, and even bathrooms, were being used as bedrooms. Madrid is very badly off for hotels, and will be very hard pressed to accommodate the thousands who will require accommodation for the last week in the month of May this year.

WHEN will the scales fall from the eyes of the powers that be in England, and when will they see that a full share of this prosperity can be brought to the island shores of Great Britain? That the scales will fall from their eyes there is no manner of doubt, but the question is, will it be too late?

THAT Venice is to have its automobile show and races this year seems to be an announcement which, to say the least of it, sounds incomprehensible, seeing that the only roads in Venice are waterways, and that gondolas are the only means of transporting oneself about the city. However, the show is to be held at Udine, which is at the gates of Venice, and the races are to be held over a circuit of 95 kilometres, beginning and ending at Udine. Three times round, or 286 kilometres, will be the length of the race, which is over flat country. Both alcohol and petrol will have their separate classifications, and there will be mile and kilometre speed trials.

LAST week I was invited by M. Leon Serpollet to take a 100 kilometres run in one of the steam omnibuses which were exhibited on his stand at the Grand Palais, and which have now been delivered to the schools of Saint-Dominique and Lacordaire. These have to cover upwards of 50 kilometres every morning, and a similar distance every evening. M. Serpollet has been so satisfied with the economical running that he invited a party of friends to do 100 kilometres with him, on one of them between its night and morning service. The party met at the A.C.F. and proceeded to the Porte de Vincennes, where the tanks were filled, and at 10.30 a start was made for Melun, a distance of fifty kilometres (thirty-one miles). The bus, with twelve passengers, arrived at Melun in an hour and forty-three minutes, and did the return journey with thirteen passengers in within a few seconds of the same time. Thus the 100 kilometres (sixty-two miles) was accomplished in three hours and twenty-six minutes, at an average speed of from eighteen to twenty miles per hour. Fifty-six litres, or a little over twelve gallons of petrol, were consumed. The bus with its living load weighed about three tons and a quarter. The result is so remarkable that it requires no comment. An illustration of the bus is given on page 945.

THE mending of a puncture seems a trying ordeal if one has to do it oneself. This is, however, because we are not experts, or do not get enough practice. In order to demonstrate the above proposition the Continental Tyre Company has made official trials under the control of Monsieur Tampier, time-keeper to the A.C.F. To the first of these references has already been made in these columns. In the last trial it took 5 minutes 53½ seconds to take off and put on again and completely finish a tyre pumped up to a pressure of 60 lbs. to the square inch. It appears that the motorist has only to have a little practice or

give his mechanic a few lessons and reduce the time lost by a puncture to ten minutes at the outside.

THE hill-climbing competitions of last autumn were very much marred by the war between the two Paris sporting papers, the "Velo" and the "Auto-Velo." There was a rivalry for the organisation of the competition at Gaillon, which ended in three competitions or rather three Sundays at Gaillon, for on one of the days announced no competition was held at all on account of the interference of the Prefect, whose consent had not been obtained by the "Auto-Velo." Another stage in the strife is marked by the fact that the "Auto-Velo" has now been constrained to alter its title and leave out the word "Velo," on account of a judgment obtained by its competitor and sustained in the appeal court. It is now, therefore, entitled "L'Auto"; it remains, however, the official organ of the A.C.F. and continues its traditions as before, and pleads with Shakespeare, "What's in a name?"

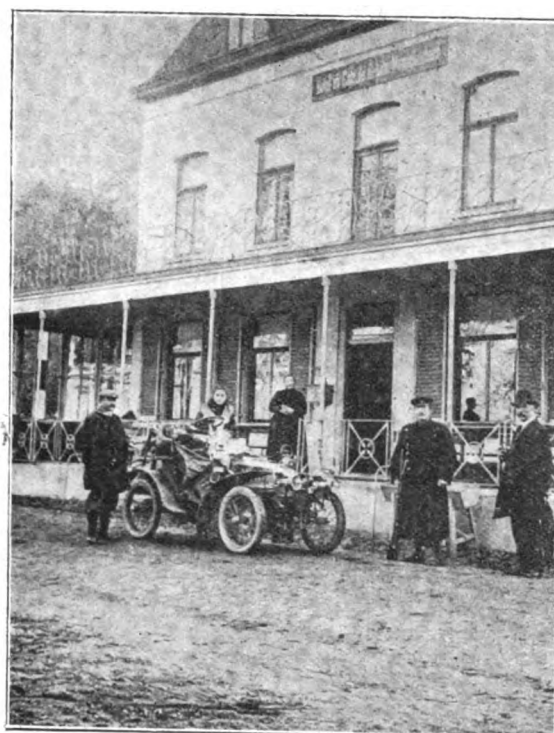
M. PAUL MEYAN, of "La France Automobile," has furnished me with particulars of the second "Criterium des

MR. W. K. VANDERBILT, jun., has just returned to Paris and has appealed against the sentence of two days' imprisonment passed upon him, in default, for the alleged furious driving of a motor-car along the Champs Elysee in Paris last September. An affidavit was put in by the Duke of Marlborough stating that he was the only other occupant of the car besides the driver on the occasion named, the driver not being Mr. W. K. Vanderbilt, jun. Judgment is reserved.

DURING its examination of the French Army Estimates on Tuesday afternoon, the Chamber of Deputies adopted an amendment for the reduction of the credit for automobiles by 80,000f. General Andre said that he had rather do without the motor-car allowed him than see this, whereupon a member cried, "You will be left 500f. for the purchase of a bicyclette!" which led to much hilarity. In spite, however, of the Minister's opposition, the grant was regarded as a waste of money, so that it was refused. According to the Paris correspondent of the "Telegraph," one great objection to it was that smart soldiers, who would make excellent non-commissioned officers, would be converted into "chauffeurs" for generals and others, to the detriment of the service.



THE CUSTOMS OFFICE AT THE AUSTRIAN-GERMAN FRONTIER AT ZINNWALD.



THE DUTCH-GERMAN FRONTIER AT BEEK.

CONTINENTAL TOURING REMINISCENCES—CROSSING THE FRONTIERS.

Transports Automobiles" he is organising. This is a test for commercial vehicles for both goods and passengers, on the lines of that held last year. The course will be from Paris to Monte Carlo (1,107 kiloms), and this will be covered in nine daily stages, starting from Paris on March 20. The contest is divided into the following seven classes:—(a) Vehicles carrying over 2,000 kilogs.; (b) 1,000 to 2,000 kilogs.; (c) 500 to 1,000 kilogs.; (d) 200 to 500 kilogs.; (e) 12-seated passenger vehicles; (f) 8-seated vehicles; (g) 4-seated vehicles. Careful note will be taken of the fuel and lubricating oil consumption, in order to arrive at the cost per ton-kilometre, and in making the awards the judges will take into consideration the regularity and average speed of the running throughout. About fourteen entries have been received up to the present, including 1 Turgan-Foy wagon, a Daimler military wagon, a Serpollet omnibus, 3 De Dietrich cars, 6 Ader vehicles, 1 Vinot-Deguingand, and 1 Bardon.

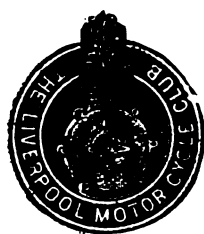
THE Austrian Ministry of Railways has issued a request to the directors of the State railways to formulate a concrete programme for the introduction of self-contained motor-vehicles on the Government lines.

MR. TYRER is to read a paper on "The Need of Duty-free alcohol for British Manufacturers," before the Society of Chemical Industry.

THE Bat Motor Manufacturing Company, Limited, has been registered with a capital of £30,000 in £1 shares, to adopt an agreement with Batson's Patent Syndicate, Limited, and Mr. J. B. Burkett, and to manufacture motor cycles.

AT the ordinary general half-yearly meeting of the London, Brighton and South Coast Railway Company last week, the chairman announced that the directors proposed to establish upon one of the country branches a service of automobile carriages.

MOTOR-CYCLING NEWS.



THE first annual general meeting of the Liverpool Motor Cycling Club has been held at the Feathers Hotel, Mr. R. Harvey presiding. A very satisfactory report, which showed the rapid progress of the Club, was read by the secretary. Although only formed in August last, the membership is now nearly forty. The election of officers for the ensuing year resulted as follows:—Captain, Mr. J. Edge; sub-captains, Messrs. Johnson and Hutchison; secretary, Mr. S. Wilkinson; and treasurer, Mr. T. H. Lancaster. Very ambitious plans have been formed for the coming season, the programme including tours, inter-club runs, race-meetings, and hill-climbing contests.



THE HON. LEOPOLD CANNING ON HIS ORMONDE MOTOR-BICYCLE.

THE Automobile Components, Limited, have replied to the reported desire of Mr. F. Chase to race with M. Fournier to the effect that: "We stipulate that the motor-cycle that we will use will not weigh over 110lbs., and also that the competitor's machine must not exceed this weight. If Chase is anxious to have a match, then it is simply for him to send a cheque for £50 to Mr. Cordingley, proprietor of the *Motor-Car Journal*, when terms can at once be arranged."

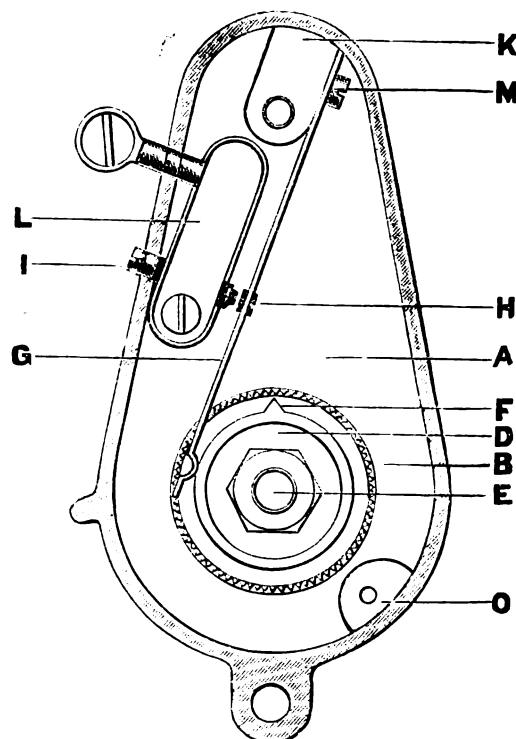
ONE of the chief causes of trouble with the high tension electrical circuit usually arises, not from the system, but the source of supply—the accumulator. Simply from want of knowledge the accumulator is apt to be overlooked, and when out of use, allowed to stand week after week, with the result that it reaches a low potential, the plates sulphate badly, and the efficiency is considerably affected. On this point the Ormonde Company's booklet is clear and concise, giving the reader instructions to occasionally test with a 4-volt lamp, or voltmeter, and to recharge even if unused, at least once a month. The bare statement often made that the accumulator will run so many hundred miles, or so many ampere-hours is somewhat misleading, as the user, unless specially informed, may consider this result can be obtained spread over an indefinite period without attention.

THE first annual general meeting of the Motor Cycling Club was held at the Frascati Restaurant, London, W., last week. The profit and loss account shows that there are a few pounds to the club's credit on the year's working. The new officers for 1903 were elected as follows:—President; Mr. S. F. Edge; vice-presidents, Messrs. Edward Kennard, J.P., Joseph Pennell, W.

Rees Jeffreys, Mark Mayhew (the last three being subject to the consent of these gentlemen being obtained); captain, Mr. E. H. Arnott; treasurer, Mr. E. March; hon. secretary, Mr. G. E. Roberts. The opening run of the Club will be to Brighton on March 7th.

PROFESSOR JUDIN, of the Young Men's Christian Association, Milwaukee, Wis., who recently completed a run on a Mitchell motor-bicycle from that town to Boston, considers that "for a nervous man the motor-cycle is the greatest relief that I have ever discovered. Gymnasium work under proper instruction is good and far superior to medicine, but, after all, the exercise is only a means to an end, that of furnishing recreation so as to relieve the mind of business cares and supplying the nervous system with pure, rich blood. To ride a motor-cycle is the greatest recreation that one can get, and the exercise performed in riding, while sufficient to furnish the necessary blood to all parts of the nervous system, is not sufficient to be tiresome or overtax the system, and yet causes the most delightful refreshing sleep."

THE contact-breaker on the 1903 Minerva motor is shown in the accompanying diagram; it consists of an aluminium body so mounted as to rotate about the end of the counter-shaft E, which actuates the valve-cam. The cam D has on its edge a conical projection F, which raises the end of the trembler G at a certain moment, whereupon the part of the trembler where is provided a rivet of pure platinum H comes into contact with the platinum screw I (which is insulated by an ebonite sheet L) and thus closes the electric circuit. The conical projection F, turning with the countershaft, passes from under the trembler, and the platinum point H of the trembler ceases to touch the platinum screw I, the current thus suddenly interrupted, pro-



ducing a spark between the two points of the sparking plug. The trembler is fixed against the projection K by the screw M, and the hole in the trembler at the point where the screw is, instead of being round as usual, is oval, so that the trembler can be advanced or withdrawn in a groove of the projection K and adjusted with the two points of platinum exactly opposite each other. After a time the platinum points get slightly worn, and it may become necessary to adjust them closer together by giving half a turn to the screw I. After some hundreds of miles of riding the platinum points may become so worn as to need gently filing down with a very smooth file in order to present clean, flat surfaces to each other.

The Crystal Palace Automobile Show.

(FIRST NOTICE.)

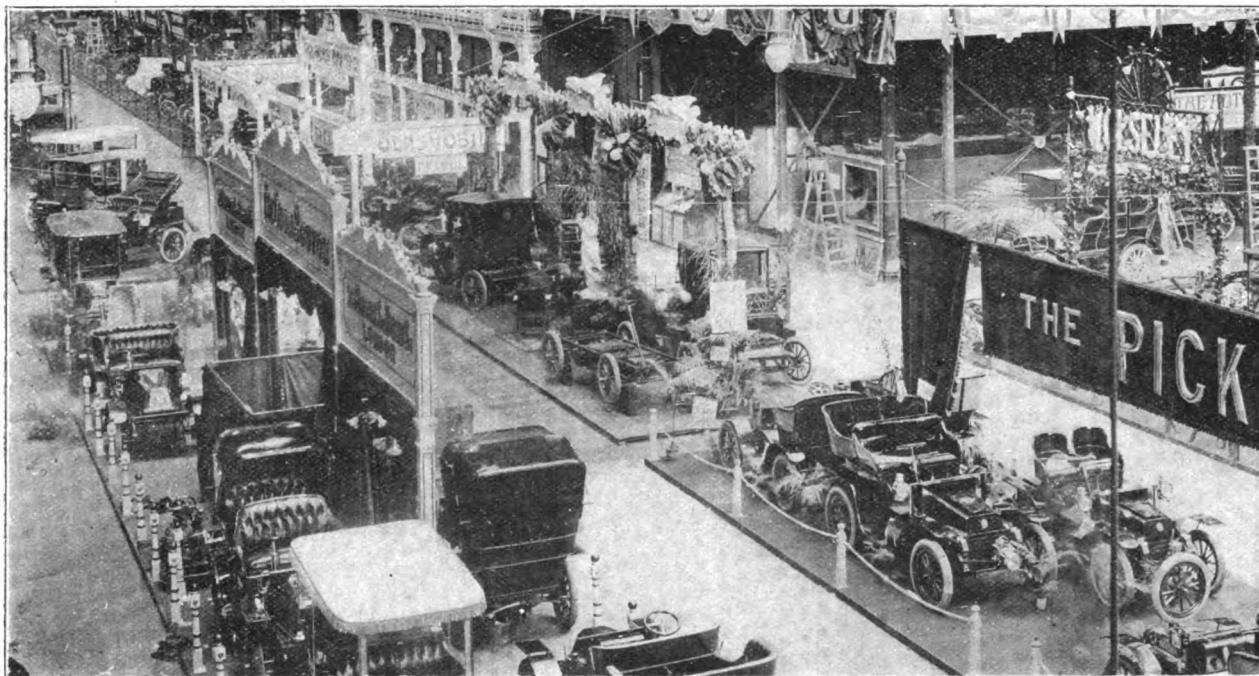


Photo by]

GENERAL VIEW FROM THE HANDEL ORCHESTRA.

[Russell and Sons.

On Friday last week the Automobile Exhibition at the Crystal Palace was opened to the public, and will close to day (Saturday).

HEAVY STEAM VEHICLES.

The Straker Steam Vehicle Company exhibit a standard 5-ton chassis without body, a 5-ton brewers' wagon, a 5-ton steam wagon with hinged, drop-sided body, suitable for the conveyance of general merchandise, and fitted with wooden wheels; and a new wagon constructed to carry seven tons and draw a trailer carrying three tons, thus dealing with a total load of ten tons. The standard 5-ton wagon is approximately 18 ft. long by 6 ft. 6 in. in extreme width. It is designed to carry a net load of five tons at a maximum speed of seven miles an hour, and to be capable of ascending gradients up to 1 in 6 on ordinary roads, and to draw a trailer carrying an additional load of two tons on fairly level roads, if required. The boiler is of an improved water-tube type, and contains seventy square feet of heating surface. The working pressure is 205 lbs. per square inch. No rivets being employed in the construction, it is very easily taken apart when it is necessary to do so for the purpose of cleaning out. The boiler is placed in the centre of the front of the vehicle, the fittings being arranged within easy reach of the driver. A superheater is attached to the fire-box for dealing with high pressure steam, and a reheater for rendering the exhaust steam invisible. Coke fuel is used exclusively, the fire being fed through a central down-take, regulation being obtained by the damper fitted at the base of the funnel. The boiler is fed either by an injector or by means of a gear-driven plunger pump off the engine crankshaft. The engine is of the compound open type, having cylinders 4 in. and 7 in. diameter by 7 in. stroke, fitted with single eccentric reversing gear. A bye-pass is arranged for admitting high pressure steam into the low pressure cylinder when starting, or obtaining high power if required. The engine is easily disconnected and can be run independently from the car. Two gears are provided, giving speeds from three to seven miles per hour. The engine crankshaft is extended in square section and carries a steel sliding double pinion to be thrown in and out as required. This pinion meshes with the steel gear wheels mounted on the countershaft, which is connected with the rear live axle by a strong roller chain. A special arrangement is provided on the end of the back axle, so that a locking pin can be instantaneously inserted for connecting up both wheels in the event of it being required, no matter in what position the wheels may be. The road wheels are made of mild steel, the hubs being cast in iron by a special process. The diameter of the driving wheels is 3 ft. 6 in. by 9 in. wide, the tyres being $\frac{3}{4}$ in. thick. The front wheels are 2 ft. 6 in. diameter by 5 in. wide, having tyre plates $\frac{3}{4}$ in. thick. A galvanised iron tank is provided of the capacity of 140 gallons, with the usual water lifter, etc. The steering is effected by worm and segment, actuated by an inclined hand-

wheel. The frame is constructed of steel channels. A powerful block brake actuated by screw and crank lever from the driver's seat is fitted; a second brake is obtained by reversing the engine. A double bunker is arranged in the front portion of the vehicle, capable of carrying sufficient fuel for about six hours' work. The general construction of the 7-ton vehicle is identical with that of the 5-ton wagon, with the exception that it is heavier and more solidly built. This vehicle has been designed to carry a net load of 7 tons and to draw a trailer with an additional three tons. The maximum speed on the level is seven miles an hour, and it will ascend gradients when fully loaded up to 1 in 8. The total length is 21 ft. 6 in. over all, the wheel base being 11 ft. 6 in. The boiler contains 77 square feet of heating surface. The engine is of a particularly powerful type, giving off about 60 i.h.p.; the dimensions of the cylinders being 4 in. and 7 in. diameter by 9 in. stroke, and the normal speed 400 revolutions per minute. A careful examination of the Straker exhibits shows that all the machines are designed with a view of obtaining readiness of access to every part, and that they are of extremely sound and simple construction.

Another firm devoting considerable attention to the demand for heavy steam vehicles is Messrs. Jesse Ellis and Company, Limited, who exhibit a steam lorry capable of carrying a load of five tons. It is intended for the Obbu Sugar Factory of the Indian Development Company, Limited, at Behar, India. The Ellis wagons have already been described in the *Journal*, but it may be mentioned here that the engine is of the horizontal compound type, with high and low pressure cylinders, and that the boiler is of the fire-tube type, and works at a maximum pressure of 200 lbs. per square inch. The engine and boiler are mounted on a patent expansion frame connected with the front and hind axles. Dr. A. W. Brightmore again shows the 5-ton steam lorry of which we gave a brief description in our issue of the 24th ult. The vehicle is attracting a considerable amount of attention, and we hear that a good many enquiries from probable users have been received. Messrs. W. Tasker and Sons, Limited, have on view a useful miniature traction engine intended to replace horses in the drawing of heavy loads on existing wagons. It is of 15 to 17-h.p., and is capable of hauling a load of three tons at an average speed of six miles per hour.

Three different types of heavy steam wagons are shown by the Thornycroft Steam Wagon Company, Limited—a 3-ton dray for brewers' use, a standard 3½-ton tip-wagon, as supplied to many municipal authorities, and an interesting Colonial lorry, which is provided with a specially large boiler for using inferior coal or wood as fuel. The latter is a relatively new type, capable of carrying a load of four tons, and is throughout built stronger than the standard vehicle. The wheels are made entirely of steel, and are of larger diameter. The tyres are 12 inches wide, and are provided with diagonal cross strips. The gearing is enclosed in

dust-excluding, oil-tight gear case; the engine develops up to 45-h.p. A recent improvement in the boilers, an example of one of which is displayed, is the fitting of hinged firebars, these doing away with the old clinker holes.

STEAM CARS.

The traditional methods of American steam vehicle construction have been swept aside in designing the 1903 touring car of the White Steam Car Company, shown in Fig. 1, and which forms one of the novelties of the show. It bears not the slightest outward resemblance to the White car that has become so familiar during the last year or so, but closely resembles the now standard type of petrol car. It is fitted with a compound engine, developing 10-h.p., and placed in front under the bonnet. The White semi-flash system of steam generating is, of course, employed, and water and petrol tanks of ample capacity—holding fifteen and ten gallons respectively—are carried, the use of condensers doing away with any necessity for frequent refilling of the former. The arrangement of the tanks and other impediments is so made, the bonnet in front especially conducing to this end, that there are no unsightly protuberances to mar the harmony of the lines or be in the way. The engine is mounted in the frame in the same position as the petrol engine of a Panhard car, the power being transmitted through a universally-jointed longitudinal shaft to a rear live axle. The boiler is placed beneath the front seat, and the exhaust gases find their way out on each side of the body. The exhaust steam is led to the condenser in front, and the water from it is pumped back to the main tank. Two side levers are fitted as in a petrol car; one enables the cut-off of the engine to be varied, and its direction of rotation to be changed; the other lever operates band-brakes acting upon the hubs of the rear wheels. A foot-brake, which acts upon the longitudinal shaft, is also provided. The car has a wheel base of 6 ft. 8 in., and a tread of 4 ft. 8 in., 30-in. artillery wheels and 4-in. tyres. The extreme length of the car is 10 ft., the width is 5 ft., and the weight, with tanks filled, about 15 cwt. The car is designed to seat four passengers comfortably, the *tonneau* body being of the roomy high-back type. The White Company also stage a couple of their two-seated Stanhopes, of which a full description

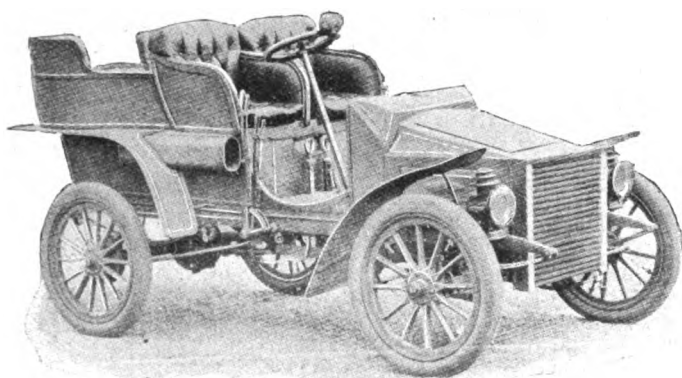


FIG. 1.—THE WHITE STEAM TONNEAU.

was given in our report of the 1902 Agricultural Hall Show, and two of the White delivery vans similar to that being used in London by the G.P.O. authorities, and of which an illustration was given in our issue of the 10th ult.

In addition to the Toledo steam cars described and illustrated in our issue of the 24th ult., the Victoria Carriage Works, Ltd., have on view a 7½-h.p. vehicle, fitted with a Surrey phaeton body, having seating accommodation for four persons.

The Gardner Serpollet Chief Depot make a large display of Gardner-Serpollet cars of British construction throughout. Of these four are of the 6-h.p. type, and are shown in addition to an equal number of the 12-h.p. model. The vehicles displayed are representative of the various forms of body usually supplied by the manufacturers, although they have special facilities by which the wishes of purchasers can be met in this respect. One of the 6-h.p. vehicles is a double phaeton in natural walnut, and has a brass bonnet in front, and a sloping dashboard. The other 6-h.p. car has a handsome Limousine body, and is torpedo fronted. Of the 12-h.p. vehicles one is fitted with a tonneau body with upright tank, and the other is a roomy char-a-banc accommodating nine persons. The char-a-banc has a polished brass upright tank forming the dashboard. Special attention appears to have been paid to the carriage work, and to the accessibility of all parts of the mechanism. We learn that it has not been found necessary to make any important changes in the construction or arrangement of the machinery. Several minor improvements have, however, been made, these including the closing in of the safety-valve on the dashboard, an alteration in the burner, which can now be detached without removing any nuts; and the rendering of the engine absolutely steam-tight. The fuel used is ordinary lamp oil. The engine has four single-acting cylinders, which are arranged in pairs on either side of the crank chamber, and which work direct on to the common central crank shaft. The power is taken direct from the engine shaft to the back axle by a chain, no change-speed gear of any kind being necessary. Although nominally of 6 and 12-h.p.,

the generators and engines are capable of developing considerably greater power. For short periods, such as on bad or hilly roads, they may even be made to give as much as 25 and 35 h.p. respectively.

A large display of steam cars is made by the Locomobile Company of Great Britain, Ltd., including a number of their well-known standard patterns. An interesting vehicle is the 8-h.p. touring car, which has been made much heavier and stronger than the standard type. Both boiler and burner are on the same principle as the other cars; the former is 16 in. in diameter. The car is fitted with specially large water and petrol tanks, also with extra steam, air, and water pumps, and mudguards. We next come to a car seating four passengers, all facing the way they are driving. It is specially finished and upholstered, and is fitted with a 16-in. boiler. A special feature of this car is that it can have a covered-in top fitted, so converting it into a closed brougham. This top can be easily put on and off so that one can have an open car for day work, and a closed carriage for night work. Another car which is attracting attention is a four-seated vehicle, specially built to the order of Mr. Graham Harris, the well-known consulting engineer. This vehicle is fitted with a 10-h.p. engine, 16 in. boiler, steam air, and steam water pumps, special lubricators for the engine, etc. The whole of the running gear has been generally strengthened, and artillery wheels are fitted. The body is painted in white and gold, and upholstered in crimson leather, the general effect being very pleasing. Another new car is of the *dos-a-dos* style; it is fitted with a 10-h.p. enclosed engine, a notable departure being the adoption of wheel steering in place of the tiller. It also has wooden wheels, roller bearings, two independent brakes, and many other special features.

The brothers Stanley, who, it will be remembered by old motorists, were the introducers of the steam car, now known as the Locomobile, have recently again taken up the construction of steam motor-cars, and their vehicles are now being introduced into this country by Messrs. Joseph Cockshott and Co., Ltd. Superheated steam is generated by the boiler, a high degree of superheat being obtained without recourse to intensely heated metallic surfaces. The boiler consists of a copper shell bound by copper-plated steel wire. As the use of the traditional form of gauge glass is rendered almost prohibitive by the high pressures and degrees of superheat employed, the water glass has been discarded and an automatic indicating float has been adopted which instantly shows by the position of a small index on the right hand side of the driver whether the water level is low, normal, or high. This index can be read by the sense of touch, thus rendering a gauge lamp or mirror superfluous. In order to provide against the burning of the boiler by carelessness in the maintenance of the water level, a fusible plug device of a novel character has been adopted. One end of a small pipe is tapped into the boiler at a point near the bottom of the water space, and the other end communicates with the water space at a point a few inches higher. There is a small T in this pipe, which is closed with a plug of fusible metal. In the normal operation of the boiler there is a constant circulation of water through this pipe from its lower to its higher extremity, but if the water level falls below its upper termination the circulation ceases, the water evaporates from the pipe, and the fusible plug, previously kept relatively cool by the water circulation, immediately melts and warns the operator. The plug is accessible and easily replaced. Within easy reach of the driver are the valves controlling the main burner, pilot light, and pump bye-pass. The throttle is of the conventional form, but the reverse is obtained by means of a pedal. A distinct departure from the ordinary practice is found in the engine and transmission. The engine is of the double-cylinder horizontal type, the head being supported by a metal strap from the body, and the crank end being concentrically supported upon the live rear axle. A steel pinion on the crank shaft meshes directly with a phosphor bronze gear on the differential casing on the rear live axle. It is claimed that the combination of steel pinion and phosphor bronze gear secures the minimum of noise and wear. A detachable case completely surrounds the engine, transmission, and differential. The lubrication of the cylinders is effected by means of a mechanically forced-feed lubricator, operated by a ratchet and pawl mechanism. The brake, actuated by a pedal, acts upon an extension of the differential casing. The weight of the vehicle with tanks full is a little over 7 cwt. It is claimed that the Stanley car can cover 15 miles per gallon of petrol under fair conditions, and can travel 2 miles on each gallon of water, speeds up to 30 miles per hour being attainable. Messrs. Cockshott also show a number of specialities for steam cars made by the Locke Regulator Company.

An example of the "Saracen" steam car, formerly known as the "Reading," is to be seen on the stand of Mr. J. L. Sardy. It has the neatly finished *dos-a-dos* body seating four persons. The boiler is of the fire-tube type, 16 in. diameter, while the 5½-h.p. engine is of the double-acting variety, with simple link motion reversing gear. Three brakes, all double-acting, are fitted, the two on the rear wheel hubs being controlled by Bowden wire and independent of the usual differential brake. The throttle, the positive-locking reverse, bye-pass, independent air and water pumps and water lift (these last three being controlled by a single lever) are all conveniently situated under the driver's hand.

Several types of the well-known Weston steam cars are displayed by the Weston Motor Syndicate, among which we noticed one fitted with a canopy and a coolie seat at the rear, intended for use in India. To this end the boiler is fitted with a special burner adapted to use paraffin as fuel instead of petrol. Several modifications have been introduced in the 1903 models, including the introduction of a super-heater between the throttle valve and the boiler. This was described and illustrated in one of our recent issues. The cars are now fitted with an automatic lubricating

pump and with a steam air-pump. The latter is fitted below the scotload, and enables the driver to obtain the required air pressure by merely turning on a tap, thus obviating hand pumping.

The Speedwell Motor Company make an interesting display of the French Gardner-Serpollet steam carriages, amongst which are a 6-h.p. vehicle fitted with latest improvements, including the improved condenser, enabling the standard touring type to run 175 miles on one filling of water; a 10-h.p. car, similar to the 6-h.p., but with larger engine and generator; the 6-h.p. landaulette, convertible to an open or closed carriage, illustrated in our issue of the 24th ult.; a light 12-h.p. carriage, with detachable canopy; a light two-seated "speed" car, and the 40-h.p. chassis which was exhibited at the Paris Salon. The new features of the 1903 Serpollet cars have, of course, already been dealt with in these columns, so that a further lengthy reference is unnecessary. We may, however, refer to an entirely new type of 20-h.p. car which, outwardly, closely resembles a petrol car. The boiler in this vehicle is specially arranged, there being no visible flue or chimney, a system of forced draught to the generator having been adopted.

PETROL CARS.

The display of Messrs. De Dietrich and Company is the same exhibit that shown at the recent French Salon, the stand having been sent over

types of bodies (tonneau, Siamese phaeton, wagonette) are all displayed, in addition to several new forms. Among these we may mention the 20-h.p. omnibus intended for winter use and station work generally; a 10-h.p. landaulette, having seats for four persons, including the driver, one side of the front seat swinging open to give access to the rear seats; a 10-h.p. Siamese phaeton fitted with canopy and glass weather screen, painted white with buff leather upholstery; and the 30-h.p. fast touring tonneau illustrated in our last issue. The driving wheels of this car are covered with the latest pattern of Wilkinson non-skidding treads, to which we hope to refer in a later issue. On the stand is also shown the 45-h.p. racing car which made its appearance last year, and a 4-h.p. combined petrol-motor and dynamo. The Wolseley Company are making a speciality of the latter; it is of the type of which they have supplied a number to the War Office for searchlight work, and is well adapted for lighting up small country houses, its capacity being thirty 16-c.p. lamps. Altogether the display is one which does credit to the Wolseley Company.

A big display of M.M.C. cars is made by the Motor Manufacturing Company, Limited, ranging from the popular 8-h.p. voiturette to a powerful 20-h.p. car. The former has three speeds forward and reverse, and has recently been improved as regards the steering, which is now of the irre-

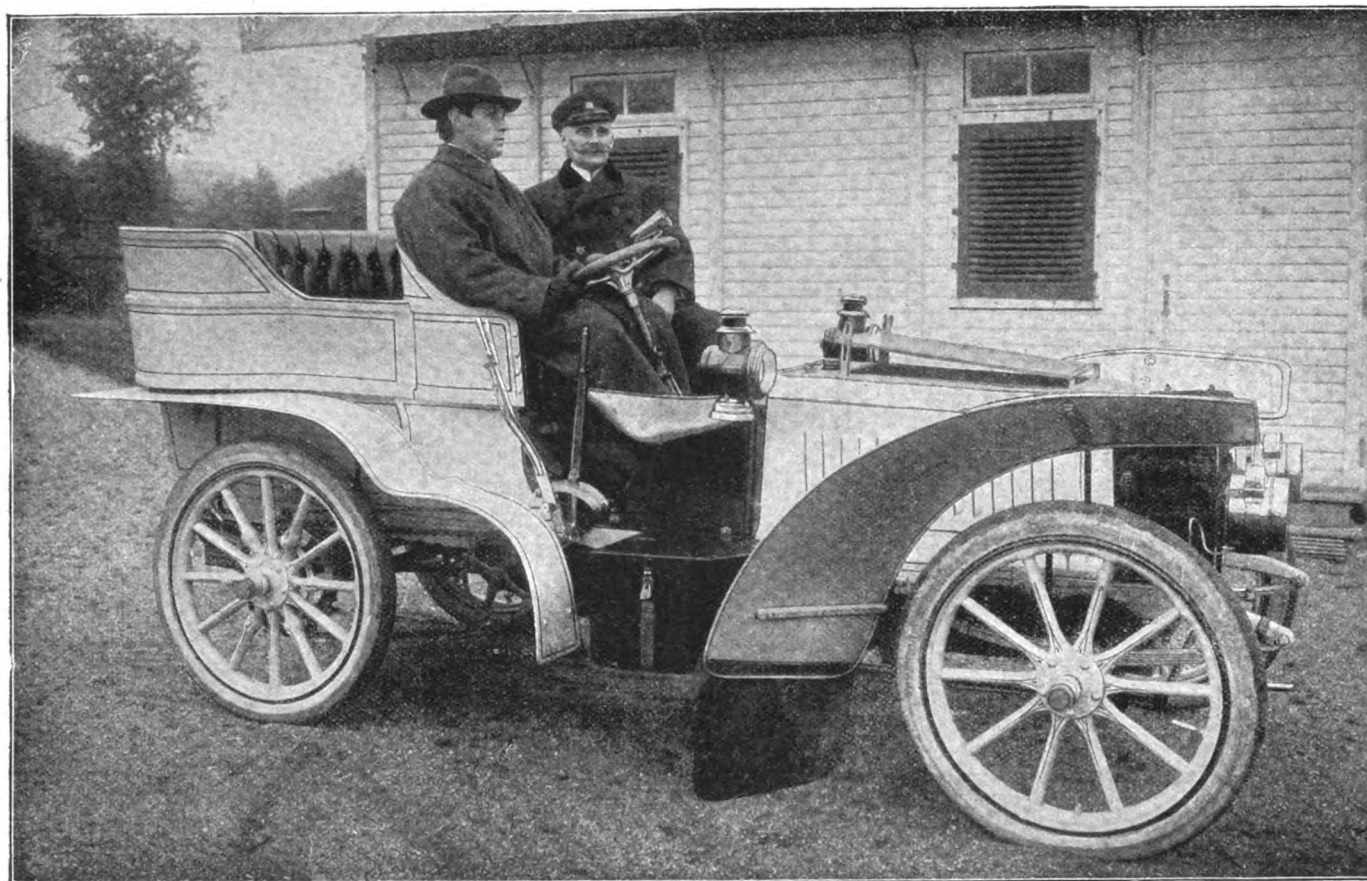


FIG. 2.—THE DE DIETRICH (TURCAT-MERY) 16-H.P. CAR.

[Das Fahrzeug.]

from Paris. The most attractive item on the stand is the chassis, fitted with a 16-h.p. four-cylinder engine. The important features of the De Dietrich (Turcat-Mery) car are the magneto ignition, the new clutch, the patent throttle governor, and the arrangement adopted in connection with the change-speed gear. Among the complete cars we noticed a handsome 24-h.p. vehicle with Limousine body, by Kellner of Paris; it is arranged to carry six persons, and is specially adapted for station and country work. Close by a 16-h.p. car (Fig. 2), with a Roi des Belges body by Rothschild, is shown, finished in dark green and red. A 12-h.p. four-cylinder standard tonneau, painted in dark green, and a 10-h.p. two-cylinder carriage, finished in dark red, also combine to make Messrs. De Dietrich's exhibit an attractive one.

Considerable interest has been shown during the week in the large and interesting display of cars made by the Wolseley Tool and Motor Car Company, Limited. Prominent among the exhibits is the incomplete chassis of a 50-h.p. four-cylinder car, the frame of which is an exceptionally fine piece of work, being made from one long length of pressed nickel steel, bent at the four corners to form the whole frame, and having only one joint. Altogether close upon twenty cars are shown, ranging from a 5-h.p. three-seated vehicle to the 50-h.p. chassis referred to above. The standard

versible type. The wheel base has been lengthened and extra strong chains adopted. The gear is very easily changed, the pairs of gears being always in mesh. One of this type of vehicle is shown fitted with an American buggy top, and is intended for South Africa. The M.M.C. 10-h.p. two-cylinder car is now fitted with a new closed-end motor, a patent governing device acting on the induction pipe. In connection with the latter it may be mentioned that when the throttle valve is closed, shutting off the supply of mixture, an auxiliary air-valve is opened, thus allowing cold air to be drawn in and assist in keeping the valve chambers and cylinder cool. The vehicle has three forward speeds, the gears being always in mesh, controlled by one lever, equal 32 in. wheels, water-cooled brake, and foot accelerator. The design and finish of the carriage body and upholstery is well up to the M.M.C. standard. The largest car on the stand is a 20-h.p. four-cylinder vehicle, with the latest type of closed-end motor, governed on the induction. It has a foot accelerator, which cuts the governor right out; three speed and reverse; water-cooled brake; and mechanically-operated lubricator for the engine. It is geared to attain speeds up to 45 to 50 miles per hour on good roads. The particular 20-h.p. car we examined has a special designed phaeton body, each of the four passengers being provided with a "bucket" seat.

One of the most striking displays is that of Messrs. S. F. Edge, Limited, who make a big show of Napier cars. The stand itself is quite a departure and attracts much attention, each car being shown in its own glass house, brilliantly illuminated from every direction. The chief points of the Napier car are so well known that it is hardly necessary to recapitulate them, but for those who are not familiar with these carriages some of the chief features to be noted are the following:—All the new types are fitted with adjustable steering, enabling any play which may take place in the steering, after some considerable use, to be immediately taken up. A ball-bearing thrust block is fitted to take the side thrust of the main bevel gear. The system of throttling the admission of the gas is actuated both by hand and by foot, the hand-throttle lever being conveniently situated under the steering wheel, so that the speed of the car can be reduced from top speed down to walking pace, simply by cutting off the supply of gas and without changing the gear, at the same time making the car absolutely noiseless. The change gear-box is made entirely of aluminium, and is oil and dust tight; the method of getting at this gear box is well worth attention, being by means of a taper sliding lid held in position by a small set screw: in a few seconds the whole of the gear can be exposed to view without any part of the body being removed, the foot-boards of course excepted. Four speeds forward and a reverse are provided. The contact-breaker is now fitted on the dash-board, being driven from the half-speed shaft by means of a chain. The present system of radiation is exceedingly simple, con-

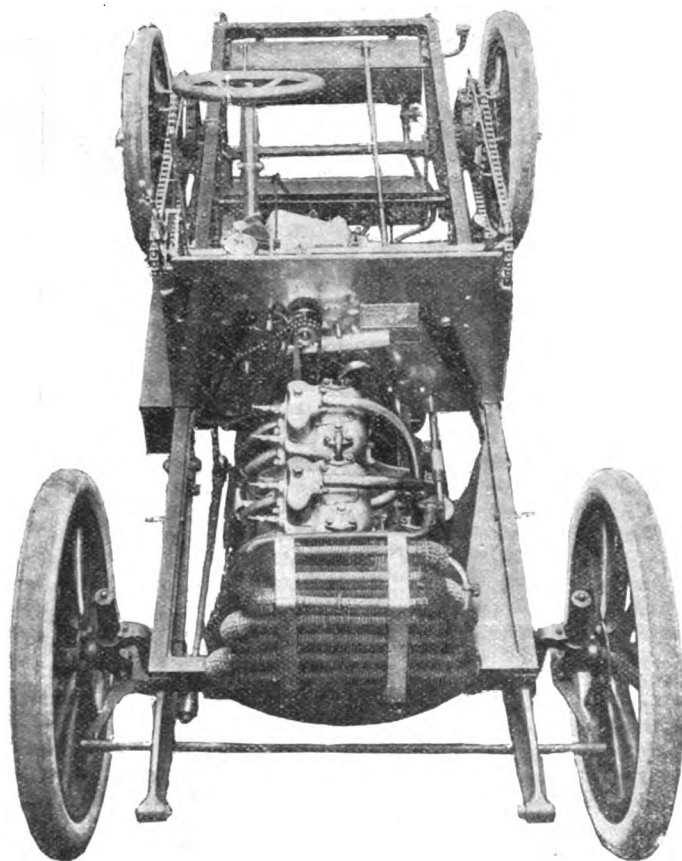


FIG. 3.—THE 12-H.P. NAPIER CHASSIS.

sisting of a long coil of thin tubing with radiating gills. The water passes through this with minimum resistance, and keeps perfectly cool. In fact, it is claimed that the engine will run all day without steaming or wasting any water. A forced-draught system can be fitted at an extra cost if desired. A useful device is the fitting of the accumulator boxes with a double interrupter plug switch which enables the driver on getting down from the car to take out the plug, thus preventing anybody from starting the vehicle. The water-circulating pump is of new design, made entirely of aluminium; there is also now an arrangement provided by means of which the clutch can be very easily adjusted if wear has taken place from one cause or other. We now come to the cars exhibited on the stand. First of all may be mentioned a 12-h.p. chassis (Fig. 3), one of the new light types. This is fitted with a four-cylinder motor, developing not less than 15-b.h.p.; one of the great features claimed for this motor is its elasticity, one being enabled to run it from a few hundred revolutions up to a very high speed. This chassis, which weighs 12½ cwt., is fitted with the new Napier forced-draught circulation, doing away with the extra weight of the water tank. Next comes the 20-h.p. chassis, built for a very powerful touring carriage to the order of Mr. Lionel de Rothschild. This motor develops not less than 30-b.h.p., and the carriage is capable of a very high speed, although at the same time it is extremely quiet. Of the finished carriages, the magnificent 16-h.p. built to the order of the Right Hon. A. J. Balfour may be

referred to; it is fitted with a roomy and comfortable body to carry five in the back and two in the front, and extra large wheels to make the car higher and free from dust. A dust hood is also fitted and boxes over the side wings—a departure from the usual practice of fitting baskets. The length of frame in the 16-h.p. car, from the dashboard to the back of the frame, is 7 ft. 6 in. We next come to two examples of 12-h.p. light carriages. The first is finished in green, with blue mouldings picked out with fine white lines, with green upholstery; it is built to the order of Mr. S. H. Pearce, the well-known motorist. The other 12-h.p. car is fitted with a standard tonneau body for four people, and is noticeable as being the vehicle which attracted attention at the recent Paris exhibition. Last, but not least, we come to the actual Napier car on which Mr. Edge won the Gordon Bennett cup last year.

Messrs. Waddington and Co. display the 6½-h.p. and 9-h.p. cars shown at the Stanley Motor Show, and briefly described in our last issue. They

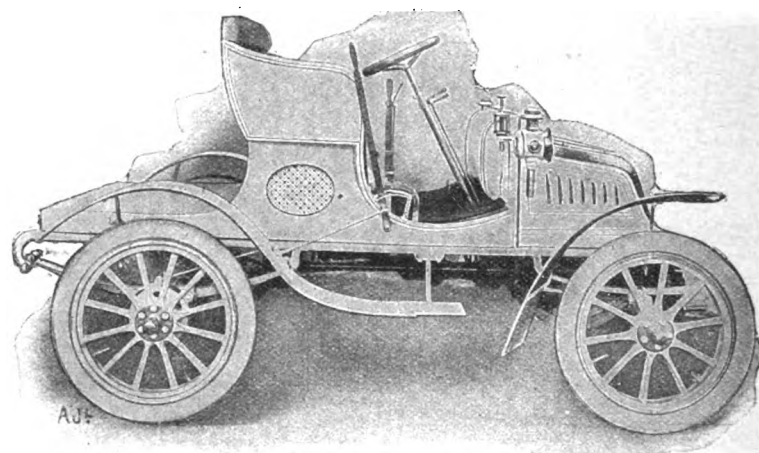


FIG. 4.—THE WADDINGTON 6½-H.P. VOITURETTE.

also have on view a 12-h.p. tonneau car on standard lines. It is fitted with a two-cylinder Herald motor, governed on the exhaust. It has seating accommodation for five persons, and has three speeds ahead and one reverse, the power of the engine being transmitted direct on the top speed. A 3-h.p. motor-bicycle is also shown, while attention may be drawn to the Waddington sparking plug, which sells at an exceedingly low price.

The new Pritchett and Gold petrol car in general arrangement follows the lines of the Panhard type of automobile. The tubular frame carries in the fore part a Blake four-cylinder vertical motor, fitted with water circulating pump and radiator. Three speeds forward and a reverse are available, the power being transmitted from the gear box to the rear axle through a differential shaft and two side chains. The car is shown in an uncompleted condition, but when finished it will have a roomy tonneau body.

At the same time we visited the stand of the Rex Motor Manufacturing Company the car exhibits were confined to two vehicles—a 10-h.p. tonneau (Fig. 5), and a new 10-h.p. brougham. Both have the engine in front

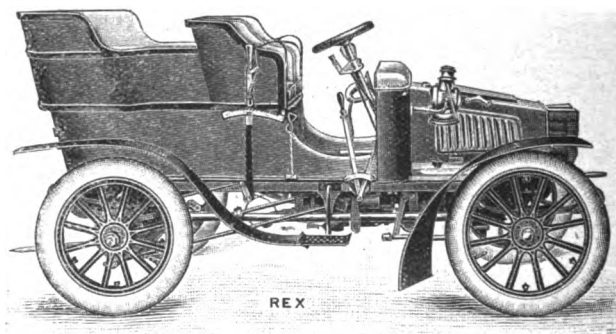


FIG. 5.—THE "REX" 10-H.P. TONNEAU.

under a bonnet, driving the rear axle through a clutch, three-speed gear box, and bevel gear. The vertical single-cylinder motor has a diameter of 115 mm., and a stroke of 115 mm., and runs at a maximum speed of 1,200 revolutions per minute. The road wheels are of the artillery type, shod with 32 by 3½ inch tyres. The brougham has a detachable top which fits on to the tonneau. The top is extended forward so that a detachable glass front can be provided, this converting the car into an all-weather vehicle.

The New Orleans cars have always been a very popular type in this country, and, judging from the latest models, they should continue to stand high in public favour. The New Orleans Company only show two cars—a 9-h.p. double-cylinder vehicle with tonneau body and three speeds and

reverse, and a 14-h.p. four-cylinder car having four speeds forward in addition to one backward motion. One of the chief improvements in this vehicle is in the change-speed gear, the change from one speed to another being made without having to pass through the other two speeds. The 14-h.p. car exhibited has been built to the order of Mr. Mark Mayhew; it has a highly-finished tonneau body, painted green and black, doors being fitted to the front seat to protect the driver from side draughts.

Two types of American petrol cars are shown by the Petrol Power

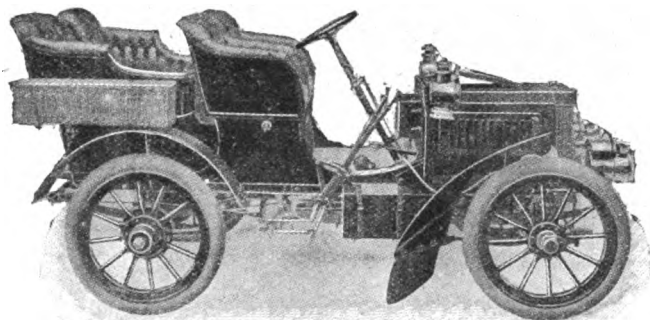


FIG. 6.—THE 20-H.P. PEERLESS CAR.

Company—the Rambler and the Peerless. The former is shown in Fig. 7 and the improvements in the 1903 model, comprise the adoption of a 6½-h.p. motor, and artillery wood wheels in place of those of the cycle type. Fig. 6 illustrates the 20-h.p. Peerless car, the principal features of which were described in our report of the Stanley Motor Show.

A new exhibitor at the London shows is Messrs. Rice and Company (Leeds), Limited, who have on view a 12-h.p. "Korte" tonneau, which comprises a number of interesting features. The engine is of the twin-cylinder vertical type, the bore of the cylinder being 105 mm., and the stroke 130 mm.; it is provided with extra large bearing surfaces and centre bearing between cranks. The crank shaft is made of nickel steel, as are the connecting rods. The valves are of large diameter and are easily got at by the

protecting them from grit and dust. The frame is constructed of channel steel, strengthened with steel plates. The road wheels are 30 in. diameter, shod with 90 mm. tyres. The steering is of the worm and worm sector type. A band brake is provided on the countershaft, and two powerful inside expanding brakes are fitted to the back hubs; they will act in either direction and are quite clear of the wheels when not in use. The wheel base of the car is 7 ft. by 4 ft. 3 in., and the approximate weight is 15 cwt.

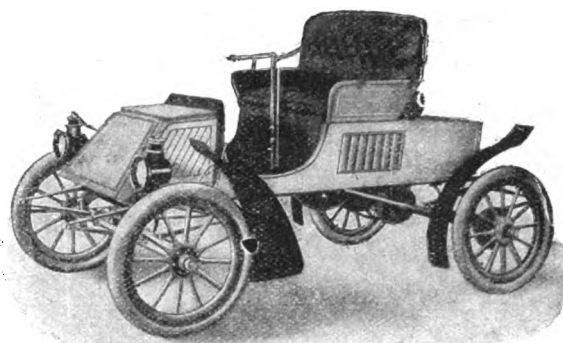


FIG. 7.—THE 1903 RAMBLER CAR.

The exhibit of the Auto-Carriage Company, Ltd., comprises three finished cars and a chassis of the latest 12-h.p. Bardon type. This system has already been dealt with in the *Journal*, and it may be remembered that the principal feature is the employment of a two-cylinder horizontal motor, each cylinder having two pistons, with a central explosion-chamber. A number of improvements have been effected, with the result that the Bardon cars are now claimed to be both silent and vibrationless. The induction and exhaust valves are both mechanically operated by one cam shaft. The speed of the motor is controlled by a centrifugal governor acting upon a specially-designed throttle on the induction pipe. The ignition is effected electrically, the current being supplied by an accu-

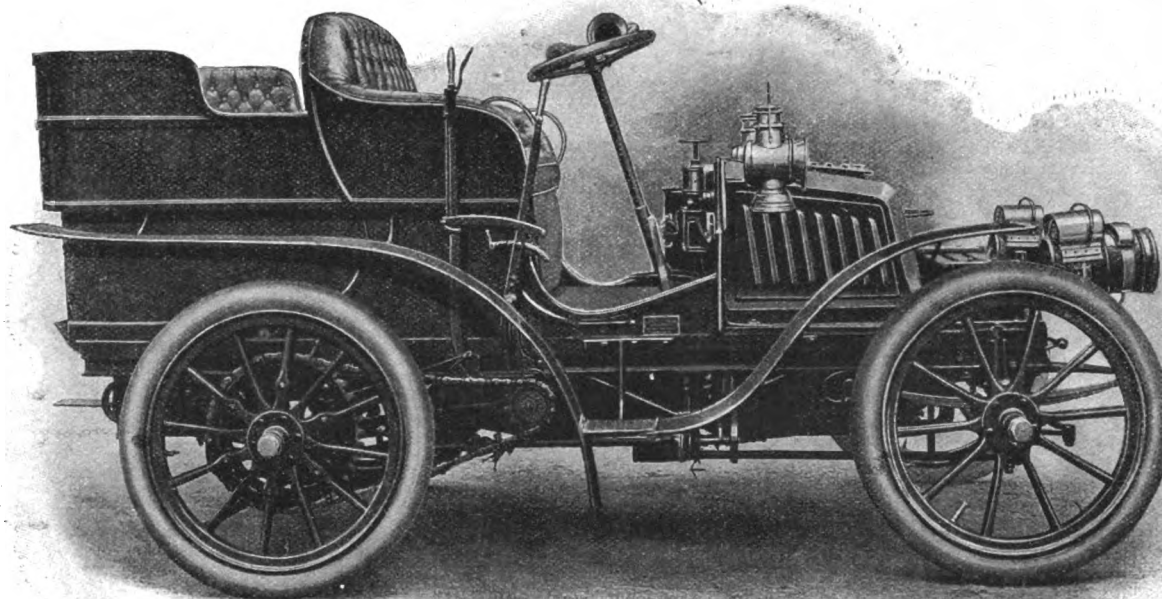


FIG. 8.—THE 12-H.P. BARDON TONNEAU.

removal of two nuts. The engine is fitted with Longuemare carburettor and governed by a throttle valve. The contact breaker is mounted on the dash-board; it is constructed so that all loose and shifting wires are avoided. The pump is also mounted on the dash-board; it is of large diameter, driven by spur gearing, and fitted with pressure gauge showing the pressure in the circulation pipes and radiators. A Renold silent chain conveys the power of the engine to the gear box, the driving shafts being parallel. The change-gear is of the usual sliding type and gives four speeds and reverse. All the bearings in the gear box are fitted with large oil wells and ring lubrication. The power is further transmitted from the gear box to the back wheels by two side roller chains; they are entirely encased in leather gear-cases, thus

mulator, or by a magneto machine as desired. All the cars are fitted with an ingenious device whereby "backfires," when starting the motor, are rendered impossible. A foot accelerator and a hand throttle are provided, whilst the timing of the ignition can readily be advanced or retarded by the usual method. These arrangements combined with the perfect balance of the moving parts permit great variations in the speed of the motor, which can, we are informed, be run at any number of revolutions between 200 and 1,100 per minute. The clutch has been modified, and is now arranged to be adjusted by means of only one nut. The cars exhibited include a tonneau seating four persons, the body being painted dark green and upholstered in dark green leather (Fig. 8); a 12-h.p. Limousine seating

five persons, fitted with canopy and wind-screens, and a 12-h.p. tonneau painted dark blue and upholstered in pigskin. To the latter, a novel dust-screen is attached at the rear; the arrangement has the advantage that, while protecting the passengers in the tonneau, the door can be opened and closed in the ordinary way.

The Maudslay Motor Company's exhibit consists of three complete cars and a chassis. One of the cars is fitted with a convertible omnibus body (Fig. 9), of which the firm is making a speciality. It is designed to meet the requirements of country gentlemen whose places are some distance

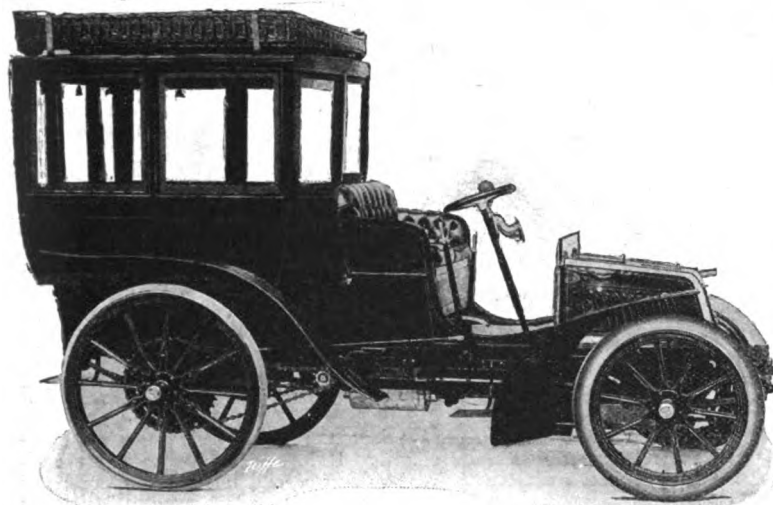


FIG. 9.—THE MAUDSLAY OMNIBUS.

from the railway; in its wagonette form it serves as a roomy touring car, whilst the omnibus top makes it specially suitable for night work. It is fitted with their Maudslay 25-b.h.p. three-cylinder vertical balanced engine, and the mechanism is in all respects similar to that of the car which took part in the Reliability Trials last year. The car is fitted with a tonneau body of improved design, and is geared high for fast touring work. It has more accommodation for luggage than is usual in this form of vehicle, and two hinged seats are fitted in the front corners of the tonneau, so that six passengers can be carried in an emergency. The mechanism is also of the 25-b.h.p., three-cylinder type. Removable casings of sheet aluminium are fitted which completely protect the whole of the mechanism from mud and dust below the car, a standard fitting on all the Maudslay cars. The third car is fitted with a Lonsdale wagonette body, a useful type when it is not desired to carry much luggage, complete protection from the weather being the object in view. The chassis illustrates the new features of the 1903 type, which embodies the latest developments in English and Continental practice. The inlet valves of the motor are mechanically actuated, and both inlet and exhaust valves are placed in line on the cylinder head, so that they are easy of access. A fan-cooled radiator is fitted, and forced lubrication is provided throughout, the oil being circulated by a special design of geared pump. We notice that the composite frame, constructed of rectangular solid drawn steel tube, into which well-seasoned ash is driven, is retained in the 1903 patterns. The triple cylinders of the engine, together with their combustion chambers, are a single casting, ensuring freedom from leaky joints and allowing the use of a high compression. The water jackets are constructed partially of aluminium in order to secure lightness. The normal speed of the engine is 800 revolutions per minute. With the foregoing exceptions, the details of the car are similar to those described in these columns early last year, they having been found to give satisfactory results in practice. The Maudslay Company operate their change-speed gear by means of a disc with cam grooves, on the lines of that in the new Mercedes cars. This system is one they had in use on their last year's cars, and they, therefore, not unnaturally, feel somewhat pleased at seeing their example followed by the well-known German company. In the Maudslay disc one cam groove gives the four forward speeds, and the second groove the reverse motion.

The General Motor-Car Company, Limited, of Norbury, is one of the newest concerns to enter the automobile industry, and judging from the rapid progress made is likely to attain a good position. Foremost among the exhibits is a special 40-h.p. racing car, which has been built by the company for Mr. W. G. Crombie, who, we understand, intends to enter it for the Nice races. The car has a very long wheel base—7 ft. 6 in.—and the seat is placed much further back than usual. A feature of the car, which equipped for racing only weighs 700 kilos., is the wind-cutter with which it is provided; this extends from a point and is brought well up to the driver's seat. On this stand is also to be seen a neat little tradesman's delivery motor-car, with 4½-h.p. motor, belt and chain drive; this is intended to carry a load over 200 lbs. and two people at a speed of twelve miles an hour. A neat two-seated Stanhope for doctor's use is fitted with a 4½-h.p. Aster motor; it has two speeds, the transmission being by a belt, and a single centrally-located chain. The chassis on the stand is fitted with a 4½-h.p. engine with honeycomb radiator of the latest type, and three speeds and reverse. The price of these little cars is relatively very low, so that they should soon find a large clientele.

The "Victrix" is the name of a neatly designed two-seated car, of which Messrs. Farman Freres are making a speciality. It is driven by a 6-h.p. De Dion engine, located in the fore part of a frame built up of steel tubing and wood. The transmission is by means of a cardan shaft and bevel gear to the rear live axle, and when driving on the high gear the power is not only conveyed direct, but, as in the Mors, the secondary train of wheels in the gear box is entirely disengaged. Three forward and one reverse speeds are provided, all controlled by one lever. In view of its up-to-date character and reasonable price, the "Victrix" should quickly become a popular type. On the same stand are shown a 11-b.h.p. twin-cylinder Clement car, and specimens of the 12-h.p. and 24-h.p. "Victrix" petrol motors. These have respectively two and four vertical cylinders. The details appear to have been well thought out, means being provided for adjusting the tension of the exhaust valve springs, while we noticed that taps were fitted to the cylinder jackets for drawing off the water when necessary, as in frosty weather. The normal speed is 640 revolutions per minute, but the engine can be accelerated up to 900 revolutions. The governor acts on the admission close to the carburettor.

The "Firefly" cars exhibited by the Firefly Motor Company comprise examples of the 6-h.p., 9-h.p., and 12-h.p. models. The 6-h.p. tonneau is fitted with a De Dion engine, water-cooled by pump and radiators. Three speeds forward and one reverse are available, the top speed being direct. The power is conveyed by bevel gear to the rear live axle. A double-acting band brake is mounted on the propeller shaft, actuated by pedal; also internal expanding brakes on the rear hubs, operated by side lever; the application of either brake throws the engine out of gear. The 9-h.p. Firefly twin-cylinder car has three speeds forward and reverse, with a direct drive on top speed. The connection between the gear box and the rear wheels is by a countershaft and side chains. Cardan joints are fitted between the gear box and the sprockets and between the gear box and the clutch, to obviate unnecessary wear in gear box. The frame is supported on the axles by long front springs and a transverse spring at the rear. A 12-h.p. car on similar lines is also shown, while well-finished examples of the 9-h.p. Renault and 9-h.p. Clement cars may also be inspected. The Firefly Company are also introducing a four-cylinder vertical motor with mechanically operated inlet valves, all the valves being actuated by one cam shaft.

The Duryea Motor Company display six or seven 10-h.p. cars, including "Rumble" phaetons, tonneaus, and a phaeton fitted with a detachable brougham top (Fig. 10). It is entirely enclosed, and has been designed for winter use, particularly by doctors. The Duryea cars have already been described in these columns, but it may be mentioned that the principal mechanical features are a triple-cylinder balanced motor developing 10-b.h.p., one-piece nickel steel live axle, direct chain



FIG. 10.—THE DURYEA BROUGHAM.

transmission without countershaft, throttle control, irreversible steering without worm gear, magneto ignition, natural water circulation without pumps, and one hand control. The changes in the latest models comprise a new condensing tank, with projecting ears at the rear of the body, a new detachable exhaust-valve seating, and an improved silencer. One of the phaetons on the stand has a body painted pale green, a replica, so Mr. Sturmev informs us, of one supplied to a gentleman, who specified that the body should be painted the same colour as the cover of the *Motor-Car Journal*.

The stand of Messrs. C. S. Rolls and Company has been the centre of much attention by reason of the fact that on it is shown the new Mors racer, which the Hon. C. S. Rolls may be expected to drive in this year's principal events. It is fitted with an 80-h.p. four-cylinder motor, and has a body of the form of an inverted boat, very similar to the Serpollet racer shown

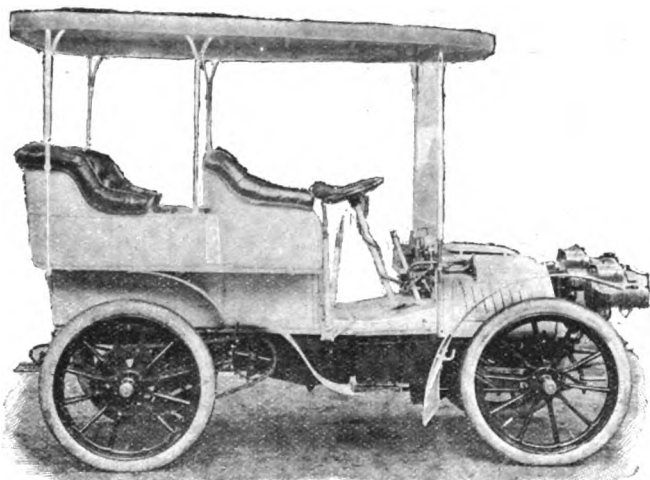


FIG. 11.—A 10-H.P. PANHARD—LORD DALMENY'S COMING-OF-AGE PRESENT—FITTED WITH DETACHABLE CANOPY AND SLIDING GLASS FRONT, SUPPLIED BY MESSRS. S. C. ROLLS & CO.

at the recent Paris Salon. Side by side with this monster is staged the identical Panhard car which won the Paris-Bordeaux race in 1895. How times have changed, to be sure! On the one hand we have an 80-h.p. car capable of a speed of 80 miles an hour, and on the other a little short-base vehicle with 3½-h.p. engine and tiller steering, which eight years ago startled the world by averaging a speed of twelve miles an hour. The remainder of the stand is devoted to a display of Panhard cars ranging in power from 7-h.p. to 15-h.p. Among these we may note a useful 7-h.p. van capable of carrying a load of 15 cwt. The van top is detachable and readily converted into a brake, thus forming a serviceable double-purpose vehicle for tradesmen's use. Doctors should be interested in the 7-h.p. Panhard phaeton with front hood and glass screen, and a spider seat at the rear. Body designing is receiving much attention at the hands of Messrs. Rolls, the 10-h.p. five-seated 'bus on a 10-h.p. Panhard chassis being well illustrative of this. The 'bus top can be removed by detaching four nuts, the vehicle being thus readily adaptable for town or country use. Finally, we may refer to the 10-h.p. Panhard with Roi des Belges body and canopy, a replica of the one which formed a coming-of-age gift to Lord Dalmeny, and of which we give an illustration in Fig. 11.

Fig. 12 illustrates the "Northern" petrol runabout which Messrs. Cockshoot are introducing into this country. The vehicle, which is of American construction, belongs to the single horizontal cylinder class of cars, with side spring suspension. The bore of the cylinder is 4½ in., and the stroke 6 in.; the normal speed is about 600 revolutions per minute, at which the engine develops 5-h.p. The admission and exhaust valves are both actuated mechanically. The helical gears on the cam shaft and crank shaft are enclosed in a dustproof case and run in oil. The carburettor is of the float-fed type; it is provided with a device to throttle the admission of air, and there is another valve between the carburettor and the inlet port. The water circulating pump is driven off the cam

shaft and forces the water through a radiator. Two forward speeds and a reverse, with direct or "free" drive on the high gear, are employed, the planetary type of variable speed gear being used. The pinions of the change speed device are made of brass and have a width of face of 1½ in. The wheel base is 10 ft. 9 in. All the wheels are 28 in. in diameter, and are fitted with 2½ in. tyres. The control devices consist of a steering tiller, the speed gear control lever,

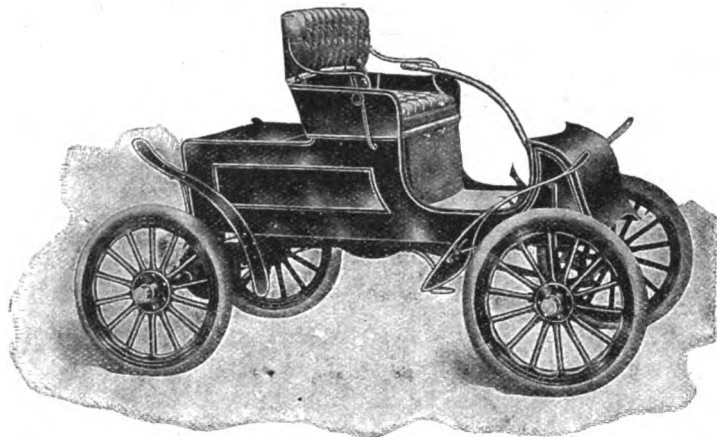


FIG. 12.—THE NORTHERN RUNABOUT.

an "accelerator" brake pedal and a pedal to relieve the compression when starting. The latter may be employed when coasting down long hills with the motor out of gear. The car weighs about 9 cwt., and can attain a speed of 25 miles per hour.

The Daimler Motor Company, Limited, again confine themselves to the construction of two types of chassis, and these of relatively high horse-power. For the coming season, the two standard types are fitted with four-cylinder engines, developing 22 and 14 h.p. respectively. The reliability of the four-cylinder motor fitted to the 1902 22-h.p. model, has induced the company to retain it for the present season, but they have discarded the use of tube ignition, and fit electric ignition only. A great improvement has been effected in the suspension of the engine, whereby the use of the usual under frame has been obviated, and a considerable reduction in weight secured. Another marked improvement is the new base chamber, the lower half of which can be readily detached when desired. The friction water-pump has been discarded for one driven by chain. The construction of the combined water-tank and radiator has been improved, and the system rendered more efficient than formerly. The wheel-base of the chassis has been lengthened to 8 ft.; the road wheels considerably lightened; and the grasshopper springs at the rear lengthened from 36 in. to 40 in. Special mention may be made of the new double-acting band-brake, which

is fitted at the inner side of the driving pinions on the cross-shaft. This brake is actuated by a pedal conveniently placed to the driver's right foot, and with its adoption the company dispenses with the band-brake formerly fitted to the extremity of the top gear-shaft. Another new feature is that the application of the band-brake no longer withdraws the clutch. another factor of safety being, it is claimed, thereby secured, as the engine can be used as a powerful brake at the same time as the sprocket brakes are applied. The lubrication has been considerably simplified, and now consists only of a small sight-feed lubricator leading to the cylinders and base chambers; the main supply of oil being retained under pressure in a special tank placed under the motor bonnet. The four forward speeds are actuated by a single lever, while a small second lever brings the reverse motion



FIG. 13.—THE 22-H.P. DAIMLER CAR BUILT TO THE ORDER OF EARL FITZWILLIAM, PRESIDENT OF THE YORKSHIRE AUTOMOBILE CLUB.

into play when desired. The most important of the new features in the 14 b.h.p. chassis is the fourth speed, which has been added. Last year this type of vehicle contained three speeds only, but in response to repeated applications the company have decided to provide a fourth speed in the new type. The four-cylinder motor remains practically as before. Its principal features have been dealt with in the *Journal*, so that we need only specify the alterations or modifications which have been effected. First among these is the new cut-out. The original automatic throttle has been improved by the addition of a specially-designed valve, which affords an effective and particularly sensitive cut-out, thereby ensuring the cool running of the engine.

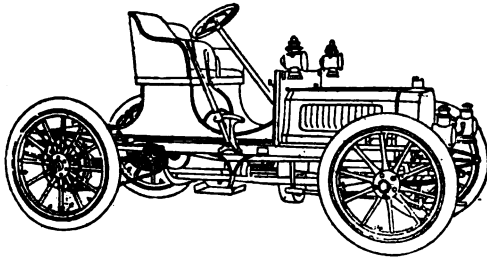


FIG. 14.—THE ROCHET-SCHNEIDER CAR.

The system of water circulation has been modified, and a chain-driven pump substituted for the friction type formerly employed. A new automatic lubricator is attached to the dashboard; the main supply being retained under pressure in a special reservoir placed beneath the motor bonnet. As in the case of the 22-b.h.p. chassis, a new type of band-brake has been fitted on either side of the cross-shaft, thus minimising the strain on the gears when the progress of the car is suddenly arrested. As in last year's model a wooden frame strengthened by rolled steel plates is employed. The diameter of the driving shaft has been reduced, and the size of the bevel gear wheels increased. As in the case of the 22-b.h.p. chassis, special attention has been paid to accessibility, and on this ground alone the new type Daimlers are sure of a prominent position among modern automobile vehicles. As regards the cars on the stand, we may mention a 22-b.h.p. tonneau in grey, lined light blue, with dark blue leather upholstery; it affords accommodation for four people, and advantage has been taken of every inch of space for the conveyance of tool boxes, etc. The body is hinged to the rear part of the frame, so that, if necessary, it can readily be tilted back and retained in that position by two iron rods carried between the body and the chassis, so enabling every part of the latter to be readily inspected. A good deal of interest is being centred on the large wagonette designed and built to the order of the King, and intended for the conveyance of loaders and general estate purposes. The rear portion of the carriage gives ample room for eight passengers, although, should occasion

Fig. 14 shows the latest type of Rochet-Schneider car in racing trim. These vehicles are now being introduced into this country by Captain H. H. P. Deasy, who has on view a 16-20-h.p. four-cylinder tonneau. Its main features, such as honeycomb radiator, mechanical inlet valves, magneto ignition, governor acting on the inlet, were described in our report of the Paris Salon. The vehicle, which in design and construction is a close copy of the Mercedes, makes hardly any noise when in operation, the throttle valve fitted enabling the engine to run quietly at all speeds from

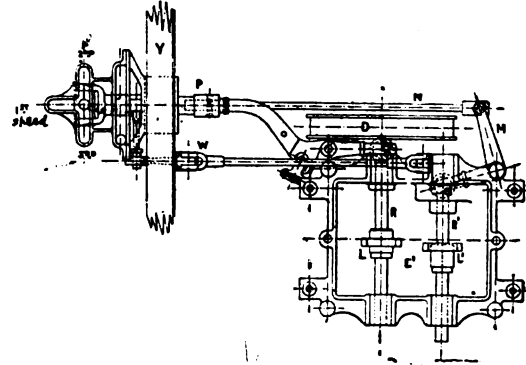


FIG. 15.—PLAN OF ARGYLL GEAR BOX, SHOWING CHANGE-SPEED MECHANISM—THE NEW SECTOR IN WHICH THE CHANGE-SPEED LEVER WORKS IS SEEN AT THE EXTREME LEFT.

150 to 1,000 revolutions per minute. An interesting little instrument, known as the "Criterium," is also to be seen at the stand of Captain Deasy. It consists of an aluminium case containing a watch with chronograph and two small cyclometers. The hand of the chronograph, which splits seconds into fifths, gives on a special division on the dial the speed of the car. A stop button permits the hand to jump back to zero, so that it can be used as an ordinary chronograph. The apparatus is connected with one of the front wheels of the car by an ingenious system of transmission, and as soon as the vehicle is running the hand of the chronograph starts automatically and travels while the car is running 200 yards; it then stops, the indicator showing how much time was taken, and the mean speed the car was travelling at; it then jumps back to zero and starts again, and so on. At the same time the two cyclometers register the distance; the first one can be placed at zero at will, and indicates the distance travelled; the second one totalises the entire distance from the beginning up to 10,000 miles. The instrument can be attached to the dash-board or steering-wheel, and is mounted on rubber, thus preventing any jar. Provided with a "Criterium" the motorist can see at a glance the exact time, the speed that is being made,

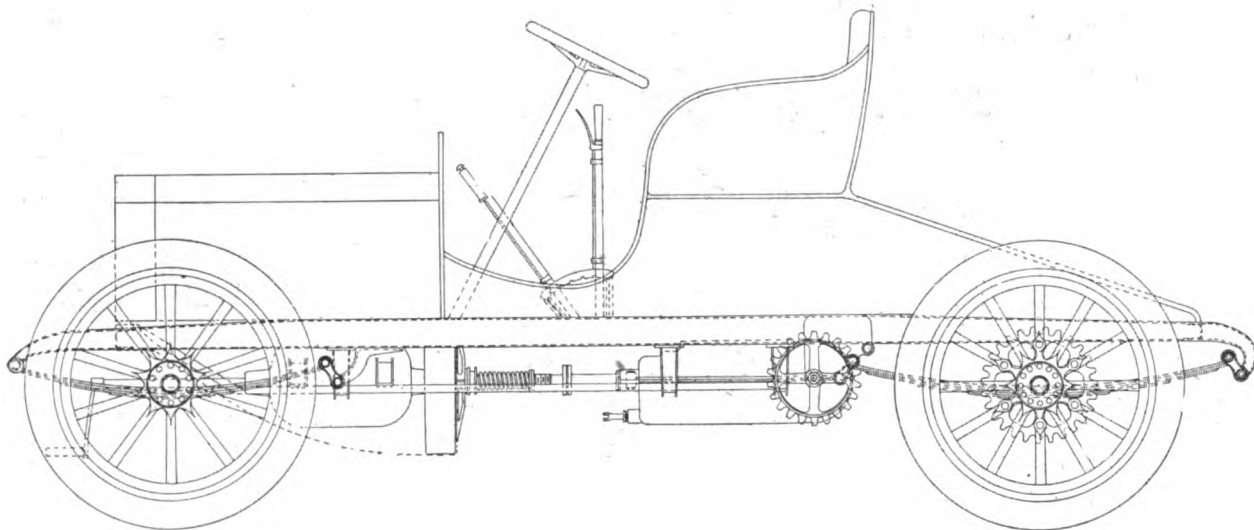


FIG. 16.—THE BROOKE NEW 14-H.P. LIGHT CAR.

demand, eleven may be conveyed. Beneath all the seats, which can be dropped down, provision has been made for the storage of cartridge boxes, and the large canopy with which the car is fitted is strongly constructed to carry a certain amount of luggage. The body is in natural varnished wood, and the upholstery in brown leather to harmonise. The car is fitted with a standard four-cylinder motor, developing 22-b.h.p. Another handsome exhibit is the 22-b.h.p. carriage designed and built on the lines of the Baron de Zuylen's Paris-Berlin car. It affords accommodation for seven passengers; the rear seats are placed on a higher level than the driver's seat, space thus being afforded for the storage of tyres, tools, etc.

the distance travelled since starting out, and the total distance travelled since the device has been attached to the car.

We gave a description in our last issue of the principal improvements in the Argyll cars for the 1903 season, and also an illustration of the new 10-h.p. two-cylinder car. It is, therefore, only necessary to briefly mention that the Hozier Engineering Company have on view two well-finished tonneau cars, fitted with 10-h.p. two-cylinder Clement motor, and one fitted with 9-h.p. single-cylinder De Dion engine. The 11-h.p. chassis is well worthy a close inspection, the new methods of operating the change-gear striking us as being a great step in the right direction. The change-speed

lever moves from a central position in three directions. When it is pushed outwardly in the centre of the quadrant (see Fig. 15) across the car the first speed is introduced; when it is pulled towards the driver's seat the second speed is engaged, and when pushed forward the third speed is obtained. In each direction the change-speed lever goes to a full stop, so that there are no notches to find, and therefore a mistake cannot be made in changing gear in the dark.

Messrs. J. W. Brooke and Company, Limited, exhibit three of the 12-h.p. (nominal) Brooke cars, the details of which have already been described in the *Journal*. We first noticed a car fitted with Limousine body, painted green, with primrose underwork and red leather upholstery. It is handsomely finished, the bevel plate glass windows following the lines of

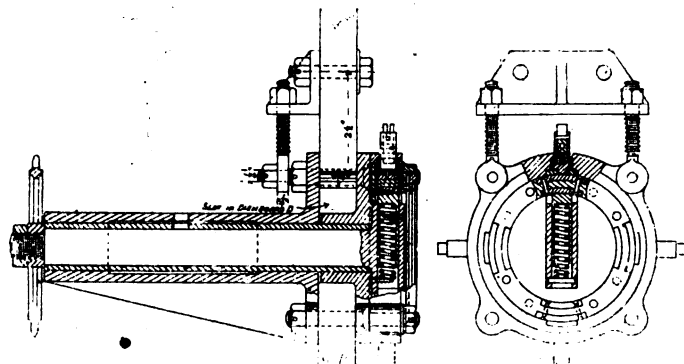


FIG. 17.—DETAILS OF CONTACT BREAKER ON HUMBER 20-H.P. CAR.

the tonneau. The engine is of the three-cylinder type, fitted with Esteourt induction valves and natural circulation cooler. Transmission is on the "Brooke" system, the change-speed gear being operated by chains. All the wheels are of equal diameter, 34 in., and shod with 910×90 mm. pneumatic tyres. The other two cars differ only from the foregoing in that they are fitted with ordinary tonneau bodies. Although it has been found impossible to get one of the new light "Brooke" 14-h.p. cars ready for the show, the engine for the vehicle is exhibited. This motor is of very interesting design, comprising three vertical cylinders, the actual h.p. being 15. It is fitted with mechanically-actuated induction valves, the whole of the valves being in one line and worked from a single cam shaft. The governor acts on the throttle, but is actuated by the suction created by the motor, it being claimed for this arrangement that it obviates all objectionable sharp cutting-out action. Fig. 16 illustrates the new light car to which the above-mentioned motor will be fitted. The frame is in one piece of stamped steel. The drive is by means of the gear system, and the water-cooling is effected by pump circulation and induced draught created by fan blades formed in the fly-wheel on the Mercedes principle. The car has a wheel base of 7 ft. 3 in., and will weigh about 12 cwt. As mentioned last week, Messrs. Frank F. Wellington, Limited, have been appointed sole agents for the "Brooke" cars.

The stand of Messrs. Humber, Limited, is one which is attracting considerable attention, the chassis of the 20-h.p. car being minutely inspected. As we gave a very complete description of the vehicle in our last issue, we need only mention that it fully upholds the reputation of the Humber Company, the completely-finished car having a handsome and striking appearance. Fig. 17 gives details of the contact breaker on this car; it is placed conveniently on the dashboard, is driven by a chain from the cam-shaft, and has a neat arrangement whereby the wires remain stationary when the ignition is advanced or retarded. Of the 12-h.p. cars, a couple are shown with well-finished tonneau bodies. Last year's 12-h.p. type has given such satisfaction that the alterations in the 1903 model are only such as have been deemed necessary to further increase its efficiency. The chief alteration has taken place in the engine, which has been completely remodelled, though preserving its outward appearance. The most noticeable alteration is the removal of the exhaust cut-out governor, and the substitution of the throttle. The throttle valve is in conjunction with the Longuemare carburettor, and is operated by a lever attached to the governor. In addition, the carburettor is fitted with valves for the regulation of the supply of gas and air coupled up to small levers on the steering pillar. The bore of the cylinders has been slightly increased, viz., from 3½ to 3¾ in., to account for the extra weight entailed by the lengthened frames; and the compression has been increased by the alteration of the cylinder head and the substitution of a flat-top piston for the rounded one of last year. The frame has been lengthened in order to allow of a longer flexible shaft being used between the gear-box and the back axle, which is of the same style as that of the 20-h.p. In other respects, such as the gear-box, the steering, brakes, etc., the car is the same as last year. A useful delivery van, fitted with 8-h.p. two-cylinder motor, and three speeds and reverse, is also to be seen on the Humber stand.

Messrs. John Marston, Ltd., stage only two cars—one of the curious-looking Mabley cars, to carry two persons, fitted with De Dion 2½-h.p. engine, and one of the 12-h.p. Sunbeam cars which made its first appearance last autumn, and which was described in our issue of the 29th

November last. The main frame is of ash strengthened with steel plates, the general arrangement being on Panhard lines. The 12-h.p. four-cylinder vertical motor is placed in the front of the frame, and is remarkable for its smoothness of running. A ball governor is placed on the large gear wheel fixed to the cam shaft, and acts on a valve above the carburettor. The working of the regulator is modified by a spring operated by the accelerator pedal, and is set by a hand lever on the steering column. Four speeds are provided, these being divided into two groups, each held, as well as the reverse, by a fork, the whole being actuated by a single lever. Inclined non-reversible steering and three powerful brakes are provided. The foot brake is composed of a steel band working round a metal drum fixed to the differential box. The wheels are of the artillery pattern, with 32 in. × 3¼ in. pneumatic tyres. The lubricators, which are automatic, are placed in sight of the driver. The body is of the tonneau type, and, judging from the care bestowed upon every detail, the car should prove not only reliable, but comfortable and easy to drive. A noteworthy feature of the car is that below the motor gear-box and right up to the water tank, which lies across the rear of the car, is a casing of mild steel bolted in such a way as to make it perfectly mud and water tight from the roads, and oil-tight the other way, that is to say, no oil can drop from the car to the ground. Fig. 18 gives a cross sectional view of the frame just behind the flywheel, showing the casing, which, in addition to the advantages above referred to, also allows for the washing down of the car with a hose-pipe without fear of wetting the wires or tarnishing the bright parts.

ELECTRICAL CARS.

The details of the electrical carriages of the City and Suburban Electrical Carriage Company have already been dealt with in these pages, so that it is only necessary to mention that the vehicles on the stand range from a little two-seated victoriette, similar to the one used by the Queen, up to a fifteen-seated omnibus, suitable for hotel or theatre work, and capable of running a distance of thirty miles on one charge. The landaulettes and broughams of this company are now familiar sights in London, the number in use having increased considerably during the last twelve months. Among the new designs we note a little two-seated runabout, fitted with a battery of forty-eight cells, which will run the car from forty to forty-five miles on one charge, at a speed of fourteen miles per hour, and a four-seated tonneau, very much on the lines of a petrol car. This carries a 64-cell battery and can cover a distance of fifty-five miles at speeds ranging from twelve to sixteen miles per hour. Undoubtedly the chief novelty on the stand is the combination petrol-electric car, fitted with a double plecton body. This is the first trial car, and has a two-cylinder 5½-h.p. petrol motor under a bonnet in the fore part of the frame. This is connected to a dynamo, in place of the usual change-speed gear box. The current generated by the dynamo is arranged to operate the two electric motors connected with the rear wheels, or a battery of accumulators, consisting of forty cells of seventy ampere hour capacity. The petrol motor is kept running at a

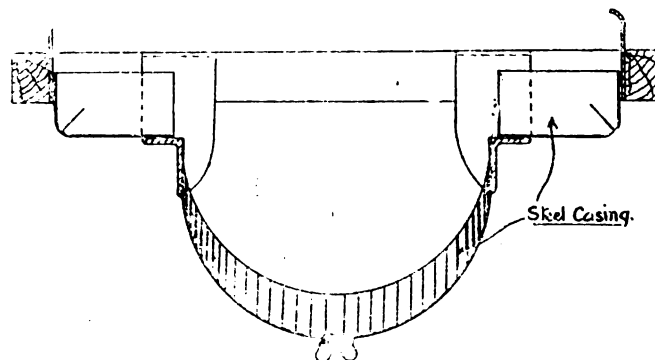


FIG. 18.—CROSS SECTION OF FRAME OF SUNBEAM CAR BEHIND FLYWHEEL, LOOKING FORWARD.

constant speed, and in driving through crowded traffic may be stopped, the car then being driven by means of the electrical energy stored up in the accumulators. The controller is adapted to give three speeds ahead, and three reverse. The trials of the 5½-h.p. combination petrol-electric car have proved so successful that the company are now building two others, which will be of 11-h.p.

A new concern devoting itself to the construction of electrical cars is the London Electro-Mobile Syndicate, Limited, who have on view a couple of neat two-seated runabouts. The electric motor is carried at about the centre of a tubular frame, and drives by spur reduction gear a small countershaft, which is connected to the rear axle by a centrally-located chain. The electrical energy is furnished by a 45-cell battery arranged in five groups, and having a capacity sufficient to run the car a distance of about 40 miles on one charge. The controller is adapted to give any desired forward speed from three to twelve miles an hour, and a reverse motion, while in one position an electrical brake is obtained. Steering is controlled by a tiller, while there are two pedal brakes, one acting on the rear axle and one inside the large spur-wheel on the short countershaft. The latter

brake is of the internal expanding type. Artillery or cycle-type wheels, 26 in. diameter and shod with $2\frac{1}{2}$ -in. pneumatic tyres, are fitted. The car, which is neatly finished, weighs in running order about 10 cwt.

Another new electrical vehicle is that to be seen on the stand of Messrs. Pritchett and Gold, Limited. The vehicle, which has accommodation for two passengers, has been designed to meet the demand of owners of country houses who have an electric lighting plant. It is exceedingly simple, and can be safely driven by a lady. The frame is constructed of steel tubing. The motor is specially designed for running for long periods without attention, it being self-lubricating; it is mounted at about the centre of the frame, driving the rear axle through bevel gearing. The controller is arranged to give four speeds forward, ranging from 5 to 18 miles per hour, and two speeds backward. The battery consists of forty cells in ebonite boxes having a capacity of 120 ampere-hours. It is divided, one portion being carried in the front of the car under a bonnet, the other being under the seat; this arrangement gives equal distribution of weight over the chassis. With the battery fully charged the car will on good level roads run a distance of about 40 miles.

MOTOR-CYCLES.

Werner Motors, Limited, display several examples of their 1903 $2\frac{1}{2}$ -h.p. Paris-Vienna and 2-h.p. "Tourist," motor-bicycles; as also a $2\frac{1}{2}$ -h.p. fitted with avant-train, or fore, carriage, and consequently accommodating two persons. Fig. 19 illustrates the method of fixing the engine to the frame. The new carburettor will be noticed at A, the lever on the side nearest the observer being the throttle. On the opposite side there is a corresponding lever for the regulation of the mixture. The carburettor is sheltered to some extent by the main tube of the frame, and by the wide mudguard on the front wheel. Lower down will be noticed the contact breaker B, visible through the transparent mica cover. The lower cross tube of the frame is forked, and the exhaust pipe passes between the branches, terminating in a new double-chamber silencer C. It will be seen that the sparking plug D is now placed behind the engine right under the frame and in the

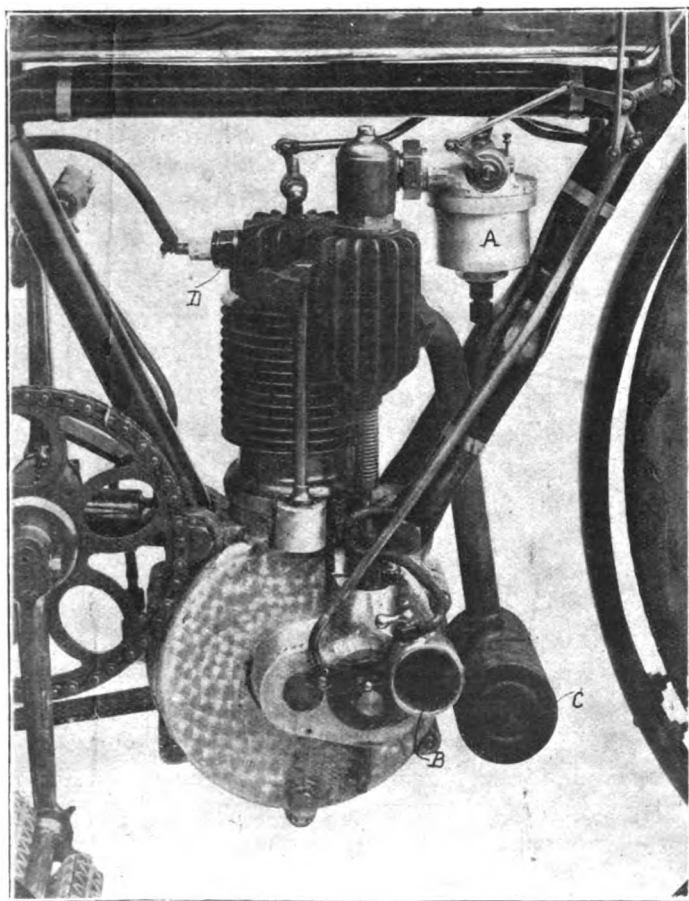


FIG. 19.—THE WERNER MOTOR.

centre, so that it is well protected from any possibility of accidental knocks. The particular engine shown in Fig. 19 is the 2-h.p. Tourist model; it has a bore of 68 mm. and a stroke of 72 mm.

TYRES.

The "Fisk" motor-tyre, which has lately attained prominence in some of the American automobile trials, is introduced by the South British Trading Company, Limited. From five to eight layers of canvas are vulcanised into the rubber, thus affording a strong foundation for the extra

heavy rubber tread which is provided. The tyre is made in all sizes up to a $4\frac{1}{2}$ in. tread. Having illustrated the Rucker pneumatic vehicle tyres and inner tubes in our last issue, detailed description of this novelty would be superfluous on the present occasion. They are shown in one of the courts, and have attracted considerable attention, the properties of the new "unburstable inner tubes" being naturally of interest to motorists. Near



FIG. 20.—THE WAR OFFICE WOLSELEY CAR FITTED WITH BUFFER SOLID RUBBER TYRES.

to the stand of the Rucker Company is that of the North British Rubber Company, whereon are tyres for all kinds of automobiles, including the Clincher-Michelin motor-tyres. These are to be supplied with a square flat tread, and fitted with new bolts and valves, minimising the trouble of removal or fixing. They draw many visitors to the stand. The motor-tyre department of the Dunlop Pneumatic Tyre Company, Limited, is represented by a complete range of automobile tyres and repair outfits, and patches, as well as by various rubber goods, including matting, brake blocks, &c., manufactured by the company. They also have some of the tyres which secured the award in the Tyre Trials. A new tread calculated to minimise, if not entirely overcome, side slip is a prominent feature of the exhibit, its characteristic being transverse segmental grooves, about three-quarters of an inch wide, at short distances around the tyre. Thus, a more forcible grip of the road surface is obtained. A set of tyres which have been driven 10,000 miles are on the stand. At the Clipper Company's stand are the Clipper-Continental motor-tyres, as well as the Clipper pneumatics. These are made in all sizes, from those for motor-cycles to tyres for heavy cars and to fit any rims. The Martin Pneumatic Tyre Company is now guaranteeing its tyres for a thousand miles, and to ride such a distance without a puncture should be a joyful experience. The features of this tyre are well known, and every care is being taken in the construction, with the result that the company are showing their specialities in various sizes with the utmost confidence. The Collier Tyre Company, Limited, naturally draw attention to the way in which their tyre behaved during the 4,000 miles test organised by the Automobile Club, and the fact that only forty-eight marks were lost on the road finds full record at their stand. Here, too, are shown the inner tubes which successfully went through the ordeal. Inner tubes and tyres of each size as made are shown, and there is also a set of tyres filled with the Parsons non-skidding device, illustrated in the *Journal* on the 10th ult. Solid and pneumatic rubber tyres for motor-car wheels are shown by the Shrewsbury and Challiner Tyre Company, Limited, one important department of the company's operations being securing new treads to pneumatic tyre covers. The "Cup" tyres are well known to all users of the road, and are evidently of considerable interest to motorists. For the present season, the Goodyear Tyre and Rubber Company is offering a motor-car tyre, the section of which is elliptical, a thick tread being a notable feature. The Goodyear pneumatic tyre has a substantial base, and the inflated portion is entirely outside the rim. A new voiturette tyre is being brought out by the company, which is giving an absolute guarantee for 1,000 miles. They extend this to 3,000 miles, making compensation proportionately, according to the wear above the first-named distance. The Self Sealing Air Chamber Company, Limited, are making a special point of their patent self-sealing air tubes. These have long been known in connection with cycles, and in applying them to motor-tyres the "self-sealer" provided is of greatly increased strength, closing any ordinary puncture occurring on the tread. The hermetic "detachable" joint for ordinary air tubes is also shown at this stand. The Sirdar Rubber Company, Limited, are exhibiting carriage wheels in various sizes and patterns for all kinds and weights of carriages, from the lightest buggy to the heaviest coach wheel, fitted with patent Buffer solid rubber tyres. They are also exhibiting wire and artillery motor-car wheels, the latter being cut from the finest selected cleft oak. Some wheels are fitted with pneumatic tyre rims, which they build them into, and others are fitted with patent Buffer solid rubber motor tyres. Large sections of Buffer tyres are shown as used on fast and heavy cars, such as the War Office (Fig. 20) and Napier cars, which run up to nearly forty miles an hour. In addition to these tyres and wheels, the Sirdar Company exhibits an invention relating to pneumatic motor-tyre and bicycle tyre covers made endless, which compress automatically without any foreign substance, both laterally and longitudinally. This, however, cannot be used until next year.

HERE AND THERE.

THE Goodyear Tyre and Rubber Company, Limited, has been registered with a capital of £5,000.

THE Stockton Rural District Council is about to consider the speed of motor-cars along its highways.

IN addition to petrol vehicles the Velox Motor Company, Limited are, we hear, at work on a new steam car.

AGENCIES for French, German, and even Italian-built motor-cars have already been established in the United States. What is England doing?

THE Florence section of the Italian Automobile Club is organising a hill-climbing competition on a hilly 15 kilometre route between Pontassieve and Consuma; it will be run off in May next.

ON Thursday, the 29th ult., a dinner was held at the King's Arms Hotel, Gloucester, on the occasion of the opening of Mr. A. C. Stretton's new motor garage and cycle works in Northgate Street. Sixteen employees and friends sat down to the repast.

MESSRS. DE DIETRICH AND COMPANY are building seven special 40-h.p. cars for the Paris-Madrid race, one of which is to be driven by Mr. Lorraine Barrow.

WITH a capital of £100,000 the Collier Tyre Company, Limited, has been registered to acquire and carry on the business of the Collier Twin Tyre Company, Limited. The first directors will be Messrs. W. Baker, J. Perdie, T. M. Harvard, T. Evans, and A. T. Collier.

A RUMOUR reaches us that a British firm, well-known in the motor world, but which cannot for the present be named, has lately completed a 600-h.p. petrol motor, and is already at work on one of 1,400 h.p. To prevent the idea going forth that a mammoth racer may shortly be expected on the road we may add that the engine in question is intended for altogether another purpose than that of propelling motor-cars.

FOURNIER, who is at present in the United States, is credited with the statement that in event of the Gordon-Bennett race being held in Ireland, he may not compete, and especially so should the contest interfere with the preparations or with the dates for the Paris-Madrid race, to endeavour to win which he will allow nothing to stand in his way.

FRISWELL, LIMITED, had a very successful sale at their Albany Street premises on Thursday last week. The attendance at these sales is increasing, and on Tuesday they held a special sale of steam cars, all of which were shown under steam. In a few weeks' time they hope to hold a special sale of motor bicycles and parts.

IN a recent issue reference was made to a special omnibus which the Gardner-Serpollet Company was building for the use of a school in the vicinity of Paris, for the conveyance of the pupils to and from their homes. Herewith is given an illustration of the vehicle, which is of 20-h.p., and capable of attaining a speed of 19 miles per hour. The feature of the 'bus is that, unlike the usual Serpollet cars, the steam generator is located in the forepart of the frame.

THE Oldsmobile Company are, we learn, bringing out a 10-h.p. tonneau car.

THE Mors Company have just completed a 36-h.p. landaulette for the King of the Belgians.

THE Austrian Automobile Club is organising a competition of heavy motor-cars to be held towards the end of next month.

MESSRS. DAKIN AND COMPANY, the long established tea merchants, employ a light delivery motor-van in their business.

MDME. LOCKERT, of "Le Chauffeur," who went through the Paris-Vienna race (touring section), has entered a 22-h.p. Ader car for Paris-Madrid.

A COMPANY has just been formed in Paris to be known as La Societe Francaise des Automobiles Thermo-Pneumatiques (systeme Girardville et Mekarski).

A CONFERENCE of Manchester merchants and manufacturers to consider the possibility of a further introduction of means of transit for heavy goods by motor haulage on the highways has been held. It was suggested that motor wagons might be used to convey cotton between the Manchester Ship Canal and Oldham.

AUTOMOBILISTS touring through Belgium are now required to fix numbers of identification on their cars, in accordance with the new police regulations.

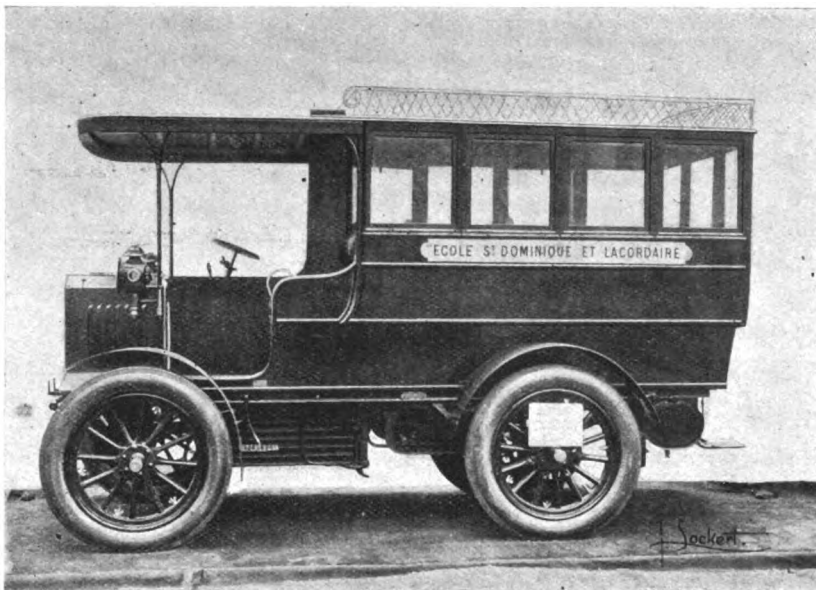
SCENE, Railway Station. Crowd round touring motor-car just taken out of truck. Old woman from country—"Is that a motor-car?" Knowing porter—"Aye!" Old woman (pointing to some spare tyres strapped on behind)—"An' what are they?" Knowing porter—"Life-buoys."

MR. JOSEPH ATKINSON was the owner of the first motor-car in Lancaster, and his firm is now developing a large automobile business in the district. Messrs. Atkinson have every facility for the repair

of cars, and they are now extending their premises so that they will have storage room for sixty vehicles. It is their intention to build, as well as repair, cars.

A SERVICE of motor-cars from South Croydon to the Sutton corner of Epsom Downs, via Carshalton, has been started. It is possible now to travel from London to the famous race-course by road for ninepence, proceeding by the L.C.C. tramcar from Blackfriars or Westminster Bridge to Streatham, changing on to an electric car for South Croydon, and thence to Epsom by motor-car.

MR. F. C. BLAKE, of Kew Gardens, S.W., has just completed a novel petrol automobile, built for the Richmond Main Sewerage Board for use on their works. The engine, which has been constructed to the specification of the board's engineer, Mr. William Fairley, is intended to supersede horse labour on a system of tram-lines, 33-in. gauge, connecting a private dock and wharf with the precipitation works and pumping station at Mortlake, and is used for the haulage of coal, chemicals, and pressed sludge cake. The weight of the engine, mounted on a steel frame, is 15 cwt., the motor is of the Blake vertical double-cylinder type, 7-b.h.p., with electric ignition. The power is transmitted to the driving wheels by chains, two forward speeds and a reverse being provided. The engine can haul three loaded sludge trucks, each weighing 30 cwt.



THE GARDNER-SERPOLLET STEAM OMNIBUS. (Le Chauffeur.)

CORRESPONDENCE.

USEFUL DEVICE FOR STEERING WHEEL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having lately purchased a small car, I found much inconvenience in getting in and out of the driver's seat after my wife had taken her place, the difficulty, of course, being caused by the position of the steering wheel, and the trouble being increased by having to wear a thick fur-lined coat during cold weather. When driving, if I had to get out to attend to any matter in connection with the car, or for any other purpose, much difficulty was experienced, unless my wife got out first, an inconvenient arrangement.

With the aid of a good cycle-maker I have devised a simple method of tilting the wheel vertically in front of the steering column, and by this means obviating the trouble. A small wrought-iron hinge is placed immediately under the wheel. This hinge is three inches square when closed, and is made of $\frac{3}{4}$ -inch iron plate. The pin of the hinge is also $\frac{3}{4}$ in. in diameter, is three inches long, and well rivetted at each end. The bottom part or half of the hinge is secured by screws and nuts to the plate usually fixed on the top of the steering column. The top part of the hinge is fastened in like manner to the wheel itself. In order to prevent any upward movement of the wheel when driving a bolt goes through the top of the wheel, and also through both halves of the hinge and plate on top of the column. This bolt is held in its position by a spring, and both bolt and spring are contained in a socket fixed into the top of the wheel. To tilt the wheel it is only necessary to pull up the brass knob fixed on the top of the bolt. The wheel and bolt fall into their places by the weight of the wheel. I may say that the idea of tilting the wheel occurred to me from a brief statement I saw in your journal a short time ago that an American had contrived something of the kind.—Yours truly,

W. H. GREENHOUGH.

statistics are anything like correct, and I, and I am sure many others, would be very glad of some information from other owners of motor-cars of 10-h.p. as regards their outgoings, especially as regards the enormous item of £125 for "wear and tear" in nine months, or, as I have said before, of about £3 or more a week; a very special item of interest being the tyre expenses.

If anything can be done to dispel the statements in Captain Campbell's letter it will be very cheering, as the only point of interest in it is that it is now clear to the man of "moderate means" that he can afford to keep three or four horses in his stable, and two men, at less cost than a motor-car, as I omitted livery in calculating the expenses of the latter.

I much fear that if Captain Campbell's figures are correct nothing could have been published calculated to do the motor-car trade a greater injury, or to prevent the even semi-wealthy man from purchasing a motor-car—leave alone the man of "moderate means."—Yours truly,

"ONE WHO HAS JUST PURCHASED A 10-H.P. CAR."

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The report in last week's *Journal* of the paper entitled, "Motors for Men of Moderate Means" is very interesting, but, as one critic intimated, no definition has been advanced of a man of moderate means, and the expenses totalled up of running a car would exclude many like myself from the pleasure of motoring. My experience, though short, may not be unacceptable. The man who conducts a small country business may be described, perhaps, as a man of *small* means, to whom the expense of over £300 per annum would absolutely preclude him from joining the ranks of motorists. On August 1st of last year a Century tandem, 5-h.p., was ready for delivery, which I went to fetch, driving the same home with the assistance of an expert. Between August 1st and December



SURVEYING THE COURSE FOR A HILL-CLIMBING TRIAL.

[Automobile Tyres.

CARS FOR MEN OF MODERATE MEANS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The paper read by Captain Kenneth Campbell, and published in your last issue, shows a most extraordinary and unexpected state of things as regards the upkeep of a 10-h.p. motor-car. Dealing with his expense columns, No. 1, as regards initial cost of car, is, of course, a matter for the individual purchaser; but column 2 gives "sundries" and "repairs" at just on £77; or £2 a week if we include petrol. Surely this is not a normal state of affairs, followed by a cost of £48 for tyres, or a cost for "wear and tear" alone of £3 4s. a week, or 9s. for each day of the week, calculating for a period of nine months. The next column—No. 3—is again largely optional; but omitting the £39 for rent and taxes of stable, and omitting livery, there still remains roughly a sum of £70 expended. I omit stabling, as many people, especially in the country, have this, and for a motor-car do not put their man into livery. The total, therefore, making a minimum for Captain Campbell, works out at about £200 for nine months, or £270 for the whole year.

If this be the expense of keeping a motor-car for a man of "moderate means," then a man of "moderate means" can as well keep four horses, which has not hitherto been practicable. The keep of four horses in the country works out as follows:—

Keep of four horses at £40 a year	£160
Shoeing	10
Coachman	65
Livery	20
Stable lad at 10s. a week	26

£281

I have, as in the case of a motor-car, omitted stabling rent, so that refers to both calculations. It is a very serious matter if Captain Campbell's

31st I drove it 1,648 miles. Repairs have cost 15s., petrol and lubricating oil £3 11s. 9d., total £4 6s. 9d., which you will find works out at about $\frac{1}{2}$ d. per mile. The tyres, which are Clipper-Continental, appear to be as good as new. They have not given the slightest trouble; in fact, I have only inflated them twice, and, fortunately, have had no punctures. I always examine them frequently, and any cuts are filled with rubber solution, etc. I am my own driver, *mechanicien*, and groom, only calling in expert assistance when absolutely necessary. My car weighs 5 cwt., and as the police authorities in this district do not complain of speed up to 20 miles per hour, I generally avail myself of this privilege.

For motor house a spare room is used, which was made convenient by placing in large doors. The driving wheel is always kept jacked up, and the two steering wheels are raised periodically, so that the weight is not pressing continually in one place on the tyres. I have only had two stoppages, which happened the same day, viz., a broken inlet valve and a broken chain, both of which I repaired, always taking precaution to carry the necessary tools and parts likely to be required. The petrol used was 44 gallons, which works out at about 38 miles per gallon.—Yours faithfully,

T. COXON.

P.S.—It is hoped that the numbering proposals will meet with the fate they deserve. They cannot, in my opinion, serve any useful purpose

THE MOTOR TYRE QUESTION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The motor-car has now been with us some five years or more, and up to the present time we do not appear to have discovered any satisfactory

method for preventing sideslip or skidding. That being so, it may be asked, are we right in adopting an inflated circular pipe of rubber as a wheel tyre, and whether rubber is the proper material to stand the thrust and drive of the motor? The wheel is a lever, the road the fulcrum. Such being admitted, surely the wheel and tyre should be, to a certain extent, rigid. Experience points to a flat tyre, seeing that the car has to thrust itself along the road, and is not drawn or pushed over it.

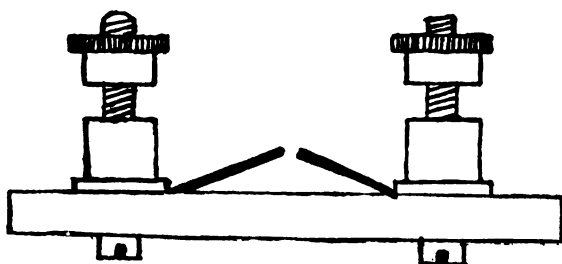
There is another matter that would appear to require some consideration with respect to pneumatic tyres, namely, that they are inflated with as much pressure as they can conveniently bear with safety. In addition to the weight of the car, the tyres have an extra load (if four persons are carried) thrown upon them of about 560 pounds per square inch sectional area of the tyre. Again, are we not wrong in endeavouring to obtain resiliency from wheels, whether attached to motor-cars or any vehicles? It is to the springs of the vehicle, whether bow, spiral, or cee springs, that we must turn our attention for resiliency, and not to the tyres. We cannot reasonably expect urban district councils to maintain their highway roads in that state of efficiency resembling garden paths for the special behoof of motorists using these delicate and expensive tyres. The motor-car has undoubtedly come to stay, and the tyres, whatever the design or material, should be so constructed to traverse any roads, be they rough or otherwise. There is hard work for the motor-car in store, later on, other than racing, for which the present system does not appear adequate.—Yours faithfully,

EDWIN E. HILL.

A SPARKING PLUG "DISCOVERY."

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Some time ago a friend informed me he had heard that if a break was made in the high-tension circuit the motor would fire better, so



I made a few experiments. The accompanying sketch shows the simple little appliance used; it is composed of a flat strip of wood $\frac{3}{4}$ in. wide and $\frac{1}{2}$ in. thick, well boiled in paraffin wax to make it a perfect non-conductor; two ordinary electric bell terminals were fixed on it, and underneath each a short piece of German silver wire was soldered, which met when pressed flat down, but, on being raised slightly with the blade of a penknife, a break of any length could be obtained; one end was connected by a simple loop of wire to the plug, and the other to the high-tension wire. The principal results noted were, first, owing to the resistance produced by the break in the air, the sparks on the plug were "splasy," if I might use the word instead of fat, which would account for the throwing aside of particles of grease and soot; second, on testing with plug in the engine a fuller or deeper explosion was obtained, but apparently with little or no increase of power; and lastly, when connected with an accumulator which showed 3.4 instead of 4.0 volts, the engine fired without missing in the least, but at a much slower speed. The engine used was a $6\frac{1}{2}$ -h.p. Aster, with a perfect compression, and the best results were obtained when the two wires of the interrupter were from $\frac{1}{8}$ in. to $\frac{3}{16}$ in. apart; if more than that, the engine fired weaker, and when the plug was taken out the spark was more thready, but if closer the interrupter did not seem to make much difference.

Perhaps some other motorists will give us their experience.—Yours faithfully,

JOHN R. MARTEN.

"IXION" writes:—Will any of your readers who have solid tyres on Locomobile cars kindly give their experience, as I am thinking of having them fitted? I may say I use my car exclusively for business purposes, in City and suburbs, where the roads are good, and I seldom exceed the legal limit of speed.

ENDANGERING A MOTOR-CAR.

At Cambridge Police Court, Alfred Coteman, cab proprietor, was charged under the Town Police Clauses Act with being the driver and owner of a hackney carriage, he did unlawfully by certain wilful misconduct endanger a motor-car, the property of Mr. T. F. Hooley, student of Trinity College. The magistrates inflicted a fine of 5s., and made an order for defendant to pay £2 damages. The Court fees were remitted.

LUBRICATION AND LUBRICATORS.

On Friday, the 30th ult., Mr. Thomas Clarkson read a paper before the Automobile Club of Great Britain and Ireland. Mr. Worby Beaumont was in the chair. The following excerpts will be of interest.

To appreciate lubrication we may with advantage first study the enemy—"friction." Its laws are few and simple, and may be divided into

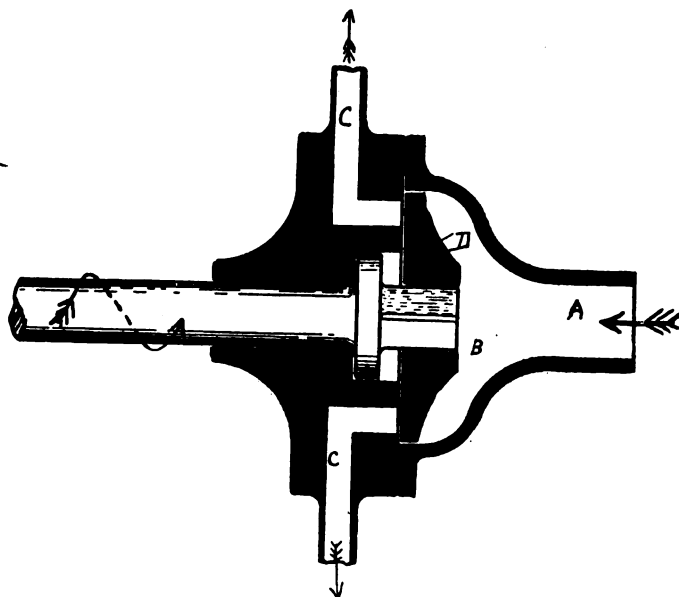


FIG. 1.—CROSS SECTION.

two classes—static and dynamic. The first deals with the friction of rest, and is given by some the not inappropriate name of "stiction" (belts and friction clutches come under this heading). The second deals with the friction of motion. The friction of motion may be sub-divided into rolling and sliding friction. The former relates to ball and roller bearings, the latter to plain bearings.

In rolling friction the balls or rollers act in a manner closely analogous to the lubricating medium of a plain bearing by keeping the working

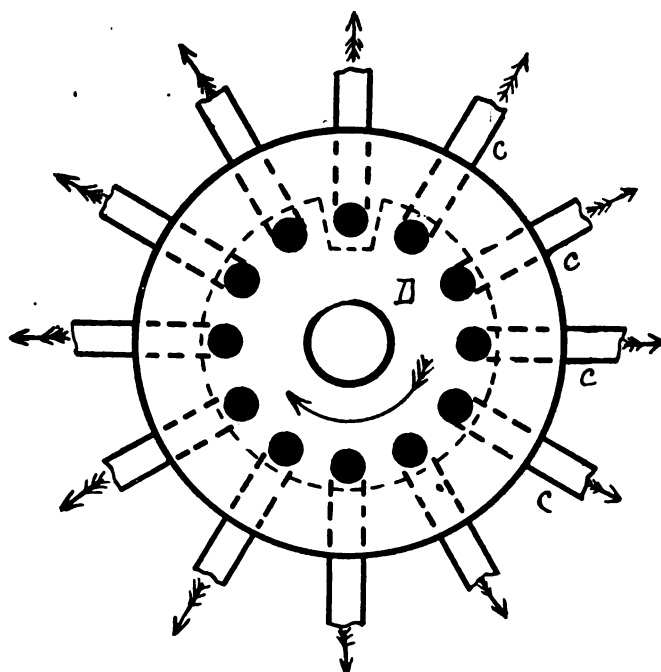


FIG. 2.—PLAN OF VALVE CHEST, SHOWING RADIAL DISTRIBUTING PIPES.

(The valve is indicated by a dotted line.)

surfaces apart. If it was possible to make a ball or roller bearing with absolutely no sliding friction, the use of a fluid lubricant might be safely dispensed with, but there is sliding between the balls or rollers themselves, or between them and the cage employed to keep them in position. The amount of sliding friction is lessened when intermediate balls or rollers are used, but it is not entirely eliminated. The extra complication and cost of these

bearings qualifies their other advantages, and the friction of a well-designed plain bearing, properly lubricated and protected, is very much smaller than many people imagine.

The amount of friction between two surfaces sliding together depends upon several things:—(1) The pressure applied to them; (2) the material of the surface; (3) their smoothness and hardness; (4) their wetness and dryness; (5) their temperature; (6) the viscosity of the lubricating medium.

The lubricant should be clean and free from solid substances. This medium is the only thing that should be permitted to come between the working surfaces. If particles of dust or grit are permitted, their smallness of area and consequent penetration enables them to cut through the film of lubricant, to the detriment of the working surfaces—therefore, intruders must be kept out.

Speaking broadly, there are two systems of lubricating a bearing. In the first the rate of feeding is adjusted as far as practicable to the actual requirements. In the second the bearing is liberally flooded, and the large surplus recovered for use again. It would not serve my purpose to attempt to describe the innumerable forms of lubricators, which come under the first category, all of which depend individually for their action upon human adjustment; since I am entirely opposed to such human adjustment and individual inspection.

I advocate pumping the oil under pressure. A force pump working under the extremely favourable conditions of dealing with lubricating oil will run for years without attention, and its action may be instantly tested, at any time when running, by momentarily pressing a button. The next step is to ensure that the oil which is pumped is going to *all* of the bearings. On an automobile I do not advocate a separate pump for each bearing; one pump for all the bearings is enough, only we must be sure they all get a proper share.

Figs. 1 and 2 show a distributor which I have found to answer perfectly and give no trouble. The oil is delivered by the pump into the pipe A, and fills the box B; the only outlets are the ring of holes C, each of which communicates with a bearing. This ring of holes is covered by a circular disc D, which is slowly revolved by the motor. On one side of the disc a segment is cut out, so as to uncover one hole at a time, and the desired result is accomplished. Care is taken to make the segment wide enough to partially open the next hole before closing the last. Any number of branches may be used. The arrangement works perfectly. After running over 3,000 miles, a Chelmsford engine fitted with it was taken to pieces and examined. The surfaces were found in perfect condition, and there was practically no wear; the engine was as good as new, and would certainly run a distance equal to the circumference of the earth before needing repair. The consumption of lubricating oil is very small, and the relief from attention to lubricators has added a great charm to driving. The oil is strained each time it circulates, and any solid particles are permitted to quietly settle to the bottom of the oil well, where they can do no harm. A drain tap is provided at the lowest point, and replenishing is done through a large inspection hole in the top of the motion case. It is not necessary to carry a reserve of lubricating oil, or even an oil can, except for steering and brake motions. One filling of the well (say a gallon) will last quite a thousand miles on a large car. The same system, with modifications, is applicable to cylinder lubrication. The lubrication of outside driving chains has special difficulties owing to the exposed situation and the impracticability of properly enclosing them. They work remarkably well, considering their dirty and generally neglected condition, and an occasional bath in paraffin and a subsequent soak in a melted compound of fat and black lead does fairly well. It would be a good thing if they too could be provided for by the same lubricating system which does the rest of the car; but I have little hope of this being accomplished.

A MOTOR-CAR DEALER'S FAILURE.

In the Court of Bankruptcy, on Tuesday, before Mr. Registrar Linklater, a sitting was held for the public examination of Dillon Clarence Willoughby, described as of Piccadilly and Long Acre, motor-car dealer. The debtor was an American subject, and was formerly in business at New York. He came to this country in June, 1900, and later on he became a director of the Automobile Manufacturing Company (now in liquidation), and had been employed latterly in buying and selling motor-cars on commission. The debtor returned his unsecured liabilities at £12,716 16s. 9d., and no available assets were disclosed, book debts (£5,380) being treated as unrealisable. The examination was concluded.

ALLEGED NEGLIGENT DRIVING.

MR. JUSTICE KENNEDY and a special jury had before them on Tuesday, at the Berks Assizes, an action in which Mr. Thomas Lester, of Wallingford, claimed £40 damages from the London Motor Garage Company for the loss of a horse and damage to a cart. On the occasion of the Automobile Club run from London to Oxford on November 7th a car collided with the horse and cart, the former having to be shot. The defendants claimed £300 damages to the car and loss of hire, by reason of the car being laid aside for repairs. The jury found that there was material negligence on the part of both parties, and judgment was entered for the defendants in each case. The question of costs was left for the judge to decide.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Romsey	R. Sweetman, Stanbridge (driver to Sir Basil Montgomery)	20 m. p. h.	£1, etc.
Marlborough St. (London)	D. Chapman, Pimlico	—	20s. etc.
Marlboro' St. (London)	L. W. Munro	—	Dismissed.
City (London)	G. Brand	—	—
Eastbourne ..	W. E. Perkins, Westminster	—	£2 2s.

Where no alleged speed is given it is understood to be above the legal limit.

H. M. BIDDINGTON, of Cornwall Terrace, Regent's Park, was summoned at Marlborough Street Police Court for furiously driving a motor-car in Hyde Park on the 14th December. Constable Park, of the A division, said that the defendant covered 2 miles 5 furlongs and 51 yards in five minutes, and that foot-passengers had to jump out of the way. Mr. Staplee Firth told the magistrate that he desired to point out the flimsy nature of the evidence upon which gentlemen were "dragged to court by the scruff of the neck and their noses thrust into crime, whether they liked it or not." A motor-car, being a modern invention, of course went faster than the animals used by Adam and Eve in the Garden of Eden, upon the speed of which no improvement was made until the introduction of the motor-car. Mr. Kennedy ordered the defendant to pay a fine of 40s., with 2s. costs.

BRITISH MOTOR TRACTION COMPANY.

BEFORE Mr. Justice Farwell, in the Courts of Justice, Mr. Douglas moved on Tuesday, on behalf of the plaintiff in the matter of the British Motor Traction Company, Limited—Lawson against the company—for the appointment of a receiver and manager. The company appeared, and did not oppose the motion. Plaintiff was the holder of debentures for £7,750 out of an issue of £50,000. The company was incorporated in August, 1900, and in September following made the issue of the debentures named. By the conditions of the debentures the moneys thereby secured became payable if default were made in payment of interest for twelve months, and this event had, in fact, happened. His Lordship appointed Mr. Baker as receiver, and expressed his unwillingness to appoint a manager under the circumstances; but gave liberty to apply in Chambers for a manager if plaintiff were so advised. The receiver would have liberty to take possession at once on the plaintiff's undertaking to be answerable for the receipts.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

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THE Motor-Car Journal.

VOL. IV.]

LONDON, SATURDAY, FEBRUARY 14, 1903.

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COMMENTS.



Mr. Staplee Firth in favour of a Bill to enable the race to be held in Ireland, and this will be signed by practically every organisation in Ireland. The petition gives the history of the race, pointing out that the Gordon Bennett Cup is to automobilism what the "America Cup" is to the sport of yachting, and shows how the position of France in the automobile industry has been largely won by the encouragement given to road racing.

Points of the Petition.

It is also shown that while sanction for the race would give an impetus to the industry in this country, the transfer of the event to France would still further increase French supremacy, to the disadvantage of the United Kingdom. A suitable route in Ireland has been discovered, passing through a thinly-populated district. Provisions for the safety of the public would be submitted to the Local Government Board for Ireland, and already the three County Councils within whose jurisdiction the race would take place have declared themselves in favour of the race.

Hopes for Success.

THE petition has been drawn up with evident care and the arguments have been ably marshalled. We trust that it will have the success that it deserves and that the month of July will prove a notable one in the history of British automobilism. Not only that, but the influx of visitors from Europe and the United States should do much for Ireland as a holiday centre and inaugurate a period of prosperity for that country such as has not yet been contemplated.

Everyone Can Help.

MR. GOFF and Mr. Johnson have ascertained from the County Surveyors of Kildare and Queen's County that, at places where the road surface on the proposed Gordon Bennett course is not as good as may be desired, it would be possible to have the surface picked up and rolled in by a steam roller at a cost of about £10 per mile. It has been arranged that members of the Races Committee of the Automobile Club should visit Ireland at the end of April and should proceed on motor-cars over the course with the County Surveyors, and point out to them the places on the road which in their opinion should be improved. Before this is done, however, it is necessary that the Committee should be able to state to the surveyors what sum of money there is available for improvements to the road surface. It is believed that automobilists generally throughout the United Kingdom will appreciate the opportunity of subscribing a small amount with a view of providing that the road

on which the race is to be held shall, as regards surface, compare favourably with the roads on which Continental races are run. The Executive Committee of the Club propose that at the outset subscriptions should be confined to ten shillings per head, and they invite all who are willing to subscribe ten shillings or less to send to the Secretary of the Club at 119, Piccadilly, W. We hope our readers will give a hearty response to this appeal, and would suggest that, in order to save delay and avoid confusion, subscriptions should be sent at once to Mr. C. Johnson, Secretary of the Automobile Club, with a clear notification as to the purpose for which they are intended.

The Irish Awakening.

FROM every district in Ireland comes news of the awakening of rural councillors which is resulting from the attention now being devoted to the Gordon Bennett race. At the last meeting of the Bray District Council it was decided to affix the seal of the Council to any petition presented by the Automobile Club to Parliament in support of the Bill legalising the holding of the great event in Ireland. The Town Clerk stated that, in view of the visit of a large number of automobiles during the season, he thought it would be desirable on the part of the Council to see that all the roads of the Urban District were properly steam-rolled. On the motion of Mr. Sutton, seconded by Sir Henry Cochrane, it was decided to have the roads steam-rolled, and on the motion of Councillor O'Carroll it was decided to ask the Rural District Councils, who have charge of the rural districts, to take similar action. The way in which the local authorities in Ireland are recognising the value of the automobile in the development of the tourist resources of their country should be reciprocated by a great influx of visitors this year.

The Edinburgh Show.

DURING the week a motor and cycle exhibition has attracted much attention in Edinburgh. It was hoped that Lord Rosebery would have been present at the opening of the show, but a prior engagement was pleaded in excuse, and a speech that would probably have done something to forward the interest of automobilism was lost. The show was therefore opened without any formal ceremony.

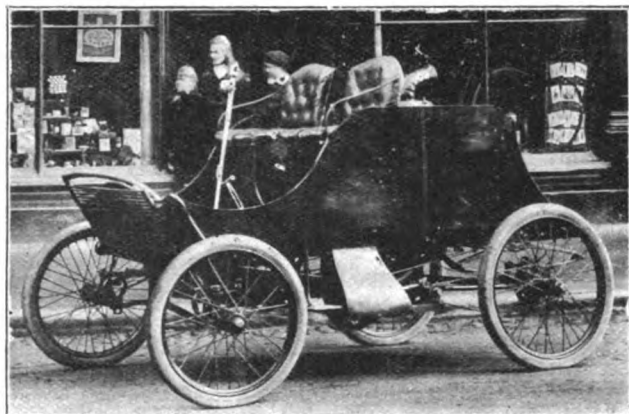
Caution Necessary.

AT an inquest held at Tipton on the body of a little girl who was found lying unconscious on the highway, it has transpired that a motor-car had passed in that direction about the same time, and as death was due to a fracture of the base of the skull, the coroner's jury came to the conclusion that she had been knocked down by a passing vehicle. Of course the motor-car has been held guilty. Unfortunately, the driver of the car has not been identified, nor has any adequate description of the vehicle been given, although nearly all the witnesses agree that it had canvas curtains and that the wheels were red or chocolate colour. A similar kind of accident occurred at Redhill some little while ago, and the hope must be expressed that automobilists will exercise great care in traversing both main and by-roads, for the credit of the movement. A few more such

instances as these reported from Redhill and Tipton would go far to discredit any proposals which may be placed before Parliament for removing the present speed limit.

Automobilism in Tasmania.

AN Antipodean reader of the *Journal*—Mr. A. M. Campbell, of Hobart—sends us an interesting letter on the subject of motoring in Tasmania, from which we take a few extracts. "As to the opening here for motors," writes our correspondent, "there is little to tell; many say they are waiting for the 'perfect motor-car'; they'll probably get a hearse while they wait. There are only a few automobiles in the island, two steam and two internal combustion, and about a dozen motor-cycles, and as one motorist owns one car and one cycle, and another one car and two cycles, you will see the number of motorists is as yet very small. It is not anticipated that many cars will find their way here for some time yet, but motor cycles may be bought in small numbers during 1903. The roads throughout the island are not so good as English roads are said to be, but, for all that, are very fair, and some fine stretches are to be found in the north and north-west. In the south the land is more undulating, but most of the hills can be negotiated with a good machine." Mr. Campbell, who has lately built a motor-bicycle, sends us a photograph, reproduced herewith, of a 7-h.p. steam car he designed and completely constructed in 1901. The car, which



A TASMANIAN-BUILT STEAM CAR.

has an engine on each side, quickly found a purchaser, to whom it has given every satisfaction.

The 18-h.p. Mercedes.

MR. E. W. HART, of Luton, has kindly furnished us with the following particulars of the new 18-h.p. Mercedes:—The motor has four cylinders, 110 mm. diameter by 140 mm. stroke, and runs at a normal speed of 1,000 revolutions per minute. The admission valves are mechanically operated and have a variable lift. Four forward speeds are provided, the change gear box being controlled by means of a single lever which moves only in a forward and backward direction. Eleven litres of water are carried in the Mercedes cooler. The wheel base is 7 ft. 8 in., the road wheels are 910 mm. by 90 mm. at the front, and 920 mm. by 120 mm. at the rear. The car, complete with body, but without water or petrol, weighs 1 ton 88 lbs. We understand that Mr. Hart will be showing one of the 18-h.p. cars at the Agricultural Hall Exhibition next month, and probably one of the new 60-h.p. Mercedes.

The Royal Commission.

A ROYAL Commission to enquire into the means of locomotion and transport in London has been formed by the Board of Trade, with instructions to report as to the measures to be adopted for the improvement of London traffic, by the development and interconnection of railways and tramways, and

increasing facilities by other forms of mechanical locomotion, and generally by better provision for the regulation of traffic. The Commissioners include Sir David Barbour, who has had considerable experience in connection with such work, and the railway interest is represented by Earl Cawdor, Viscount Cobham, and Mr. G. S. Gibb. Sir John Wolfe Barry, the consulting railway engineer, and Sir Francis Hopwood, the secretary for the Board of Trade, will bring special expert knowledge which should be of value to the Commission. We look in vain, however, for the names of Messrs. J. Williams Benn and J. Allen Baker, who, on the London County Council, have shown themselves specially qualified to deal with this problem. Mr. Rees Jeffrey, too, might have been included among the members, seeing that he has been identified with several proposals to relieve the traffic, more especially to and from the suburbs; but perhaps he will be given an opportunity of placing his knowledge at the disposal of the Commission at one of its early sittings.

London Traffic.

As to the necessity of the inquiry there can be no doubt. The enormous traffic of the metropolis and the suburbs is estimated at 1,832,000,000 persons annually, divided up somewhat as follows:—

	Passengers.
Suburban railways	618,000,000
Tube and underground railways	264,000,000
Tramways	390,000,000
Omnibus	530,000,000
Cabs, etc.	30,000,000
	1,832,000,000

It is just two years ago since Mr. Balfour, in a letter to the Warden of the Browning Settlement in Camberwell, drew attention to the urgency of dealing with the problem, and we hope the Commission will not lose sight of one important paragraph of his letter, in which he said, "What I am anxious people should bear in mind is that trams, railways, and 'tubes,' by no means exhaust the catalogue of possible improvements in transit; indeed, I am not sure that they are the means of communication for relatively short distances which some years hence will find most favour. What I should like to see carefully thought out by competent authorities would be a system of radiating thoroughfares, confined to rapid (say, fifteen miles an hour or over) traffic (that is absolutely essential), and with a surface designed, not for carts or horses, but for some form of motor-car propulsion." This is an aspect of the matter that we should have liked to have seen prominently represented on the Commission, and we trust that Sir John Dickson Poynter, Bart., who is himself an automobilist, will see that the claims of motor-cars are not overlooked in any recommendations that may be made.

Motor 'Buses or Horses.

ON Tuesday the general newspapers contained three utterances from officials of leading metropolitan omnibus companies all expressing a desire to dispense with horses, but agreeing that, so far, the satisfactory dividend-paying motor-omnibus had not been brought to their notice. The chairman of the Associated Omnibus Company, Limited, said the directors had been watching carefully the experiments made with various motor-cars, and were of opinion that no motor had yet been brought forward which could successfully compete with omnibuses drawn by horses. The actual cost of petrol was small, but the upkeep was very great, and the expense of maintaining motors would be considerably more than the cost of running omnibuses with horses, even at the present high price of forage. Supposing the company were in a position to place a number of motor-cars on the road, these cars would have to go into "dock" about once a week to be thoroughly overhauled, if they wished to keep them in a perfect state of repair. This would necessitate, say, for 200 cars, an additional supply of about thirty cars to take the place of those under repair. The secretaries of the London General Omnibus Company and of the Road Car Company have

also expressed themselves in similar terms, the latter agreeing that in the future motor power will play a large part in connection with London traffic.

Motor Fire Engines.

THE motor fire engine belonging to the Liverpool Corporation, which we illustrated in a recent issue, is arousing considerable interest not only in the City of Liverpool, but also among municipal authorities elsewhere. Last week a deputation from the Leicester Corporation inspected the machine, and Chief Superintendent Thomas pointed out that by the abolition of horses the fire extinguishing staff became increased by one. In a staff of nine at a fire, each man has a substantial value, and hence the economy of the system is greater than is at first apparent. The motor fire engine now being built for the Leyland Urban District Council will probably be fitted with an oil fuel burning apparatus. Other municipalities and District Councils are making inquiries with regard to the subject, and it

Owing to its greater speed, the motor-car permits physicians to attend to urgent calls more promptly, cases having been recorded in our columns where it was thought lives had been saved through the use of the automobile. A motor-vehicle commends itself more particularly to physicians who have a scattered practice. It may sometimes be necessary to make some slight adjustment or repair on the road, resulting in the doctor's getting his hands and clothing greasy, making him more or less unpresentable. This drawback does not exist if the doctor is always accompanied by a man, which many, who have an extensive practice, have found to be the best plan, although almost everyone prefers to handle the levers himself. At the same time, the motor-car is more cleanly than the horse from a sanitary standpoint, as is well brought out by one doctor, who states that it is impossible to drive a horse, not to speak of cleaning him, without getting one's clothing contaminated with decaying organic matter, which it would be positively harmful to carry into the sick room.



THE F.I.A.T. CAR USED BY THE ITALIAN POSTAL AUTHORITIES.

[La France Automobile.

would appear that we are on the eve of a radical change in our methods of fire extinction.

Motor-cars and Doctors.

ONE of the most important applications of the automobile is as a physician's carriage, and although it is being used by doctors in all parts of the country, we are somewhat surprised that a larger proportion of the medical profession has not taken to the new vehicle. Many physicians spend a large part of their time behind their horses, and where driving is ordinarily considered a recreation it is to them more or less of a burden. With a motor-car they can save much of this time, as considerably higher average speeds are possible. Generally speaking, a certain time spent in an automobile results in less fatigue, probably on account of the pneumatic tyres, more perfect spring suspension, and the perfectly even motion compared to the jog of the horse.

American Doctors to the Fore.

THE foregoing brief remarks are the result of a rapid glance through the special doctors' number just issued by the *Horseless Age of New York*. It is entirely given up to the experience of doctors in all parts of the United States, and shows that the advantages of the motor-car are quickly being recognised by the members of the medical profession on the other side of the Atlantic. Some of the writers may be a little enthusiastic and overlook minor troubles, but this is set off by the record of the experiences of others with pessimistic inclinations who are likely to exaggerate small annoyances. Even the few cases where the use of the automobile in a medical practice was found impracticable and given up after a trial have not been excluded, the aim of our contemporary having been to give a complete view of the situation as it exists, with the hope that a knowledge of the causes of the failures may lead to their avoidance in the future. Striking an

average through the various articles, there can be no question that the motor-car has been found of great service by doctors. Naturally, care must be taken in the selection of a suitable vehicle. Even when this is secured, the cost of operation and upkeep may at first be greater than that of horses and carriage. As the doctor, however, gets through the novitiate stages of motoring and blossoms out into a full-blown *chauffeur*, ready to talk "petrol" with anyone willing to listen, he will be able to take better care of his car, and consequently run it much more economically than when he first purchased the vehicle.

On the Wrong Side.

NOT often are motorists accused of driving on the wrong side of the road. Hence the interest in the case at Wilmslow in which Mr. Alexander Kenyon, of Higher Openshaw, was summoned for driving a motor-car on the wrong side when meeting a carriage at Wilmslow. The coachman to Dr. Johnson said he was out driving, and when near Bank Square, Wilmslow, defendant came round a corner on his wrong side. If Mrs. Johnson, who was driving, had not pulled up there would have been a serious collision. Sergeant Woollam said defendant was on a trial trip, and appeared to be taking more notice of the driving and the machinery than where he was going. Defendant was fined 20s. and costs.

Walsall's Plight.

WHILST some Midland towns are looking to the automobile industry for the reusucitation of prosperity, and others regard its advent with feelings of curiosity mingled with pessimism, Walsall, which has enjoyed a large trade in saddlery, etc., owing to the war, is now contemplating a falling off in its staple trade owing to the growing popularity of the motor-car. The displacement of horses by the motor-car in many country stables is having its effect on the rural saddler, while the substitution of electric traction for animal power on the tramways is another contingency that threatens loss to Walsall. Apparently the town must learn the lesson that the coachbuilders are now beginning to understand, viz., that times are changing and those engaged in industry must adapt themselves to the varying manners and conditions of the age.

Automobiles and Presents.

WHEN automobile weddings cease to amaze the guests, and honeymoon tours by motor-car occasion no surprise, it may be acknowledged that the popularity of the self-propelled vehicle is established beyond dispute. Matters have even got beyond that stage, and the present of a motor-car to Earl Kinnoull on his marriage indicates a means by which people can escape the worry of choosing individual presents. In this particular instance nearly sixty friends subscribed for the vehicle. News now comes that the tenant farmers on the Rothschild estates, near Leighton Buzzard, have joined in presenting a motor-car luncheon basket to Mr. Lionel de Rothschild in celebration of his majority. If the automobile does anything to ease the difficulty of selecting coming-of-age and wedding presents it will have conferred another boon on Society.

The Peasantry and Racing.

ONE of the factors to be considered in connection with automobile racing on British roads is the attitude of the villagers and dwellers in the rural places through which the cars run. It might appear that these would be antagonistic to any suggestions for holding such contests, but the experience of other countries is exactly the reverse. In fact, when the French Government prohibited racing the peasants were loudest in denouncing the authorities, and when the ban was raised great was the joy along the countryside. And already the Irish people are becoming similarly excited over the possibility of a motor-car race being run in the Emerald Isle. Visions of visitors are not

mere phantoms. They have a tangible substance—as hotel proprietors in countries where races have been held can testify.

The Affiliation Question.

THE report with regard to the affiliation of provincial Clubs prepared by Messrs. Siddeley and Johnson has been adopted in principle by the Automobile Club Committee. It has, however, been referred to a committee yet to be appointed upon which the affiliated Clubs may be represented. The matter cannot, therefore, be regarded as settled—although on a fair way to some authoritative decision.

Driving Certificates.

A SERIES of suggestions with regard to the issue of certificates of proficiency to motor-car drivers has been considered by the Committee of the Automobile Club. There are many difficulties in the way of securing anything like a satisfactory settlement of the matter. Until he has had experience of traffic as well as of his car, no man will enter for the necessary examination, and there are others who will not care whether they have a certificate or not. Consequently the provision of certificates—a new undertaking which many consider unnecessary—will have little practical effect, however praiseworthy the objects of the promoters of the scheme may be.

The Wolseley Testing Track.

WE learn that the Wolseley Tool and Motor Car Company, Limited, are constructing a testing track on a large plot of ground they own immediately facing their capacious premises at Adderley Park. This additional area comprises nearly eight acres, and has been purchased with the object of erecting extensive additions to the Wolseley Factory. Until the space covered by the track is actually required for building the company intend utilising it for testing purposes. The course will be an ideal one for putting cars through their paces, as it has all kinds of gradients, one short strip being one in five. The complete track will give two laps to the mile. It is now nearly ready for use, the steam roller having been at work on it for the last few days. The course will also be useful not only for testing Wolseley cars at high speeds, but for teaching clients' servants—of whom there are always a number at the factory—how to manipulate the cars before allowing them to try their skill on the high roads.

MR. J. A. HOLDER has entered for the Paris-Madrid race. AN automobile club for South Wales is in course of formation.

THE Automobile Club is to become affiliated to the Marine Motor Association.

THE Oxford Cycle and Motor Company are lending out motor-vehicles with drivers on hire.

RUMOURS as to the possible early formation of a motor cycle manufacturers' association are current.

THE New Orleans Motor Company have adopted the latest ignition, with external jump gap, to one of their cars.

MR. HONORE PALMER, President of the Automobile Club of Chicago, has placed an order for a 60-h.p. Mercedes car, of the 1903 model.

THE Hon. J. Scott Montagu, M.P., is reading a paper on "Motor-cars as Feeders for Railways," at the A.C.G.B.I. on Friday, the 13th inst.

A REPORT reaches us that Messrs. Vickers, Sons and Maxim's works at Crayford, Kent, are to be devoted to the construction of motor-cars.

THE Barton Air-ship Syndicate, Limited, has been registered with a capital of £15,000, to adopt an agreement with Mr. F. A. Barton, for the acquisition of certain patents relating to navigable balloons and aerial machines, and to manufacture and deal in air-ships.

THE END OF "LE PASSE PARTOUT."

At the 1902 automobile exhibition at the Agricultural Hall, Le Passe Partout excited the public, and drew paragraphs unto itself in the daily newspapers. On one memorable afternoon the huge vehicle sallied forth with Dr. Lehweß at the wheel, to make a peregrination of the world and demonstrate the universality of the automobile. The blowing of horns, the screeching of whistles, and the silent pointing of the camera were three accompaniments that mingled in the farewell as the gates of the busy yard closed behind the caravan.

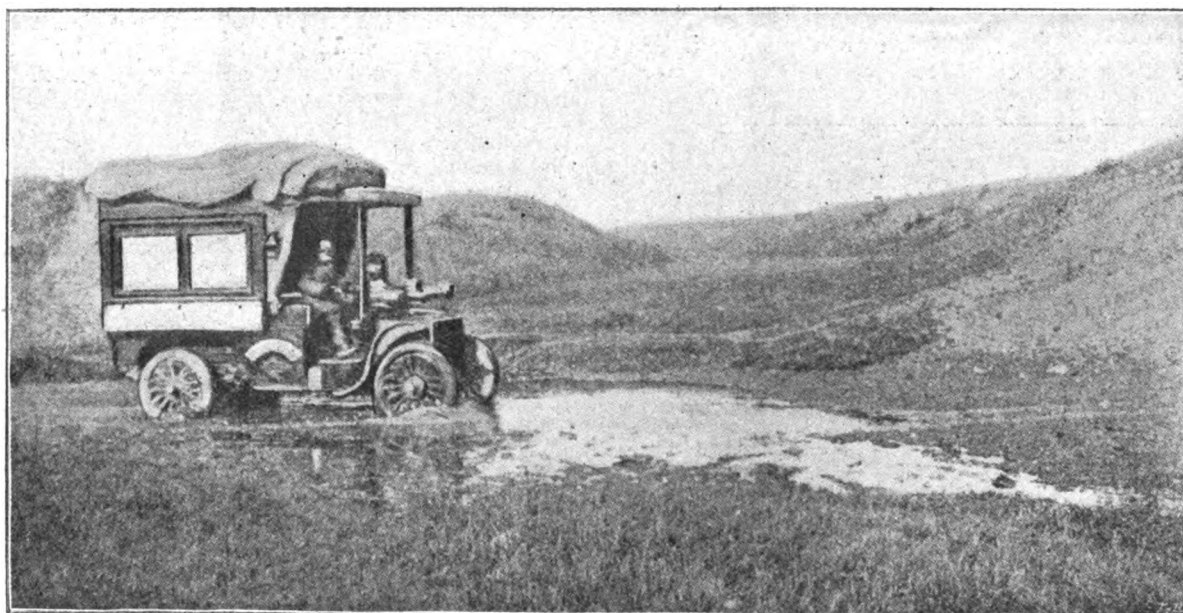
But it was not to journey alone, for a Scotchman challenged the right to a monopoly of world-travel, and accordingly a 9-h.p. Argyll, with Mr. D. H. Whitehead in charge, was accepted as companion. Le Passe Partout was to journey first to Paris, and when ready to fly its bonnet, telegraphic reminder was to be sent to the Argyll. Punctures delayed the trip to Southampton, and other matters caused a halt in Paris. But at length came the order, and Mr. Whitehead, with his Argyll, arrived in France.

After some preliminary manoeuvring the automobile

party dined in amity and peace on the last day of the tour, are stories of which we have no record.

Mr. Whitehead returned to Europe, leaving Dr. Lehweß and Mr. Cudell discussing matters with Dr. Kennard. Le Passe Partout meanwhile stood ignobly in the snow and ice—as depicted in our illustration—in the village of Clerieo, seven miles from Nijni Novgorod.

From the Continent the news spread to England and, of course, become known on the Holborn Viaduct. The automobile greatness of the Viaduct has nearly departed, but Mr. Charles Friswell remains—at least till next month, when he, too, will shake the dust from his feet and bid him to the new garage in Albany Street, from whence the operations of Friswell, Limited, will be directed. Mr. Friswell heard tell of the hapless plight of Le Passe Partout, and with characteristic promptness decided on a little expedition to find the wayward car. On the night of Saturday, the 24th ult., he left London arriving in Brussels the next morning. On Monday he reached Paris, and at 1.50 in the afternoon he left for Berlin, arriving there at 8 a.m. on the next day. Tuesday was spent in reconnoitring the German capital. He left Berlin at night, and got to Warsaw about



"LE PASSE PARTOUT" ICE-BOUND NEAR NIJNI NOVGOROD.

voyagers set out from Paris on the day of the Grand Prix—a modest proceeding, indeed, seeing that everybody was at the races, and the Caravan on wheels passed beyond the walls practically unobserved. In addition to the tourists already named were Dr. Kennard and Mr. Cudell, who shared in many excitements ere the journey was over.

An interesting trip was made to Berlin, where the party remained ten weeks studying the ways of the people and acquiring some knowledge of the automobile needs of the city. Le Passe Partout departed from Berlin one midnight without any of the trumpeting that heralded its departure from London. Apparently as the distance lengthened the modesty of the leader of the expedition increased, and he recognised that a quiet tour would prove as demonstrative of the powers of the Caravan as one accompanied with much noise from onlookers. Certainly the trip was useful in that respect, and the way in which the Argyll car and its big brother journeyed over the bad roads leading to Warsaw revealed qualities of endurance and strength that should satisfy any ordinary Britisher. On the Russian frontier some negotiations had to be conducted, and then again the trip was resumed to St. Petersburg, where a stay of three weeks preceded the trip to Moscow. There it terminated. Why the tour of the world should end in Moscow, and how the

10 o'clock on Thursday morning. Friday afternoon he was in Moscow, and at 10 o'clock in the evening got to Nijni Novgorod—having exceeded the legal limit of speed as imagined by a Surrey magistrate. The following morning Mr. Friswell went by sledge to Clerieo, where Le Passe Partout was alone. There he enlisted local labourers to dig out eighteen inches of ice, and then seven horses drew the helpless vehicle. Two hundred yards further it subsided into the snow. To get it to the station was a terrible affair, but it was accomplished, after an exchange of language in various tongues that need not be attempted here. His Saturday's work done, Mr. Friswell returned to Moscow, where he motored with Mr. Teffersfelt, the local automobile agent, till the afternoon, when he set face for home, and arrived in London on the night of Wednesday week, having travelled 5,670 miles, and assured himself that Le Passe Partout would follow in a few days.

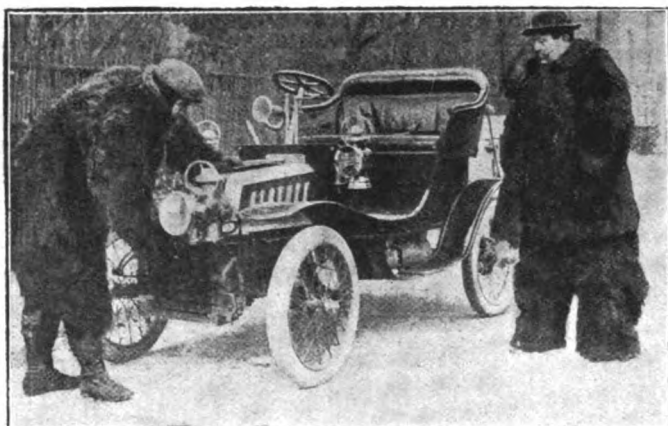
One result of the trip has been to cause Mr. Guy Lewin to blossom forth as an auctioneer. Mr. Friswell had a sale on the Tuesday, and could not get back in time. So Mr. Lewin took out a licence, and his first sale was a most successful one. And now London awaits the return of the Mighty Wanderer—back again in good time for the Exhibition of 1903.

CONTINENTAL NOTES.

BY "AUTOMAN."

FROM a Government point of view the racing year in France is opening badly, and no one seems yet to understand why, or to fathom the official mind in its vagaries. First of all the Pioule cup was vetoed by the authorities, and now comes the news that the "Circuit du Sud-Est" has been forbidden by the Minister of the Interior, notwithstanding the fact that all the authorities along the route had given their consent and were anxious that the race should take place. The "Circuit du Sud-Est," or the South-Eastern Circuit, was to be the *pièce de resistance* of the Nice races in March, and was to be run from Nice to Aix, Senas and Salon and back to Nice via Aix. Last year it was intended to race from Nice to Abazia, on the Adriatic Sea, and back, and great preparations had been made for this event, which at the last moment was vetoed by the Italian Government on account of the doings of some *chauffeurs* who had frightened the villagers on the route whilst testing their racers over the road. What makes the vetoing of this year's Circuit du Sud-Est the unkindest cut of all is that it was to be accomplished exclusively with alcohol.

THE fifteenth of February, that is to say, Sunday, is the last day for the first series of entries for the Paris-Madrid motor-



M. TAMPPIER, THE A.C.F. TIMEKEEPER, PREPARING TO SURVEY THE PARIS-MADRID ROUTE. [La Vie au Grand Air.

car race. This comprises those who will have their starting places in the race regulated by ballot. After that date and until April 15th, those who enter will have starting places allotted to them in the order of their entries. After April 15th the entrance fee will be doubled, and on May 15th, at 6 p.m., the lists will be finally and definitely closed.

THERE will be four main classes, viz. (1) vehicles weighing 50 kilos (3 qrs. 26 lbs. 4 oz.) or less; (2) vehicles weighing between 250 kilos (1 cwt. 3 qrs. 19 lbs. 4 oz.) and 400 kilos (7 cwt. 3 qrs. 14 lbs.); (3) vehicles weighing between 400 kilos and 650 kilos (12 cwt. 3 qrs. 5 lbs. 4 oz.); (4) vehicles weighing between 650 kilos and 1,000 kilos (19 cwt. 2 qrs. 21 lbs.). The two last classes must carry two persons sitting side by side and weighing at least 60 kilos (9 st. 6 lbs.) or ballast to make up. The cars will be weighed without passengers, fuel, oil, water, accumulators, tools, spare parts, clothes, provisions, or luggage, and minus lamps and lamp brackets and hooters. An allowance of seven kilos (15 lbs. 6 oz.), will be made for cars using an ignition which is driven by the motor. In the last two classes one of the occupants must be a member of the Automobile Clubs of France or Spain, or of an affiliated club.

On the first day the cars will be started in their order at intervals of two minutes. On the second day they will be sent off in the order of their arrival on the first day and at two minutes' interval. On the third day the first five cars will be started

according to a provisional classification made the night before with the object of ascertaining the five leaders, and these will be started in their order, but at intervals of not less than two minutes and not more than fifteen minutes, according to the intervals between them in the provisional classification. The remaining cars will be started in the order of their arrival the day before and at intervals of two minutes. No car which arrives later than three o'clock on the morning of the day after the start for any stage shall be judged to have arrived.

THE race will be held under what is called "le regime des parcs absolument fermés." The meaning of this is that as soon as each car arrives at the "parc" or enclosure destined to shelter it for the night, the occupants are to stop the motor immediately, and no operation of any kind is allowed to be accomplished by them, with the exception of "paraffining the hot cylinders" in the case of petrol cars or blowing off the boilers in the case of steam cars, and in no case must these operations take longer than two minutes, when the driver and mechanic must leave the car and the "parc." On the following morning, when the time for the start of any car has arrived, the driver and mechanic must enter the "parc," start the car, and drive it out without doing any other operation of any kind. At the end of three minutes, if the car is not out it must at once be pushed out by men kept for that purpose by the authorities. All cars will be considered to have started at the moment the driver enters the "parc."

On arriving at a control at the beginning of a neutralised section, each car must stop and the controller will hand to a cyclist a card with the time of arrival and the time of departure, and the car must follow the cyclist slowly to the other extremity of the control, where the second controller will sign the card, put it in the box attached to the car for this purpose, and give the order to start. Should any competitor go through a control in less than the requisite time he will incur one of three penalties. 1. Should he be able to prove that the controllers were not at their post, he will be penalised by the time allowed for crossing the neutralised area. 2. Should he not be able to prove that the controller was not at his post, he may be penalised by three times the time allowed for crossing the neutralised area. 3. Or he may be disqualified entirely from the race.

THERE is to be a new classification "par équipes." It is rather difficult to find an English equivalent for this description. It means literally by "crews," and will be perhaps best understood by translating it into by "series of types." This new classification will be divided into four groups, viz.:—1. Series of types having four cars arriving out of four starters; 2. Series of types having three cars arriving out of four starters; 3. Series of types having two cars arriving out of four starters; 4. Series of types having one car arriving out of four starters. In the first group the classification will be made by the totalised time occupied by the four cars. In the three other groups, the classification will be made by adding up the distances covered by all the four cars taking the last control passed by those that do not reach the end of the journey.

CARS can only be pushed by the driver and mechanic, but a special dispensation has been made from this rule for two contingencies. 1. To get the cars out of the "parcs." 2. To get the cars out of any difficult position, which is not an actual part of the course—for instance, a ditch or a ford. No cars shall be allowed to follow the race to assist any competitor. No competitor shall be allowed to travel over the course before the race at a speed above the regulation speed. On the arrival in Madrid all the cars must be exhibited for two days. If for any reason (which is most improbable), it should not be possible to race over the French part of the course, the meeting will still hold good and the real racing will commence at the Spanish frontier, where the requisite authority has already been given.

THE "Velo" gives an account of interviews with Quinonès de Leon and with Gabriel, who have just returned from Madrid. They have gone over the Spanish roads between the frontier and

the capital very carefully in company with the Marquis de Viana, secretary to the Royal Automobile Club of Spain. Gabriel does not seem to be quite as enthusiastic about the roads as his companions, and says that the last thirty kilometres before arriving at Madrid are in a shocking condition. Anyone who attempts great speed will certainly break down. The rest of the road is fair, and there are some wonderful stretches of dead level straight roads for sometimes seventy miles. The descents of the Pyrenees and the Guadarrama Mountains attain in some places 15 to 18 per cent., and there are some awful curves, one especially where you have got to use your reverse motion before you can get round. There are, however, neither *canniveaux* nor *dos-d'anes*, and very few neutralisations. It seems that it is the Spanish custom to have the villages at some little distance from the main road on one side of it. Gabriel says that it will not be a race for fast cars, and that 70 kilometres (43 miles) is likely to be the average speed.

THE King of Spain is going to be present in person to see the arrival of the cars in Madrid, and this will be a record. I well remember that until the very last moment at Berlin in 1901 it was expected that the Kaiser would turn up. But it was too new a sport, two years ago, even for the progressive Emperor of Germany to publicly patronise. The young King of Spain has not only given a Royal standing to the Automobile Club of Spain, but his presence at the Paris-Madrid race will give a kingly sanction to road racing from the most exclusive Court in Europe.

THE annual Dutch Automobile Show was opened at Amsterdam on the 6th inst., in the building known as the *Paleis voor Volkslijft*. There are about sixty exhibitors, including Panhard, Darracq, Peugeot, Renault, Mors, Hurtu, and Germain Companies.

THE Austrian Automobile Club is organising a "Circuit" for the end of May or commencement of June next, on the lines of the "Circuit des Ardennes." The district selected is the Wachau, in Lower Austria.

THE 2nd annual International Automobile Exhibition, organised by the Belgian *Chambre Syndicale de l'Automobile*, was opened in the *Palais du Cinquantenaire*, Brussels, on the 7th inst. and will continue until the 16th inst. The show is the largest so far held in Belgium, there being about 150 exhibitors. Among the principal cars are Gobron-Brillié, Germain, Passy-Thellier, Vivinus, Hautier, Charron, Girardot and Voigt, Miesse, De Dietrich, Dechamps, Pipe, Renault, Serpollet, Panhard, Belgica, Jenatzy, Linon, and Hurtu.

A NEW steam-car is shown by La Société des Voitures à Vapeur Paridant. The Germain Company display a 30-h.p. car and a new electrical transmission mechanism. La Metallurgique have again taken up the construction of automobiles and exhibit a 16-h.p. car on Panhard lines. Prince Albert of Belgium was one of the visitors to the show on Saturday last.

THE Prime Minister's new Napier car has now been delivered, and on Tuesday Mr. Balfour went for a trial run in it.

THE Continental Automobile Syndicate, Limited, has been registered with a capital of £100, to carry on the business indicated by the title. Registered without articles of association.

WITH regard to the case *Lester v. The London Motor Garage Company*, reported in our last issue, Mr. Justice Kennedy has decided that as the Motor Company asked for the special jury who heard the case they must pay the consequent expense.

THE recently-formed Norfolk Automobile Club has already sixty-one members, Norfolk motorists interested in the movement, but who have not as yet sent in their names, are invited to communicate with Mr. G. N. C. Mann (Hon. Sec. pro tem.) at 2, Redwell Street, Norwich.

THE 1903 EXHIBITION.

WE are now within appreciable distance of the eighth, annual automobile Exhibition at the Agricultural Hall London, and the trade is looking forward to the event as really inaugurating the 1903 season. Already the whole of the ground floor of the large hall has been allotted as well as the Minor Hall, King Edward Hall, and the Arcade. This alone will provide for a representative Exhibition, but when we also state that the wide and extensive galleries are fully let, the comprehensive nature of the forthcoming display may be better imagined. So many have been the inquiries for space received during the last few days that the large Berners Hall and the North Gallery Annexe are being prepared to meet the demands of intending exhibitors, whose requests are being dealt with in priority of application. The Berners Hall is a lofty building, well designed for exhibition purposes, and its capacious area will enable several firms, who would otherwise have missed the opportunity of being represented, to participate in the great International Exhibition of 1903.

To provide accommodation for the comfort of visitors the Grand Lounge is being fitted up, which will be accessible from the Berners Hall as well as from the Main Hall. This will seat over 200 people comfortably and also provide room for promenading. As the band will play there twice daily it should become a favourite rendezvous. To the galleries there is a two ton lift, facilitating the conveyance of cars, of which there will be a large number. In fact, the display of cars in the Gallery will be one of the features of the Show.

Applications for the few remaining spaces are coming in so freely that the proprietors, Messrs. Cordingley and Company, have had difficulty in coping with the situation thus created; but satisfactory arrangements have now been made for the comfort of the public and the convenience of exhibitors, so that no doubt exists as to the success of this year's event. Last year's Exhibition made a record; the 1903 show will prove even greater, the ground floor space alone actually occupied by cars, accessories, etc., being larger than at any previous Exhibition held in this country.

Already plans are in preparation for the 1904 Exhibition, which will be held from March 19th to March 26th.

THE RELIABILITY TRIALS.

IN our issue of the 31st ult. we gave a synopsis of the marks agreed upon in connection with the Automobile Club's Reliability Trials this year. At the last meeting of the sub-committee for formulæ for trials the following calculations were definitely decided upon:—

$$\text{Hill Climbing.—Marks} = \frac{3300}{\text{No. of Hills}} \times \frac{(6 + \text{No. of pass.})}{(1500 + \text{£})} \times \text{average grade per cent.} \times \text{speed miles per hour.}$$

$$\text{H.P. Performance.—Marks} = \frac{(\text{laden weight, lbs.} \times \text{vertical rise, ft.}) + (\text{length of hill, ft.} \times 35 \text{ lb. per ton laden weight.})}{33,000 \times \text{time, minutes.}}$$

$$\text{Accuracy of Advertised H.P.} \\ \text{Marks} = 250 \times \left(\frac{140}{100} \times \frac{\text{H.P. performance}}{\text{H.P. declared}} \right)^3, \\ \text{with a maximum of 250.}$$

$$\text{Fuel Consumption.—Marks} = \left(25 \times \text{distance in mile.} \times \frac{\text{laden weight, cwt.}}{(20 + \text{laden weight, cwt.})} \times \frac{1}{\text{fuel in gallons} \times \frac{\text{pence per gallon}}{12}} \right) - 12,$$

$$\text{Speed.—} \\ \text{Marks} = \frac{\text{speed, miles per hour} \times (6 + \text{No. of passengers})}{1500 + \text{price, £}} \times 2500$$

$$\text{Cheapness.—Marks} = 7 \text{ for £1 per cent. below maximum price.}$$

MOTOR-CYCLING NEWS.

HEREWITH we reproduce a photograph of Dr. Sidney Wigglesworth, of Kirkham, near Preston, on his 2½-h.p. Singer tri-voiturette. The doctor, who is accompanied by his two little sons, speaks very highly of the machine for professional work. "It has," he reports, "been a boon during the recent severe



weather. The way I can tear through mud and slush against a terrific gale is a treat, after bicycling for so many years in all weathers. This morning I rode six miles in just eighteen minutes, over an average up and down hill road. Altogether I have ridden it 2,000 miles."

UNDER date February 11, the Automobile Components, Limited, write as follows:—"With reference to our published challenge, and the acceptance of same by Mr. Fred. Chase, when informed by you per telephone on Friday last that our deposit had been covered, we attended the "Bat" stand at the Crystal Palace, with a view to drawing up conditions, so that the balance of the stake might be deposited. We saw Mr. Chase, who informed us that he would not ride a "Bat" machine, but a special racing cycle fitted with one of our engines. We were not surprised, but nevertheless extremely disappointed, as we were in hopes that the machine he would ride in the contest would be fitted with an engine other than our own. We pointed out to Mr. Chase that the reason of our challenge was not to put two men both riding machines fitted with our engines in competition, as such contest would only be a test of the capabilities of two men, whereas we desired to publicly prove that the 'Automotor' engine was superior to that of any other make. We, however, practically agreed to pit our representative—Fournier—against Mr. Fred. Chase for a stake of £250 a side, to settle the dispute as to which was the best rider, and Mr. Fred. Chase agreed to attend at our offices on the following Monday to fix all arrangements. Instead Mr. Arthur Chase attended on behalf of his brother, but said he must see Mr. Fred. Chase before definitely deciding, and promised to endeavour to call upon us again yesterday (Tuesday). We saw nothing of him, and there the matter stands. Late yesterday evening Mr. Charles Barden (the old racing crack) called upon us and said he would race Fournier on his motor machine, if we would agree to waive the question of weight of machine. This we have agreed to do in this case, as the motor on his cycle is by a rival maker, and Bardon has agreed to race our man on Saturday, March 7th next, at the Canning Town Track, best three matches out of five, providing the track can be obtained, for £250 a side. He has given us the name of his backer, and, in proof of his *bona fides*, has deposited a small sum with us. We informed him that we could not

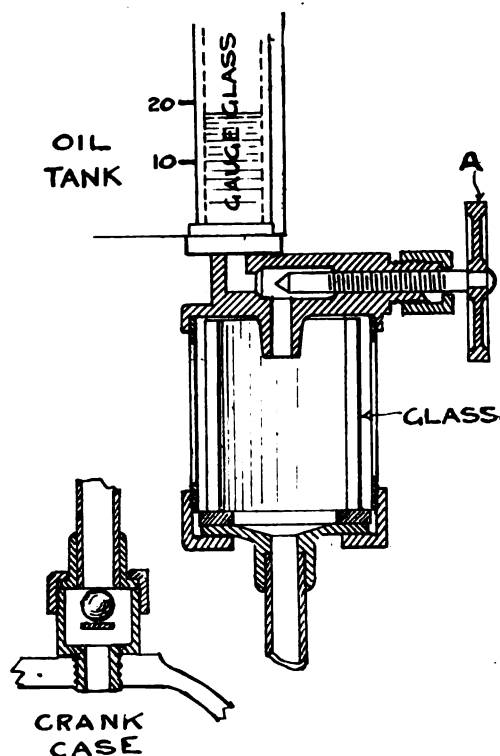
accept his challenge until we had heard from Chase. We trust we have explained the matter fully."

OWING to the insulation of the wires rubbing through by continual friction with the metal frame, and thus earthing the current, it is desirable in motor-cycles to reduce the length of wiring to a minimum. This point in many instances escapes designers, with the result that the annoying and mysterious short circuit is a frequent occurrence, which, in addition to the difficulty of locating, often results in damage to the accumulator by the sudden and rapid discharge of current.

THE Motor Cycle Committee of the Cyclists Touring Club is arranging a motor-cycle tour for Easter. The daily run will be about 100 miles, the route tentatively selected being from London to Salisbury, Exeter, Bristol, Gloucester, Worcester, and Oxford.

THE Liverpool Motor Cycle Club held a run on Sunday last. There was a good attendance, among others present being Mr. E. H. Arnott. The original destination was Chester, but, on account of the bad state of the main roads, the run was made to Pargate and Heswall.

MR. A. C. DAVISON, the maker of the Davison motor-bicycle, writes:—"Regarding your, note in a recent issue, that bicycle motors must be fitted with continuous lubrication, preferably sight-feed, if possible, I beg to point out that mine is at the present moment fitted with a gravity sight-feed lubricator, and enclose you a small drawing which explains itself. By turning the graduated wheel (A) the drip can be adjusted from two or three drops a minute, and by opening it still more a full charge can be put into the crank case for starting, the amount being measured by noting the fall of the oil in the gauge glass, one of which is fitted to the oil as well as to the petrol tank. One great advantage of this arrangement is that the drip can be altered to suit oils of



different body or changes of temperature. A small ball valve is inserted in the pipe where it enters the crank case to prevent the oil blowing back, while on the other side is a corresponding valve, but opening outwards to relieve the pressure and so help the flow of oil from the lubricator as well as prevent leakage of oil round the bearings."

The Crystal Palace Automobile Show.

(SECOND NOTICE.)

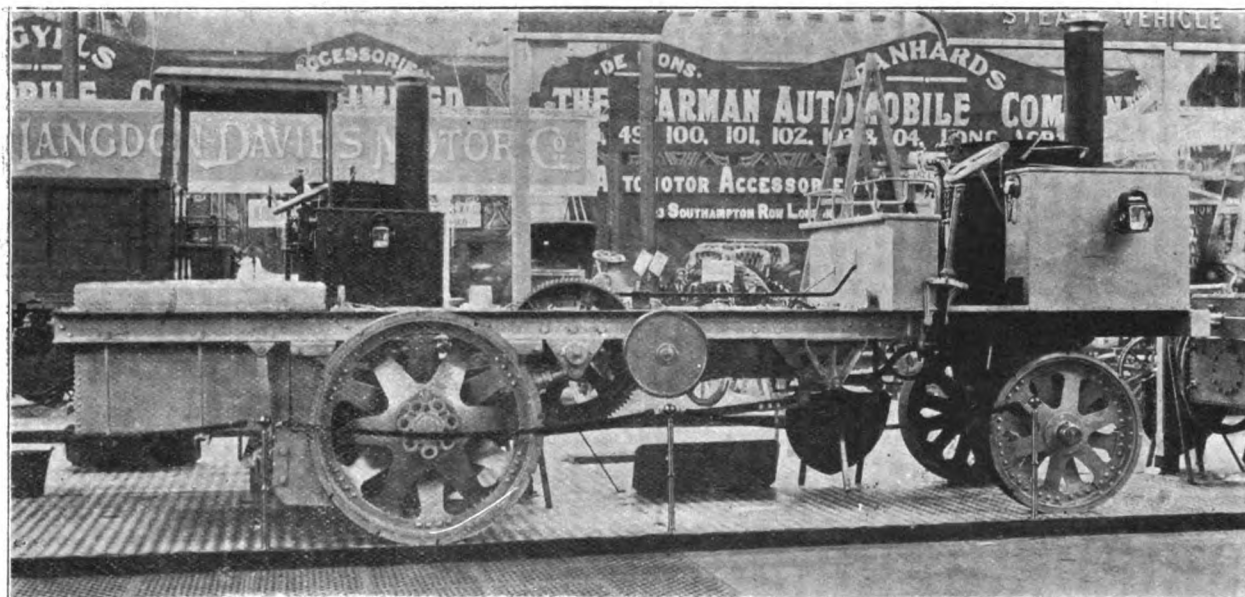


FIG. 21.—THE STRAKER 7-TON STEAM WAGON. (See last issue).

STEAM CARS.

The Albany Manufacturing Company, Limited, showed their radiators, condensers, generators, etc., which are well known to the trade, but fresh interest was given to the display by the presence of a new radiator for petrol cars. This is of the Mercedes type, tubes of 3 in. length being utilised, the edges being expanded hexagonally, and jointed up so that only the minimum of air resistance is offered. But the important feature on the stand was the 24-h.p. Lamplough-Albany steam car illustrated in Fig. 22.

the generator, being of the coil type, is safe from explosion. The boiler works at a pressure of 300 to 400 lbs. The burner is automatic, and constructed to break up and burn both light and heavy hydrocarbons, such as paraffin, petrol, alcohol, methylated spirit, etc. The pumps are arranged to automatically pump fuel and water, the method being to vary the quantity of liquid delivered in preference to varying the stroke. This is done by a single oscillating lever worked off the pump ram and fulcrumed at its centre to a diaphragm-controlled piston; this fulcrum alters its position

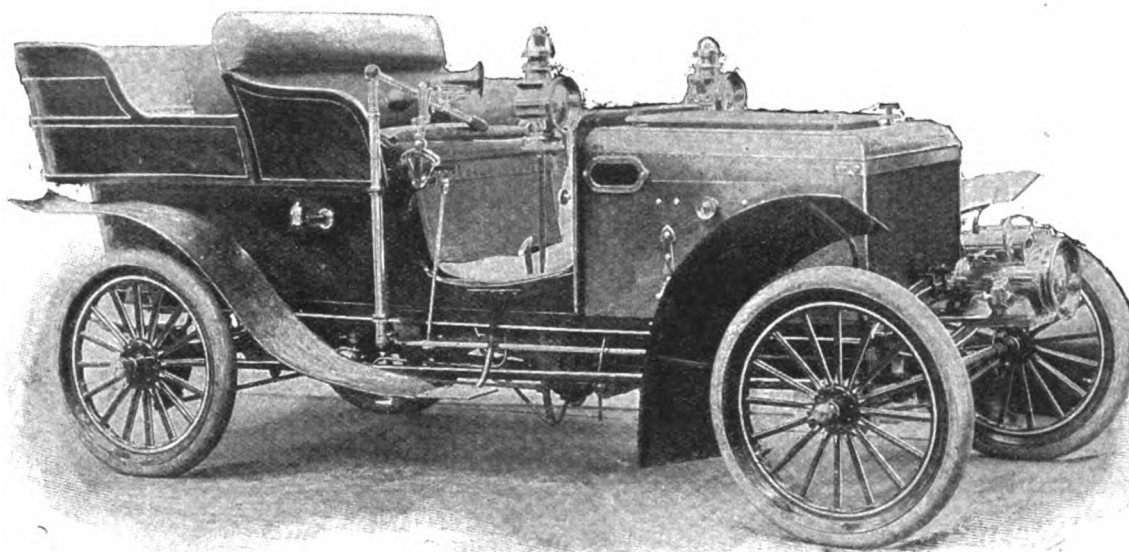


FIG. 22.—THE LAMPLOUGH ALBANY STEAM CAR.

The method adopted might be termed the generation of steam within steam—a system advocated, after much research, by Lamplough as far back as 1884. Since then the primary and secondary generation of steam has been the subject of many experiments, demonstrating the value of the plan. In the car shown, the wet steam is generated in the primary generator, and is excessively superheated in the secondary one, being subsequently brought to a workable temperature by the extraction of some of the heat units through "frictioning" the surface of the primary generator. The result is considerable economy with great increase in evaporative efficiency, while

according to the pressure on the fuel tank or boiler, and causes the free end of oscillating lever to hold up a return valve for a more or less portion of the stroke; consequently when the maximum pressure is reached the pumps are doing no work, and at all times doing only what is actually necessary. A four-cylindred engine is provided. The boiler pressure is admitted, and the speed of the car regulated by the cut-off, a single lever performing the operations of stopping, admitting steam, reversing and controlling the speed. By this means great economy is claimed. Lamplough's patent valves are adopted, and the engine is also fitted with trunk pistons, thus reducing

the number of complications. The Albany system of condensing has been adopted, by which means the steam is condensed, and the whole of the water returned to the tank, so that a run of two hundred miles can be obtained on one supply of water. The separation of the oil is done by gravity. The drive is direct by means of a flexible shaft connecting the engine to the gear box. In addition to the foot and compound hand brakes provided, the engine itself can be used as a steam brake. Side tiller steering is adopted, or wheel steering can be fitted if desired. The car has a tonneau body, and with its dark green upholstery presented a bold appearance.

The Motor Construction Company showed a number of light steam cars on American lines, but of English construction, except as regards one or two vehicles, which are equipped with Mason engines. On the stand were a 5-h.p. two-seated car, an 8-h.p. double-phaeton with artillery wheels, a 9-h.p. *dos-a-dos*, and the chassis of a 12-h.p. car, which is intended to be fitted with a double phaeton body and brougham top. This vehicle is provided with a 24-inch fire tube boiler and a 16-h.p. double-cylinder engine, the cylinders being $3\frac{1}{2}$ in. diameter and 5 in. stroke; steering is controlled by an inclined wheel in place of the usual tiller, while the car has roller bearings throughout, a large feed-water heater, and sight feed lubricator, etc. Among the new fittings for steam cars lately introduced by the Motor Construction Company is a condenser, which consists of a

Chelmsford car were also shown, one being fitted with an automatic regulator in which the fuel feed is controlled by the steam pressure, the fire being entirely cut down should the pressure attain 300 lbs. per square inch. Another interesting exhibit was a solid-drawn 20-in. boiler shell, electro-galvanised inside and out. Finally, we may refer to samples of the ingenious pipe joint used on the Chelmsford cars, in which a stout copper washer is placed between the flanges of the pipes to be connected, these being held fast by steel unions.

The Hydroleum Motor Company, Limited, showed a delivery van and an ordinary Loconobile fitted with the Hydroleum fuel system. Mr. W. Worby Beaumont has prepared a report on some comparative tests he has made with this system, which we propose to refer to in an early issue.

PETROL CARS.

A wide range of cars was shown on the stand of the Farman Automobile Company, Limited, these including specimens of the 7-h.p. and 15-h.p. Panhard, 11-h.p. Argyll, 12-h.p. Clement, and 6-h.p. De Dion popular vehicles. In addition specimens of the F.A.C. 12-h.p. and 24-h.p. cars were shown. These have respectively two and four cylinders, and in their general arrangements closely follow the Panhard type.

Considerable interest was shown in the chassis of the $9\frac{1}{2}$ -h.p. Earl car

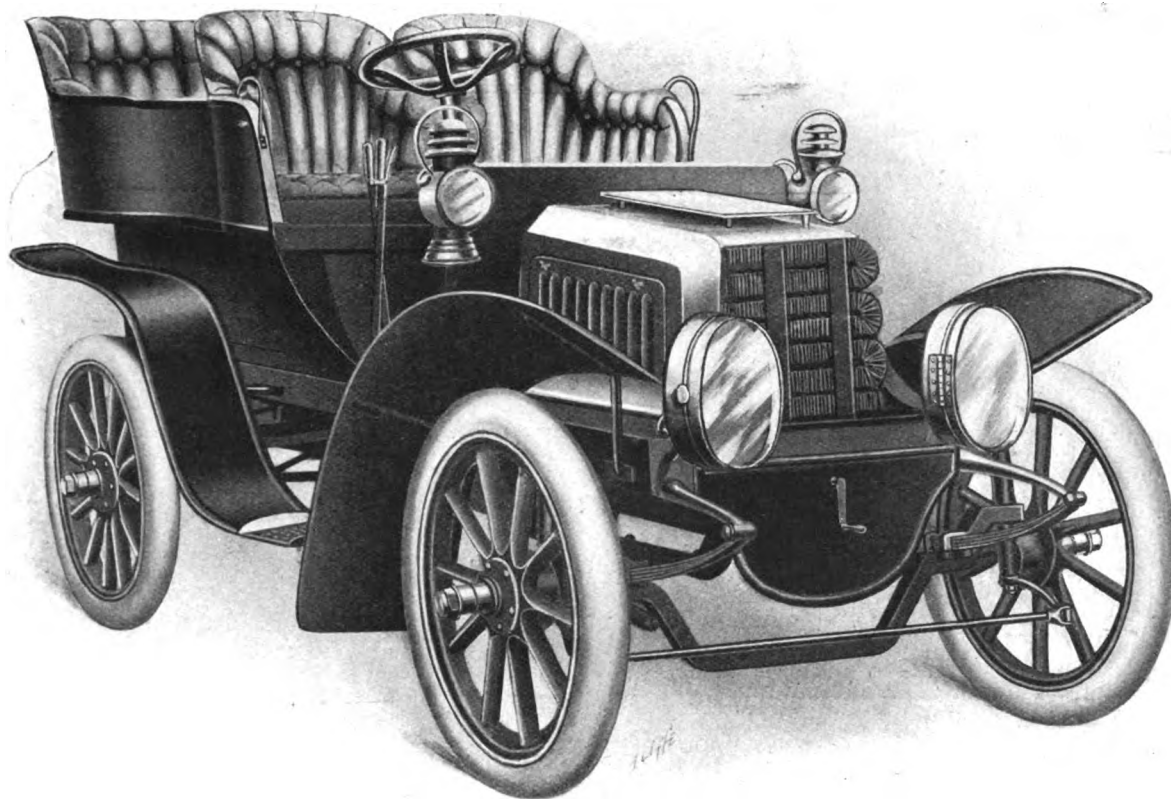


FIG. 23.—THE CHENARD-WALCKER 14-H.P. CAR.

“header” into which the steam from the engine is discharged. From this header a large number of small tubes lead, just entering the ends of larger horizontal longitudinal pipes; the front ends of the latter are open, while the back ends lead into another header which has a pipe leading up the chimney of the boiler. A strong cooling draught is thus drawn through the tubes, perfect condensation without back pressure being claimed for the arrangement. A brief reference may also be made to the feed-water level regulator, which consists of a patent steam trap, low water alarm, and a special back pressure valve. The apparatus is automatic in action, and maintains the level of the water in the boiler at a practically uniform height. Should the engine pump fail from any cause, the alarm gives immediate and unmistakable warning to the driver.

The stand of the Clarkson and Capel Steam Car Syndicate was one of the centres of attraction. Here was shown the steam touring car, illustrated and described in our issue of the 6th December last, although we noticed that since that time the body has been slightly raised and the front given a lighter appearance. Specimens of a van body and a well-finished covered tonneau designed to fit on the same chassis were also displayed. A Chelmsford 12-h.p. double-cylinder horizontal engine had been provided with glass windows instead of the usual metal inspection lids, in order to allow the Clarkson system of continuous lubrication to be examined. We refer our readers to the illustrated description of this ingenious method given in our last issue. Several specimens of the burner as used with the

on the stand of the Great Central Garage, Limited. The general arrangement follows the now generally adopted lines, a two-cylinder motor being set in the fore-part of a steel-armoured wood frame. The engine runs at a normal speed of 800 revolutions per minute, and is fitted with a governor which acts on the exhaust valves in such a manner that it works very silently. The transmission is on Panhard lines, except that on the top speed the power is conveyed direct; three forward speeds and a reverse, controlled by one lever, are provided. Electric ignition is employed, but everything is in readiness to fit tube ignition if required. Equal size wheels, shod with 800 x 85 mm. pneumatic tyres, Dubrulle lubricator to engine and crank chamber, working automatically, drop feed lubricator to all parts, are other features of the Earl car, which appears to be of sound construction throughout. A complete car was also shown, this having a comfortable body of the Roi des Belge type. On the stand were well-finished specimens of the 7-h.p. Panhard, 12-h.p. Darraq, and 9-h.p. Renault cars.

As has already been announced in the *Journal*, Charron-Girardo and Voigt cars are now being introduced into this country by Messrs. Evart-Hall, Limited. The details of the C.G.V. vehicles, to give them a short name, have already been given in these columns, so that it need only be mentioned that in addition to a 15-h.p. four-cylinder chassis, were shown a 15-h.p. Roi des Belge tonneau, and a 15-h.p. hooded double phaeton by Labourdette. The frame is built of tubes into which ash is driven, while among

the noteworthy features are the hot-water jacket to the carburettor and the expanding band brakes on the hubs of the rear wheels. We expect the C.G.V. cars to become a popular type in this country.

The Roadway Autocar Company were, unfortunately, not able to stage an example of the new Mors car, their exhibit of this type comprising well-finished specimens of the 12-h.p. and 16-h.p. vehicles already fairly well known. In the Renault section, the principal item of interest was

by a hand "accelerator." By its means a great elasticity of power resembling that of steam is obtained, and permits the engine to be run at speeds of from fifty to 1,200 revolutions per minute. The ignition also deserves special notice, since it is obtained by a single contact for both cylinders. A spark is formed in both cylinders simultaneously, one firing a charge, the other being a useless one except in so far as it dispenses with tremblers, a double coil, and facilitates the synchronising of the sparking.

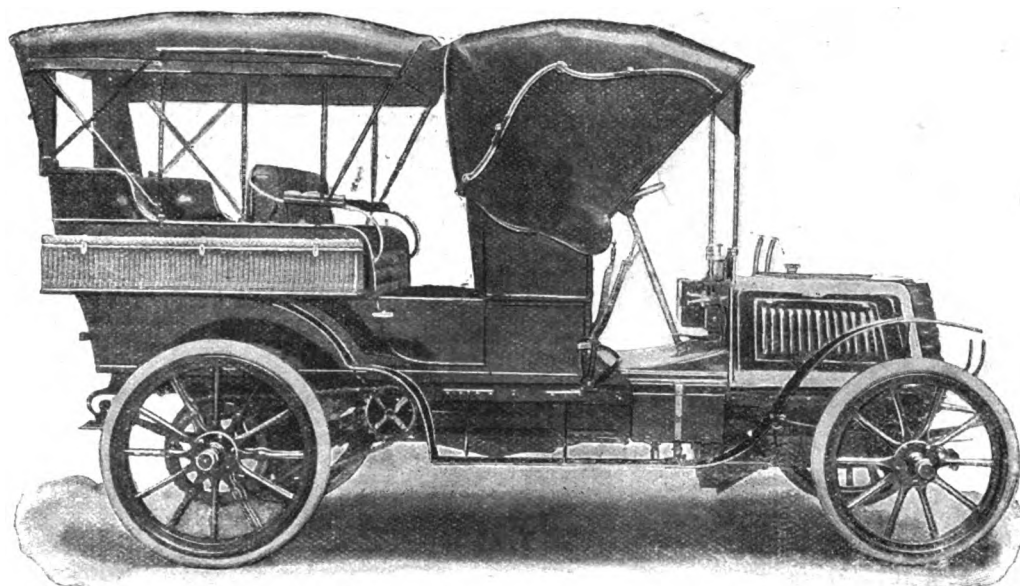


FIG. 24.—THE PANHARD 20-H.P. TOURING CAR.

the identical 20-h.p. racer which won the Paris-Vienna race. The Renault cars are now being made in four sizes, 6-h.p. and 8-h.p. with single cylinder, motors, 10-h.p. double-cylinder, and 14-h.p. four-cylinder, the latter having mechanically operated inlet valves, a new carburettor, and an automatic governor acting on the admission. An illustration of this vehicle is given on another page. One of the 8-h.p. Renault cars was fitted with a hansom cab top and storm apron, for the protection of the passengers.

There are so many novel features in the Chenard and Walcker cars, which are being introduced into this country by the Weston Motor Syndicate, that adequate justice cannot be done to them in the brief space at our

The transmission is on special lines, being through a longitudinal shaft from the gear-box (which gives four speeds ahead and one reverse) to a differential cross shaft supported above the rear axle. On the ends of the cross shaft are pinions meshing with internally-toothed rings bolted to the rear road wheels. Finally, we may refer to the ingenious arrangement of combined clutch and brake, operated by one pedal. Altogether the Chenard-Walcker 14-h.p. car is full of interesting points, with which we hope to deal in a subsequent issue. Of this type a *chassis* was shown as well as a complete car (Fig. 23) fitted with a roomy tonneau body, to which the name Roi d'Espagne has been given.

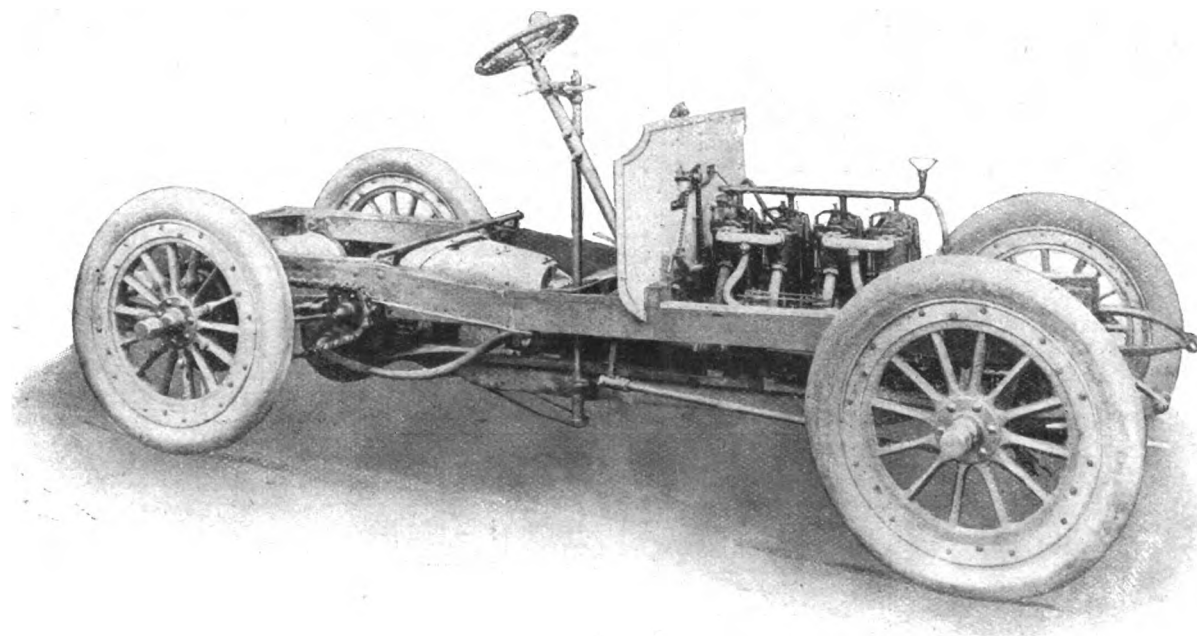


FIG 25.—THE "WELLER" 20-H.P. CHASSIS. (See page 962.)

disposal this week. Two sizes were shown, one having a 10-h.p. two-cylinder engine and the Panhard type of transmission, and a 14-h.p. double cylinder car, having the Chenard-Walcker patent driving gear. In both cases the motors have mechanically-operated inlet valves with a special form of governing device acting directly on the inlet valves by means of specially-formed cams. The valves are always given a full lift, but the time they are kept open to the full is varied by the automatic governor or

The exhibit of Mr. Harvey du Cros consisted of twelve complete Panhard and Levassor carriages, with motors varying from 7-h.p. to 24-h.p., and a standard finished 20-h.p. *chassis*. The vehicles were shown upon the handsome stand which Messrs. Panhard and Levassor constructed for their exhibit at the Paris Salon in December last. The cars are fitted with specially designed bodies built by Messrs. Rothschild and Messrs. Muhlbacher, of Paris, and by the Regent Carriage Company of London, a special

20-h.p. touring car (Fig. 24) with extra long wheel base, being particularly noticeable. The most interesting features of the exhibit were the many improvements which have been introduced and which were included in the chassis so as to be easy of inspection. Among these improvements is the new automatic carburettor, which permits of the car being driven at any desired



FIG. 26.—THE JAMES AND BROWNE LAUDAULETTE.

speed without change of gear, and by the use of which the speed of the motor may be so reduced that, even when the car is stationary, the engine, although running, is perfectly silent. By the aid of this device the Panhard motor is claimed to be as easily controllable as regards speed and fuel consumption as an ordinary steam engine. The new carburettor is the design of Major Krebs, director of the Panhard and Levassor Company. The admission of air is regulated automatically by the engine, in accordance with the amount of petrol drawn in on the suction stroke, so that, as the mixture is always the same, and only varies in quantity, the motor will run at a low speed without danger of stopping through the admission of poor gas. Other new details in the Panhard cars for the 1903 season comprise an improved method of adjusting the throttle valve and the timing of the ignition by the use of two thumb screws mounted on the steering wheel, which enable these adjustments to be effected without moving the hands from the wheel. The improvements also include a new system of electric ignition, by which the accumulators are maintained fully charged by means of a small dynamo mounted on the car. The gear is now mounted on the framework of the car in such a manner that it is in no way affected by torsional strain or flexion of the frame, consequently the power developed by the car is transmitted to the wheels with the least possible loss and the wear and tear on the running shaft and bearings are greatly reduced. By this system also the gear-box can be more easily removed from the frame. On a special stand in the grounds a 15-h.p. Panhard engine, fitted with the new carburettor, was shown in operation. This exhibit was most

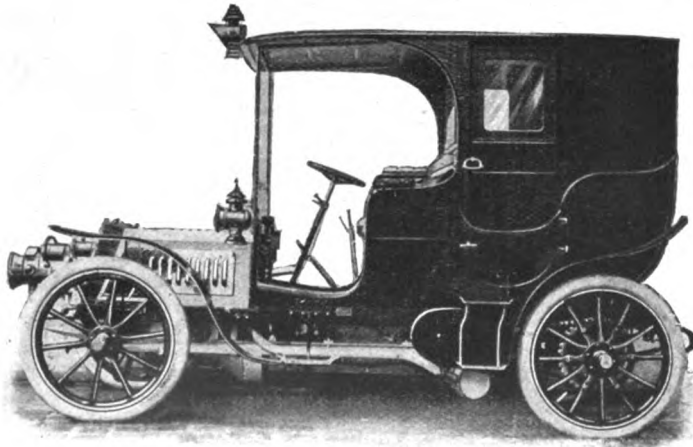


FIG. 27.—THE BRUSH 16-H.P. DILIGENCE.

interesting, as it showed the variation of speed obtainable by the use of this carburettor, and the noiselessness of the engine to which it was fitted.

We were considerably interested in the 20-h.p. car (Fig. 25) shown by Messrs. Weller Brothers, which comprises a number of commendable features. In the first place, the motor, gear box, differential shaft, and exhaust box are all supported on a steel under-frame suspended from the main frame by three connections, one at each end of the differential shaft

and one at the central fore end of the main frame, the latter being made with a swivel joint, so that no give or flexibility in the main frame is communicated to the under-frame, thus enabling the roughest roads to be traversed without danger of throwing any bearing in the running gear out of alignment. The three connections are secured by means of castellated nuts, by undoing which the driving mechanism may be entirely dropped out of the car if necessary. The four-cylinder motor is novel, in that each is complete in itself except that the crank shaft is in one piece; the four cylinders with their crank cases being connected together by long external bolts. The cylinders are 4 in. bore by 5 in. stroke, the normal speed being 1,000 revolutions per minute. Mechanically-operated inlet valves with variable lift, controlled by centrifugal governor and hand accelerator, are employed. Both inlet and exhaust valves can be withdrawn by loosening one nut, while to fit new brasses to the connecting rods it is only necessary to draw one cotter pin. Another good point is that a large inspection opening is provided in each crank-case, enabling connecting rod brasses to be taken up without dismantling the engine. The crank-shaft is of large diameter, with a bearing between each crank. A single camshaft operates the inlet and exhaust valves. The bearings throughout are of large size, that of the main fly-wheel being 6 in. long. The cooling water is circulated by a positive and slow-running pump, mounted directly on the cam shaft of the engine. A new form of combined tank and cooler is fitted in the front of the bonnet, allowing a minimum of water to be carried, a fan keyed on to an extension of the crank shaft of the engine inducing a current of air through the apparatus. The power is transmitted to the rear wheels through a clutch, gear box, differential countershaft, and two side chains. Four speeds forward and a reverse are available. The four speeds are actuated by a cam-gearing controlled by a lever on the steering column, which is connected up to a horizontally-running chain below the gear box, an arrangement which strikes us as leaving room for a little improvement. The change gears are so arranged that the speed may be changed from the fourth to the first without passing through the third and second. The shafts in the gear box are very short and of large diameter. The reverse is actuated by a pedal, and enables

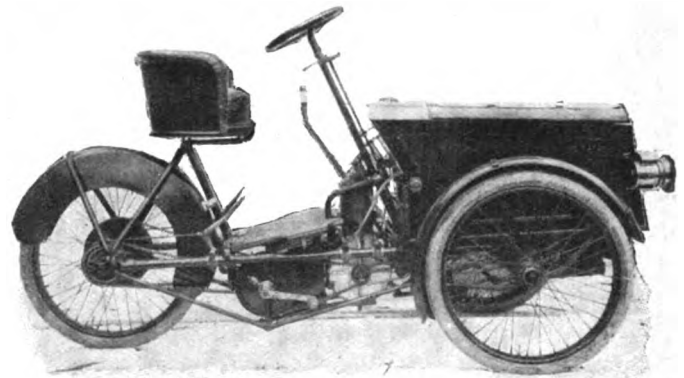


FIG. 28.—THE EAGLE MOTOR CARRIER.

the car to be reversed on any speed without changing gear. The depression of the pedal first puts on the brakes and then reverses the motion of direction. The speed change gear is of the sliding type, the sliding gears being arranged in two pairs. The reverse is obtained by means of an epicyclic train on the countershaft. The sprocket bearings carrying the differential shaft are fixed rigidly with the gear box on a transverse member of the under-frame. These bearings are automatically lubricated by ring lubrication, with a reservoir to each bearing holding about a pint of oil. Inclined worm and segment wheel steering is employed, with provision for adjustment to take up wear at every part. We noticed that the steering pivots are not set vertical, but are inclined. The rear wheel brakes are gun-metal against cast-iron, and are expanded inside the brake drums by means of cams. They are so arranged that, although there is very little movement required to bring them into action, they cannot bind when the brake is not in use. The brake on the differential is gun-metal against steel. Contrary to usual practice, the rear wheel brakes are operated by the pedal, and the differential brake by a side lever. The reason for this advanced by the makers is that the greater part of the braking is done directly on the back wheels, thus saving the strain on the differential and chains. Both brakes act equally strongly backwards and forwards. The road wheels are of artillery type, all being 36 in. diameter. The car has a long wheel base, and with its aluminium body weighs about 24 cwt. Altogether the Weller car is an interesting production, and is likely to be heard of in the near future, as we hear that the company are at work on the construction of a 30-h.p. racer.

The James and Browne cars comprise a number of special points not found in other vehicles. In the first place, it may be mentioned, the engine is of the horizontal type, with the fly wheel set in the centre of the frame rotating in the same direction as the road wheels, while secondly, it runs at a comparatively low speed, normally about 500 revolutions per minute. Perfect control is obtained by the "throttle" governor, enabling the car to be run slowly and at the same time quietly and smoothly without any unpleasant jerking motion. The valves are instantly removed by loosen-

ing two butterfly nuts, the contact breaker being also easily detached. The lubrication has been so arranged that by the use of special relief valves, which maintain a vacuum in the crank cases, it is practically impossible to over-lubricate. The fact that the lubricator is also turned on and off by one tap only should prove a great convenience. Two sizes are made—a 9-h.p. double cylinder and an 18-h.p. four-cylinder—the cylinders being 4 inch diameter, by 6 inch stroke. The transmission is effected through parallel shafts, no bevel gear being used in the main drive, the countershaft being connected to the rear road wheels by two side chains. Four speeds forward and one reverse, actuated by one lever, are provided. The lubrication of all the bearings is obtained by the use of ring boxes, and is entirely automatic.

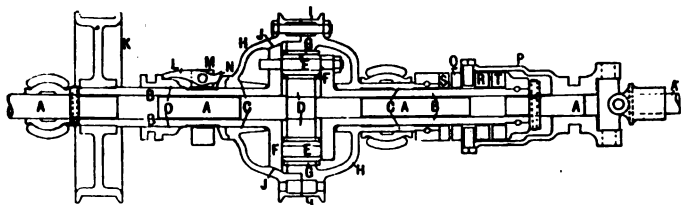


FIG. 29.—SECTION OF THE EAGLE CHANGE-SPEED GEAR AND DRIVING SHAFT.

The clutch is composed entirely of metal. Of the 9-h.p. type, a *chassis*, tonneau, and a landaulette, (Fig. 26) closely resembling an electrical vehicle in outward appearance, were exhibited. The new 18-h.p. car has a double tonneau body, seating six persons comfortably. The bonnet on this vehicle is hinged longitudinally, instead of to the dashboard, so that it can be lifted up on either side for examination of the motor. Generally it may be said that these cars have been carefully thought out, and built on sound lines.

Five cars and a 20-h.p. *chassis* were shown at the stand of the Brush Electrical Engineering Co., Ltd. The latter is fitted with a motor giving 30-h.p., having mechanically-operated induction valves, honeycomb water-cooler, and commutator on dashboard. The frame is of wood strengthened by steel. A striking car was a 16-h.p. diligence (Fig. 27), the body being of a new type arranged to form two or three kinds of carriage. It is fitted with a movable head carried forward to the dashboard, which gives a completely dustproof and enclosed carriage at the hind part, with access at each side. In this form the car is practically a brougham. At the rear of the car a spider seat can be fixed for a mechanic, or in place of this a large travelling trunk can be fitted. The mechanical parts of the car are of the usual type—that is, the commutator is fitted on the dashboard, forced lubrication, throttle regulator operated from the steering pillar, two double-acting brakes, Loyal multitubular watercooler, etc. We next noticed a 16-h.p. Limousine, fitted with a removable head, specially built for Major-General Paget. A 12-h.p. four-cylinder tonneau with high padded backs and large seating capacity; and a 10-h.p. two-cylinder tonneau, painted white, lined green, and upholstered in dark green leather, were also displayed. Finally, we may refer to a 12-h.p. four-cylinder car, fitted with mechanically-operated inlet valves and automatic oiling device. An

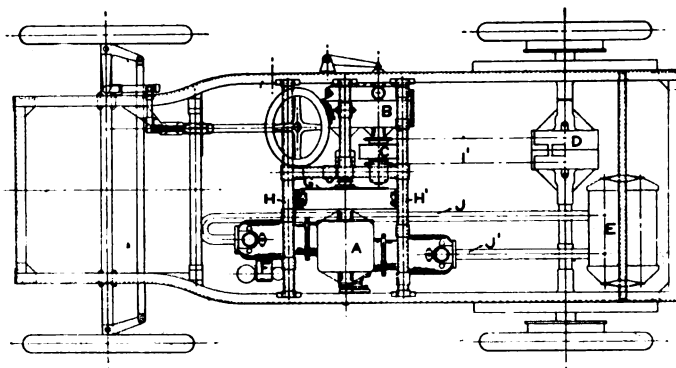


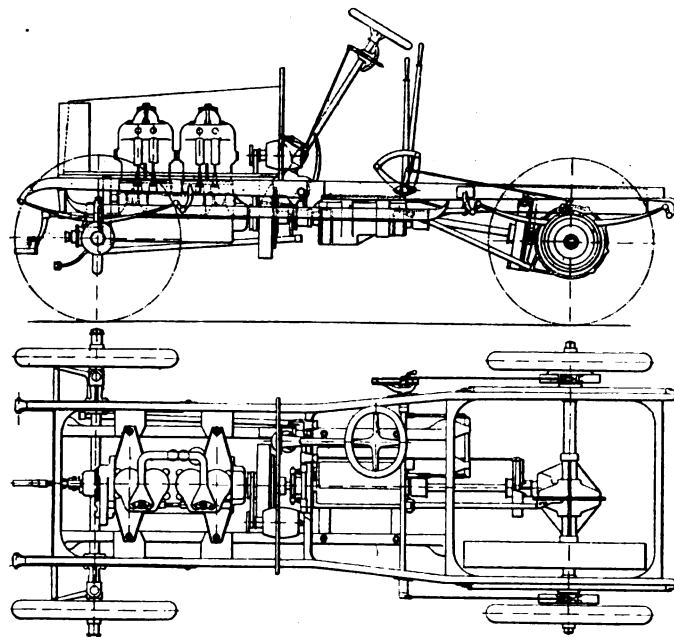
FIG. 30.—PLAN OF "HERMES" CAR.

- | | |
|------------------------|---------------------|
| A Motor. | F Carburettor. |
| B Gear. | G Clutch. |
| C Differential Gear. | H H' Sub-frame. |
| D Chain Sprocket Case. | I I' Chain Lines. |
| E Silencer. | J J' Exhaust Pipes. |

improved quick-acting throttle valve is provided, while we noticed that the pump is in an accessible position, and driven by gear.

The Eagle Engineering and Motor Company had on view the *chassis* of a 9-h.p. car they are now turning out which comprises several novel features. The frame is of tubular construction and carries a 9 h.p. single-cylinder De Dion motor. The method of cooling is by natural circulation, and is effected by means of an air-tube radiator in front of the bonnet, which has $\frac{1}{2}$ in. tubes 3 in. long running through it. There is a rubber tube connection from the lowest point of the engine cylinder to the lowest point of the cooler, and from the highest point of the engine to the highest point of the cooler. About four gallons of water are carried, and as the circulation is natural, no pump is required. The engine is controlled by a throttle

valve, which enables the car to be driven at any speed from 8 to 30 on the high, and 3 to 10 miles an hour on the low gear. A surface wick type of carburettor is employed to furnish the mixture. Two forward speeds and a reverse are fitted; the transmission being on novel lines, the object being to do away with all side shafts, and to drive through 'table shafts' direct, the reducing gear wheels always being in mesh. Referring to Fig. 29 the driving shaft AA is in two parts, the left in connection with the engine, and the right with the live axle. Loosely mounted upon the shaft A is a hollow shaft BB, and upon this is a sleeve C, the former being in two parts, like the central shaft. Keyed upon the end of the axle A, in connection with the motor, is a gear wheel D, which engages with a set of pinions EE revolving on studs fixed to a flange F on the second outer shaft B. These pinions intermesh with teeth cut in the inner face of the gear-box H, which forms part of the sleeve C. The periphery of this gear-box is flanged and turned to receive a band brake on I. To form the necessary friction clutch the gear-box H has a conical face formed upon it, as shown by J, this part making the female cone. The opposite cone



FIGS. 31 AND 32.—ELEVATION AND PLAN OF THORNYCROFT PETROL CAR.

is carried on the first part of the outer shaft B. Fixed upon this shaft is a brake drum K and a cam lever L, by means of which the sleeve C is slid lengthwise upon B, to put the clutch in or out of engagement. A jaw clutch P sliding on the shaft A engages with its opposite members formed on the outer shaft, A and A1 are then connected for the forward drive. When the friction clutch is brought into action the whole line of shafting becomes as one, the gear-box revolving as a supplementary fly-wheel, the top speed being thus obtained. To change to the slow speed the friction clutch is taken out of engagement and the band brake applied on the drum at I. The gear pinions EE on the shaft B are now driven by the gear wheel D with a sun and planet motion, so that the second parts of the shaft AA1 are driven at a slower speed than the first part of A. The slow speed may be regulated by gradually applying the band brake on the drum. The reverse motion is obtained by withdrawing the friction clutch J and bringing the jaw clutch P into engagement with C, and applying the band brake on the drum K. The pinions EE thus become idlers revolving on their studs, which are now held fast, giving a reverse motion through the internal teeth cut in the gear-box H. With the engine running free the clutch J is out and the band brake is free, in which case only the driving part of A is revolving. The change speed, reverse, and band brake levers are mounted side by side in a convenient position. The steering wheel is of the open variety. The arm, which is bent downwards, is cotted on to the steering column, and the wheel can be raised or lowered about 4 in. to suit the tastes of different drivers. The artillery wheels, with which the car is fitted, are complete wheels before the pneumatic tyres are placed on them. They are fitted with metal tyres, similar to those used on horse-drawn vehicles, so that in the event of serious breakdowns with the pneumatic tyres, the latter and the side plates can be taken off, and the car run home on the metal tyres. The flanges holding the pneumatic tyres in their places consist of side plates having beaded edges, bolted to the wheels. Another important feature in the design of this car is the arrangement of the levers and steering column, which admits of the driver mounting or dismounting at his own side. The frame is carried on six springs, which are so arranged that a shock from the road to any one wheel is absorbed

by all the springs, the front and rear springs, instead of being connected by shackles with the frame, being joined to the ends of a third, reversed, spring mounted in the middle of each side of the frame. In addition to the car, several examples of the Eagle motor tandem were shown. These are on the lines of the Century machine; the standard pattern is fitted with 4½-h.p. De Dion motor, but one on the stand had a 9-h.p. engine.

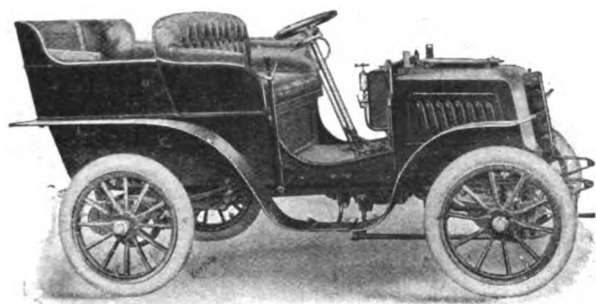


FIG. 33.—THE 9-H.P. DARRACQ CAR.

The mixture is furnished by a wick carburettor, while the steering is controlled by an inclined hand wheel. Two speeds are provided. The front seat is suspended on C springs, while the rear one is of the "bucket" type. The back foot-board is hinged to give easy access to the counter-shaft and friction clutches, which are adjustable. Fig. 28 shows one of the 4½-h.p. Eagle motor tandems adapted as a tradesman's carrier, the capacity being about 2 cwt.

A car on somewhat novel lines is the "Hermes," of the Autocar Construction Company, Limited, which exhibited two vehicles—a double phaeton and a limousine—the two being identical as far as concerns the chassis (Fig. 30). The motor is of the horizontal two-cylinder opposed type, developing 15-h.p. at the normal speed of 700 revolutions per minute. Four speeds forward and a reverse are obtained by means of a special form of change gear and two roller chains. The frame is of channel steel, the motor and gear case being suspended on two large tubular cross stays. The front end of the rear spring is carried on a sliding guide on the frame. A novel feature of these cars is that the body is arranged to slide off the frame to the rear to give accessibility to the motor and mechanism, and to facilitate cleaning. Among other points in the Hermes cars may be noted the ease with which the motor and gear can be removed from the frame, the protected chains, and a device for illuminating the lubricators at night. All the shafts are parallel, no bevel wheels being employed.

The new Thornycroft petrol cars (Figs. 31 and 32) were represented by a 10-h.p. tonneau and a 20-h.p. chassis, having respectively two and four cylinders in the fore part of a pressed steel frame. In both the engine has cylinders 4 in. diameter by 4½ in. stroke, the normal speed being 900 revolutions per minute. The cylinders are cast in pairs, the water-jacketing extending about half-way down from the firing end; the jacket has been carefully designed to avoid "pockets" and allow a free and natural run for the cooling water, which is circulated around the cylinders, radiator, and tank by a gear-driven enclosed pump. The crank-chamber

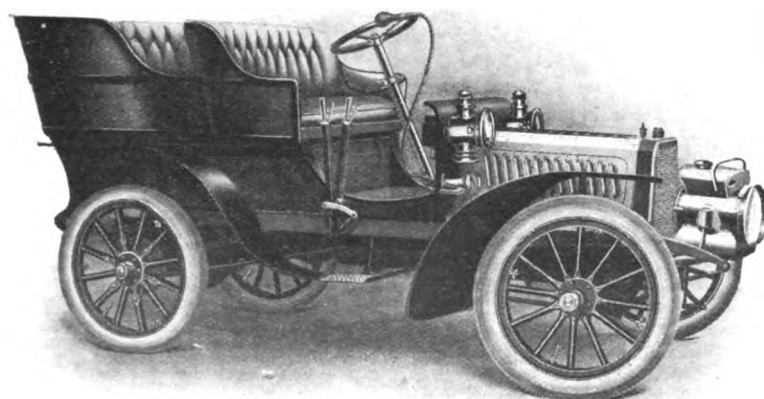


FIG. 34.—THE DENNIS 12-14-H.P. CAR.

is of aluminium; a special feature of the design is that removal of the crank chamber bottom cover does not affect the crank-shaft, the main bearings being so arranged as to be entirely independent of the cover. The centrifugal shaft-governor is carried on the crank-shaft, and is wholly enclosed; it regulates the speed of the motor by throttling the mixture. Ignition by means of a dynamo and accumulators is employed, the latter

being employed for starting purposes. Three speeds and one reverse are provided, the drive being direct driven on the top speed. The clutch is of the internal pattern, doing away with end thrust. The live axle is driven by bevel gearing, all the universal joints being enclosed. The bevel pinion terminating the fore-and-aft driving shaft is provided with an end bearing, and is not overhung; the rear axle is also trussed, thus forming a very stiff construction. Three powerful brakes are provided, one on the fore-and-aft shaft and one on each rear road wheel; these are all band brakes with V-shaped blocks, and are so arranged as to be quite unaffected by the motion of the bearing springs. Further, the band carrying the brake-blocks is arranged so as to overlap and protect the brake-drum and prevent the entrance of grit.

Prominent features on the stand of Messrs. H. E. Hall and Co. were the chassis of the latest types of 12-h.p. two-cylinder and 20-h.p. four-cylinder Darracq cars, the main features of which were described in our report of the Paris Salon. Both are fitted with mechanical inlet valves, stamped steel frames, Mercedes-pattern radiators, throttle-governed carburettors controlled by a lever placed in the steering wheel, and direct drive on the top speed. Fig. 33 illustrates the new 9-h.p. two-cylinder car, this having the principal features of the 12-h.p. vehicle; the engine is governed on the throttle and fitted with mechanically-operated inlet valves. The frame is constructed of wood and steel plates. The clutch is easily adjustable by one nut. Three speeds and reverse are controlled by one lever carried on the steering pillar, with direct drive on the top speed. On a separate stand Messrs. Hall also displayed a 4-h.p. Oldsmobile, two 6-h.p. De Dion popular cars, a 11-h.p. Clement, a 16-h.p. Clement car, and a 10-h.p. Panhard fitted with tonneau body.

The enterprising firm of Messrs. Dennis Brothers, Limited, evidently mean to keep up with the times. In addition to a couple of their standard 9-h.p. tonneaus, with De Dion motors, they exhibited a four-seater car fitted with the new De Dion 10-h.p. double-cylinder engine and a body on

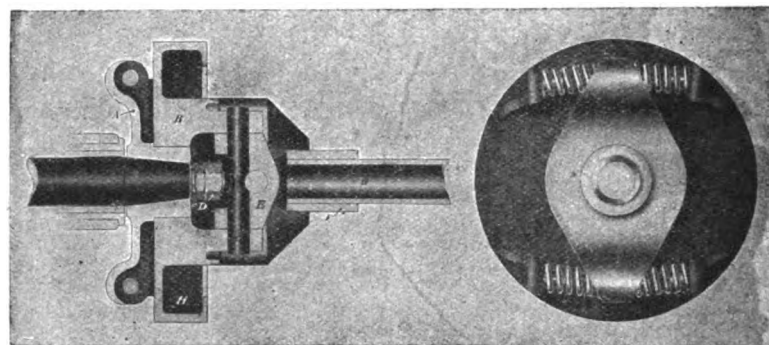


FIG. 35.—THE DENNIS SPRING DRIVE.

the lines of that very popular in Paris, the rear part being like a hansom cab. The leading novelties were, however, the new 12 to 14 h.p. and 16 to 20 h.p. cars, the former being fitted with a slow-running double-cylinder Aster motor, and the latter a four-cylinder engine of the same make. The frame is built up of wood with steel fitch plate. The motor is located in front, behind a fan-cooled honeycomb radiator of the latest type, the water being circulated by means of a centrifugal pump. The 12 to 14 h.p. car has three, and the 16 to 20 h.p. vehicle four forward speeds, in addition to the reverse. In both the power is transmitted through a clutch gear-box, the new spring drive referred to below, universally-jointed shaft and bevel gear to the rear live axle. The latter runs on four rows of half-inch balls. Four plain brass sleeves are also fitted on the axle, so that if the cones should crack at any time the axle comes on to the plain bearing. Careful attention has been given to the details, a water-gauge and voltmeter, among other things, being fitted on the dashboard. The apron below the front of the frame is hinged at the side to allow of easy access to the contact breaker. The universal joints, it may also be noted, are entirely enclosed. Fig. 35 gives a sectional and end view of the new spring drive interposed between the gear-box and longitudinal shaft, the arrangement, it is claimed, allowing sufficient "give" to entirely do away with any shocks caused by the harshness of the clutch or the changing of speeds. The secondary shaft from the gear-box carries near its end a special driving lug, A. Suitable lugs, to correspond, are fitted on the brake-drum B, spiral springs being interposed between them. The drum has a rearwardly produced collar, which acts as a portion of the forward universal joint E of the longitudinal shaft G. Thus the power is conveyed from the gear-box through the springs to the shaft E. The brake-drum B is water cooled, the water being led to the space H by a pipe, the necessary cock being opened by the depression of the brake pedal. The water is directed on to the inner surface of the drum by centrifugal force.

On the stand of Messrs. Alldays and Onions, Ltd., we found three of the handy little Traveller voiturettes, which have already been dealt with in these columns. A chassis was also shown, while a card on a mud-stained vehicle indicated to the visitor that it had covered 13,000 miles without mishap or repairs. These little cars are fitted with a 4-h.p. vertical motor, and two speeds forward and a reverse. They can carry two or three persons, and attain a speed of 20 miles per hour.

An interesting selection of Gladiator cars was to be seen at the stand of Messrs. S. F. Edge, Ltd., the display being surmounted by the handsome sign used by the Gladiator Company at the Paris Salon. The seven cars and a chassis exhibited comprised the four different 1903 types. To begin with the smallest car, we noticed a 6-h.p. tonneau. This has already been described in the *Journal*, but we may mention that it is now being fitted with a governor, acting on the inlet. The car has three speeds and reverse, and equal sized road wheels. Of the 10-h.p. cars three were shown, one having a brougham body (Fig. 36). Power is supplied by a two-cylinder Aster slow-running engine. The two cylinders are made in one casting, and the normal speed is about 950 revolutions per minute. The water-cooler is of the gilled pipe type, but set in a square frame in the front of the car, a fan driven off the engine inducing a strong current of air through the coil; the circulation is maintained by a rotary pump. Ignition is by accumulators, the tremblers being on the coil, while the automatic governor is arranged to act on the inlet. The engine bonnet is carried straight from the radiator to the dashboard, the sloping front being entirely dispensed with. Three speeds forward and a reverse are provided, two side chains conveying the power from the differential countershaft. A new type for 1903 is the 12-h.p. four-cylinder car with the latest type fan-cooled radiator square bonnet, and a governor acting on the inlet. The motor runs at a speed of from 1,400 to 1,500 revolutions per minute. Four forward speeds and a reverse are available. Large bevel wheels convey the power from the gear box to the differential countershaft, a ball-bearing thrust block being fitted. For the coming season a 16-h.p. car is being introduced, this having a four-cylinder motor, with mechanically-operated inlet valves. There are various other little improvements in the 1903 Gladiator car which should tend to increase the popularity of these already well-known vehicles.

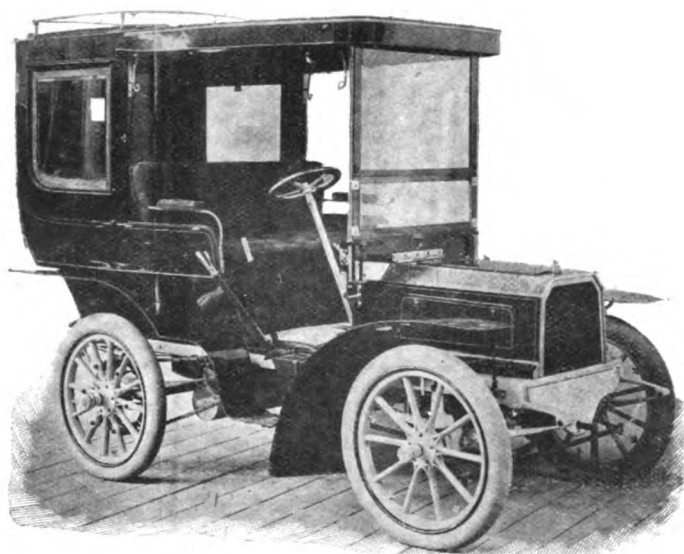


FIG. 36.—THE 10-H.P. GLADIATOR BROUGHAM.

One of the novelties of the show in the way of petrol cars was the "Soames," exhibited by the Langdon-Davies Motor Company, Limited, and illustrated in Figs. 37 and 38. To begin with the frame, or rather frames, there being two, one being intended for the support of the motor and transmission mechanism and the other for the body, each frame being supported on the axles by separate plate springs. By this arrangement the vibration of the engine is entirely intercepted, while, in addition, the body can be swung upon lighter springs, so that the effects of road shock are better taken up. A standard type of two-cylinder vertical engine, developing 11-h.p. at a speed of 800 to 1,000 revolutions per minute, is employed. It is provided with a governor acting on the inlet, an ingenious arrangement being provided for admitting cold air to the cylinders when the throttle is closed. The air inlet valve is coupled up to the gas inlet valve by spring connections in such a way that when the control handle is moved one way it regulates the quantity of gas, and when moved another way additional air is admitted to the combustion chamber for scavenging and cooling purposes. The water circulation is on the thermo-siphon arrangement, no pump being used. The first novel feature in the transmission is that the gear-box is fixed parallel to the rear axle, the bevel drive being *before* instead of, as usual, *after* the gear-box. The clutch shaft carries at its rear end a sleeve, on which are mounted two small bevel pinions, either one of which can be made to mesh with the large bevel gear on the first shaft in the gear-box, a forward or backward motion being obtained according to which pinion is in gear with the large bevel. Four speeds are available; the wheels in the gear-box are provided with very broad teeth, and are always in mesh. One of the shafts has a deep key-way, in which slide special keys, which,

as soon as they come in front of corresponding slots in the different pinions, fall into and are held in the latter by springs. The keys are so shaped that the action of pulling or pushing them along the shafts by the fork of the change-speed lever causes them to be depressed within the shaft, owing to each end of the key presenting an inclined plane. There is no difficulty in catching the gears, and the only parts which are subjected to strain are the keys, which, it should be noted, can be replaced by spare duplicates in a couple of minutes at the outside. The transmission from the countershaft to the live axle is by means of chains, two being employed for the sake of

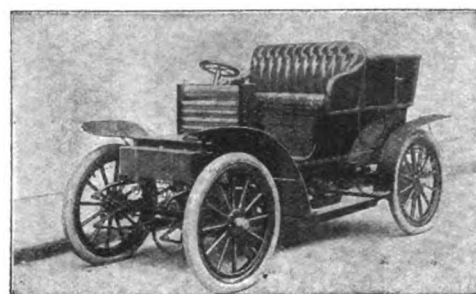


FIG. 37.—THE "SOAMES" 11-H.P. CAR.

strength, placed close together in the centre of the car. A somewhat novel type of brake is fitted on the clutch shaft, consisting of a slightly-coned gunmetal disc, which can be held by a pair of steel bars pressed towards its axis, while a useful device is provided for locking the clutch pedal when the car is left unattended. The rear wheel band-brakes are of a special double-acting compensated type. The rear axle is provided with long bearings and ring lubrication. In addition to a chassis, a complete tonneau car was shown. Although the bugbear of vibration appears to have been got over, the car strikes us as being of unnecessarily heavy construction, especially in some of the details, while the projection of the change gear case at one side does not add to the appearance of the car—points to which the company, having proved the general lines of their construction to be sound, will now probably devote attention.

The new 12-h.p. car of the Velox Motor Co., Ltd., was so fully described in our issue of the 17th ult. that it need only be mentioned that the company exhibited a chassis and a couple of cars with well-finished and roomy tonneau bodies.

Messrs. Haynes and Sons, Ltd., who have taken up the agency for the Wartburg cars, exhibited the same cars as were described in our report of the recent Stanley Motor Show. In addition they had on view an 8½-h.p. car of the same make, but fitted with a two-cylinder engine. The transmission is on the now generally adopted lines of cardan shaft and bevel gear, three speeds and a reverse being available. A special point claimed for the Wartburg cars, which are of German construction, is that the loss of power between the motor and the driving wheels, due to friction, has been reduced to a minimum.

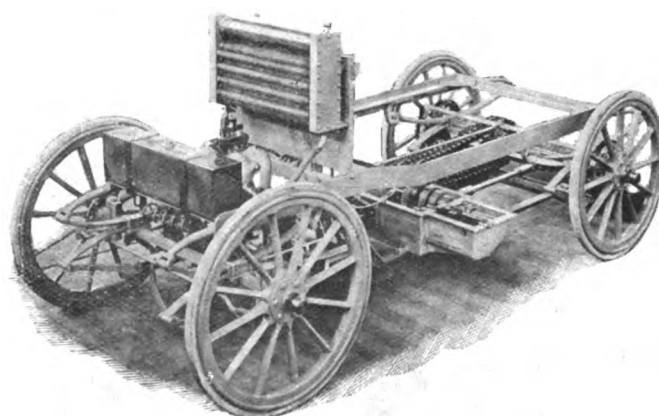


FIG. 38.—CHASSIS OF "SOAMES" CAR.

Owing to delay in transit the latest types of Beaufort cars had not put in an appearance when we visited the stand of the Beaufort Motor Company, which had on view a 12-h.p. double-cylinder vehicle, an 8-h.p. single-cylinder car, and a chassis showing the mechanism of the latter type, all of which have been dealt with in these columns. We understand that the new models are on up-to-date lines, including mechanical inlet valves, honeycomb radiators, and other improvements. We gave an illustrated description of the 18-h.p. Beaufort Alexandra car in our issue of the 31st ult.

Four cars were to be seen at the stand of the Star Engineering Company, one being a *fac-simile* of the vehicle supplied to the Automobile Club—a 7-h.p. twin-cylinder car, with tonneau body. The motor is governed on the inlet valve, and is water-cooled by means of pump and radiators. The gear is on Panhard lines, giving three speeds forward and one reverse, all actuated by one lever, and the power is transmitted from the countershaft to the road wheels by two side chains. Two independent double-acting brakes are fitted, one on the countershaft and the other on brake

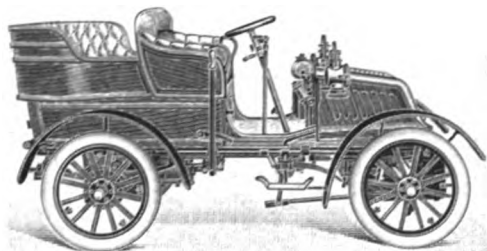


FIG. 39.—THE DE DION 8-H.P. CAR.

drums on the rear road wheels. The wheel base is very long and the wheels are 32 in. equal, fitted with $3\frac{1}{2}$ in. pneumatic tyres. Another noteworthy vehicle was a 10-h.p. car. This car is similar in design to the 7-h.p., but has four speeds. Examples of the 10 and 20-h.p. motors, as well as a 7-h.p. chassis, testified to the progress the Star Company has made in the construction of motor-cars. The 20-h.p. engine has four cylinders, $4\frac{1}{2}$ in. diameter by $5\frac{1}{2}$ in. stroke; it is fitted with automatic governor, acting on the inlet, the normal speed being 800 revolutions per minute.

The new 12-h.p. tonneau car, illustrated and described in a recent issue, found a prominent place on the stand of the Albion Motor-Car Company, Limited. In this car a number of improvements have been introduced, the chief among them being the Murray patent governor, which holds the engine steadily at whatever speed it may be set from running low to full load. It is also fitted with a new system of magneto ignition, and an improved form of spring drive between the engine and the gear case. Special attention has also been given to the protection of the driving chains, the rear sprockets not being bolted to the rear wheels, but mounted separately on the elongated wheel hub. The carburettor is fitted with a hot-air jacket, this having been found necessary as the result of motoring experience in Scotland. Altogether the new Albion car shows that much thought has been expended on its design. The old type of Albion car with horizontal motor fully described in our report of the 1902 Agricultural Hall Show is still being made, but has undergone several modifications. In the first place, a 10-h.p. engine is being used in place of the old 8-h.p. motor; a new carburettor is being used, and the clutch has been enlarged. Of this type a chassis and a complete tonneau were

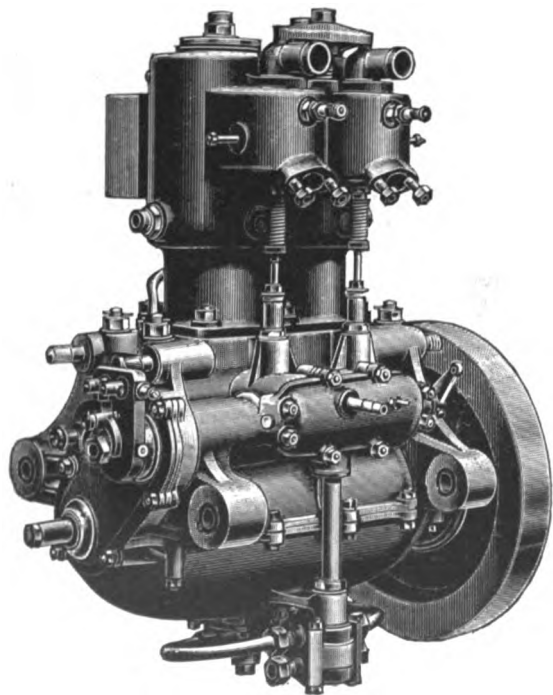
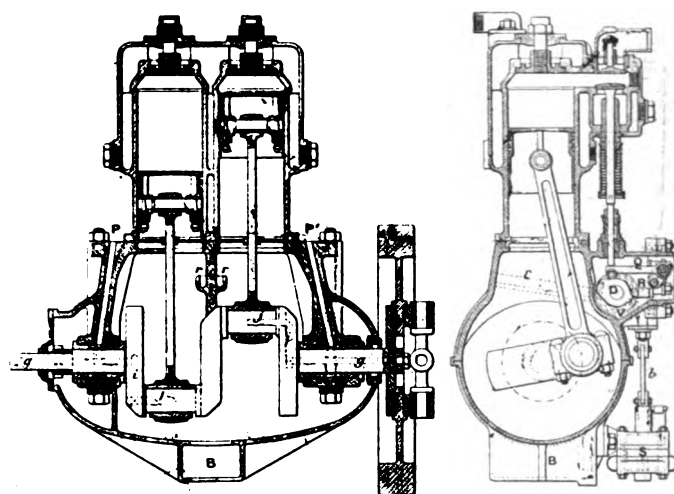


FIG. 40.—THE DE DION 10-H.P. TWO-CYLINDER MOTOR.

to be seen. The body, by Penman, of Dumfries, was particularly striking; it seats five persons, and is painted black and dark green with imitation cane-work panels.

Perhaps the leading novelty on the stand of Messrs. De Dion and Bouton, Limited, was the new 10-h.p. two-cylinder car. Fig. 40 gives a general view, and Figs. 41 and 42 two sectional views of the new engine, from which it will be seen that the two cylinders are cast together in one piece with their jackets, and that the inlet-valves are held in place by a yoke and a single nut. The novel feature of the motor is that an oil pump is provided for circulating the oil to the crank chamber. The oil supply is contained in a tank fixed to the cylinder casting, and it finds its way to the various parts on the splash principle. The pump is driven through a vertical shaft, S, by spiral gearing from the cam-shaft, and it continues to take the oil from the bottom of the crank-chamber, and to force it back again into the tank. One charge of the oil is sufficient for about 350 miles. The engine runs at a speed of 1,500 revolutions per minute, and is provided with a device acting on the exhaust valve to reduce the compression for starting purposes. The new engine was shown separately, and also applied to a car fitted with a change-speed gear of the Panhard type, giving four speeds and reverse. Of the 8-h.p. single-cylinder cars, several examples of tonneau, double phaetons, Limousines, and a coupe were shown. The latter was probably the most novel one, the frame and wheel-base having been lengthened to give access to the rear seats from either side of the vehicle. The new 6-h.p. voiturettes, with engine in front, have already been fully dealt with in these columns, so that it need only be mentioned that those exhibited were fitted with beautifully-finished bodies, the addition of a hood considerably enhancing the appearance. Other exhibits on this stand comprised an example of the new $1\frac{1}{2}$ -h.p. bicycle motor, and a combined petrol motor and dynamo for electric lighting purposes.

The Dechamps cars were once more to be seen at the stand of the Graphic Motor and Engineering Company. A prominent place was given to an 18-h.p. chassis. The general arrangement closely follows what may be



FIGS. 41 AND 42.—SECTIONS OF DE DION 10-H.P. TWO-CYLINDER MOTOR.

termed Panhard lines, the four-cylinder vertical balanced motor being located in the fore part of the frame. The power is conveyed through a clutch, gear box, and two side chains, four speeds and a reverse, all controlled by one lever, being available. The engine is fitted with automatic governor acting in accordance with modern practice on the inlet. A special feature of the Dechamps cars is to be seen in the band brakes connected with the rear wheels, the band being put in and taken out of contact with the drum by a double-threaded screw actuated by a hand lever. A complete 18-h.p. car was shown. The body work by Hamshaw, of Leicester, was well worthy of inspection; it takes the form of a roomy Lonsdale wagonette. Side by side with this car was a 14-h.p. double phaeton; access to the rear seats is obtained at the sides, instead of having to lift up one half of the front seat, neat steps being fitted for the purpose. The vehicle has a four-cylinder balanced engine (stroke, 115 mm.; diameter, 95 mm.); water-cooled by means of pump and radiators, and three speeds forward and a reverse actuated by the same lever. Finally we may briefly mention a 9-h.p. double phaeton with two-cylinder engine (stroke, 130 mm.; diameter, 100 mm.).

The British Germain Motor-Car Company, Limited, made a big display of the well-known Germain cars, the exhibit comprising examples of the $7\frac{1}{2}$ -h.p., 15-h.p., and 20-h.p. types. The small size is provided with two-cylinder engines, 95 mm. diameter by 130 mm. stroke, the normal speed being 800 revolutions per minute. Four speeds forward and a reverse motion are provided, the countershaft being connected to the rear road wheels by side chains. The two larger cars have four-cylinder engines governed on the inlet and covered by the latest type of square bonnet with the radiator in the front opening. One of the improvements consists of a new carburettor, somewhat on the lines of the Krebs. The auxiliary air admission is automatically regulated according to the vacuum produced in the mixing chamber, so that a larger quantity is admitted when the motor runs faster, the vacuum being automatically maintained at a comparatively constant point. Four speeds and a reverse are provided. The

carriage work of these vehicles is of the highest class. To meet the demand for a "popular" light car, the Germain Company have secured the agency for a little French vehicle to which they have given the name "Staughton." The engine is of the single-cylinder, vertical type, developing 8-h.p. Three forward speeds and reverse are provided, the transmission being by means of an universally-jointed shaft and bevel gear to the rear live axle. The car itself is designed to hold two persons, a pair of bucket seats being provided. The body is attached to a channel steel frame, and the wheels are of the artillery pattern and of equal size.

The Motor Traction Company, Limited, had a varied display of Salisbury 7-h.p., 10-h.p. two-cylinder, and 12-h.p. two-cylinder cars, and Germain 7½-h.p. two-cylinder and 15-h.p. four-cylinder vehicles, the details of which were given in our report of the same company's stand at the Stanley Motor Show.

Mr. C. R. Radcliffe exhibited a car new to the English market. It is made by the United States Long Distance Automobile Company of New York, and in general arrangement is somewhat on the lines of the Oldsmobile. It appears, however, to be more powerfully built, being fitted with a 7-h.p. horizontal engine. Three speeds forward and a reverse are obtained by a system of crypto gears held by band brakes on the engine shaft, a single chain conveying the power to the rear axle.

The novelty on the stand of Messrs. Hewetsons, Limited, was, of course, the new "Benz Parsiful" cars with vertical engines. Their belt-driven, horizontal engine type was represented by a 6-h.p. car with detachable tonneau, and hood fitted to front seat. There was also a 6-h.p. tonneau, painted and upholstered in red. As we mentioned in a recent issue, although the Benz Company are making vertical-engine cars, they do not intend to discontinue the manufacture of belt-driven vehicles. The new car (Fig. 43) is of 10-h.p. The engine and gear-box are mounted on a separate frame, the main frame being built of wood, stiffened by angle plates at each corner. The motor comprises two cylinders, and to permit of easy access to the valve chambers the covers are held on their seatings by box-nuts, which have simply to be loosened to allow inspection. A low-tension

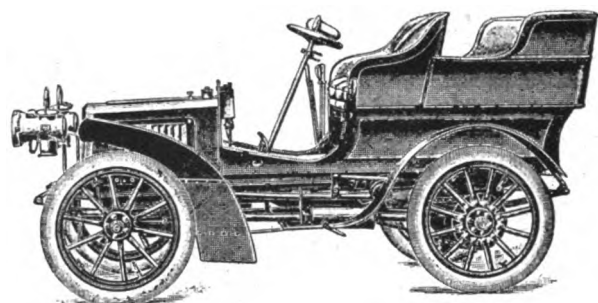


FIG. 43.—THE "BENZ-PARSIFUL" CAR.

system of ignition is adopted, the current being generated by a gear-driven magneto. The latest type of radiator and a spray carburettor are used, the circulating pump being placed in front of the engine. An improved form of lubricator is fixed on the dash, for general lubrication, and a hand force-pump is used to feed oil to the crank chamber and gear-box. The change speed gear is supported by the under frame, and connected by a friction clutch, of the cone type, with spring inside the male cone, to the engine. The thrust is taken by ball bearings. The change speed is actuated by a single lever, which provides a direct drive on top speed, three speeds and a reverse being available. A metal-to-metal brake operating on a steel drum is placed immediately behind the gear-box, and the usual side brakes are fitted. Vehicles of the two-cylinder type are constructed in three sizes, 8, 10, and 12 h.p., and the general workmanship is of that class which has made the Benz cars so popular. We understand that a four-cylinder car with mechanical valves will shortly make its appearance.

The Motor-Car Company, Limited, exhibited a couple of 10-h.p. two-cylinder Decauville cars, and two 20-h.p. four-cylinder vehicles of the same make. The new features of the 1903 Decauville models were dealt with in our report of the Paris Salon, one being the direct drive on the top speed. The 10-h.p. car is similar to that which made the non-stop run from Edinburgh to London last year, while the larger type is on the lines of that which has been "among the records" on the Dourdan speed-trial road in France.

A new departure by the Pick Motor Company, Limited, is the construction of chain-driven cars of 6-h.p. and 10-h.p. The main frame of the Pick vehicles is of tubular construction, the engine, which is of the horizontal, double-opposed cylinder type, being supported on a cast-iron bridge. The pump, exhaust valves, and the contact breaker are actuated from a single shaft placed in an accessible position across the crank chamber. The water-cooling system is maintained by pump and radiators, while the electric ignition is arranged so that the spark occurs simultaneously in both cylinders. From the motor-shaft the power in the chain-driven cars is conveyed to the gear shaft through a Renold silent chain. The gear-box is of the Panhard type, giving three speeds forward and one reverse, a single centrally-located chain connecting the box with

the rear live axle. The belt-driven cars are of similar construction as regards the motor and frame. The transmission is, however, by means of two long belts working on to fast and loose pulleys on a countershaft at the rear, the latter being connected with the back axle by spur gearing. Two speeds forward and reverse are provided, the belts being entirely enclosed and thus protected from mud and wet. The Pick cars are of pleasing design, as will be seen from Fig. 44, which shows the two-seated

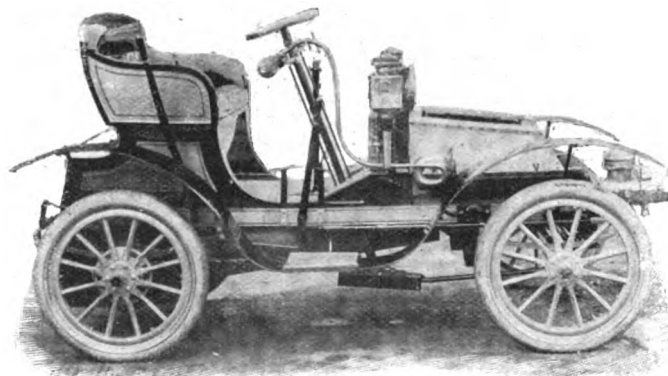


FIG. 44.—THE PICK 6-H.P. VOITURETTE.

6-h.p. belt-driven car; inclined wheel-steering is fitted to all, while the band-brakes on the rear wheels are of a special double-acting type, actuated by a cam, to which we hope to refer at length in a later issue.

Of varied interest was the display made by the Anglo-American Motor Car Company, Limited—the name by which the Oldsmobile Company will in future be known. One of the most attractive features of the stand was the 20-h.p. Winton with a tonneau body (Fig. 45). The engine is of the two-cylinder type, is governed by the air pressure system, controlling and varying the opening of the inlet valve, and regulated by a foot button or auxiliary hand operated valve. All parts of the mechanism are completely enclosed, and water, petrol, and oil tanks are arranged under the bonnet. Forced circulation is used with direct-driven gear pump. The contact device is arranged with a vibrating member having a cam surface acted upon directly by a cam on the end of the cam shaft. This contact member is carried in a box having a glass face and revolving with relation to the cam shaft for adjusting the instant of ignition. The Winton planetary gear system is used, controlled by levers, giving three speeds forward and one reverse. One of these levers is connected with an emergency brake acting directly upon a drum upon the main shaft of the engine, and easily applied as the high-speed gear is thrown out. Attention was also directed to the Oldsmobile car, which has now a new carburettor, in which the 'gravity-

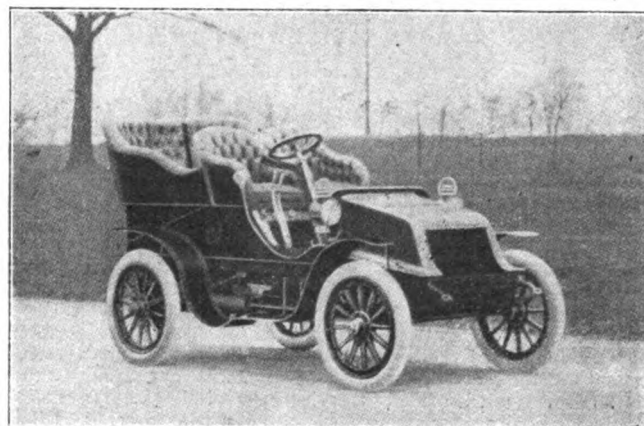


FIG. 45.—THE WINTON 20-H.P. CAR.

feed system has been adopted. Many small parts have been strengthened as a result of experience on English roads.

A new petrol car was to be seen in the Kensington, shown by Messrs. Rawlings Brothers. At the time we visited the stand no one was in attendance to furnish us with details, but so far as we could ascertain it follows standard lines, being fitted with a two-cylinder vertical engine, developing 9-h.p. and governed on the inlet. Four speeds and a reverse are available, the power being transmitted through a clutch, gear box, and two side chains.

One of the surprises of the Show was the three-cylinder car exhibited by Messrs. Marshall and Company. Nominally rated at 20-h.p., the motor

develops 24-b.h.p. The inlet and exhaust valves are on the top of the cylinder head on the lines of the Buchet motor, an ingenious arrangement being provided whereby the two valves on each cylinder are held by one nut, thus permitting their removal in an exceedingly short space of time. The governor acts on the inlet and a hand accelerator is provided. The transmission on this car is on new lines; the motor conveys its power through a clutch to the gear box, which gives three speeds ahead and one reverse. The gear box drives by bevel gear a short countershaft, from which the power is conveyed to the rear axle by a central chain, which is entirely enclosed in a gear case. The new car, which has a wheel base of 7 ft. 9 in., and is fitted with a tonneau body, was well worthy of inspection. Of the Marshall 12-h.p. type, two tonneaus (one having seating accommodation for six persons) and a chassis were shown. The main features of these double-cylinder cars have already been dealt with in these columns, but we may mention that the 1903 models are being fitted with an improved irreversible steering gear, and a positive clutch; they are driven through bevel gear on to a live axle, a lid being fitted to the case on the latter to enable the gear to be readily inspected. The pump is so arranged as to be quickly detached when necessary. Other features that we noticed which, while small in themselves, are useful "refinements," are a small bracket on the motor on which to rest the sparking plug for testing purposes, and the hinging of the steering wheel at the upper end of the column, so that it may be tilted up, and so give freer access to the driver's seat.

The London Motor Garage Co., Ltd., had two large stands, one of which was devoted to an array of Lanchester cars, included amongst them

fact, it is built throughout on the lines of large cars, and should soon become a popular type.

An interesting show of the Cottureau cars was made by Messrs. McNeil, Hutchison, and Borthwick, who have acquired the agency for this country. These vehicles, which are very popular in France, are made in four sizes—5-h.p. single-cylinder, 7-b.h.p. and 10-b.h.p. double-cylinder, and 16-b.h.p. four-cylinder. An illustration of the 10-b.h.p. tonneau is given on page 977. The frame is of tubular construction, with the motor under the bonnet in the fore part. The two cylinders are the V-shape, the piston rods working on to a central crank shaft. The cylinders are 90 mm. diameter by 115 mm. stroke, the normal speed being 1,200 revolutions per minute. The automatic governor is adapted to act on the inlet, a foot "accelerator" being also provided. Three speeds forward and a reverse are obtained by means of a train of sliding pinions of the Panhard type, the power being transmitted through a clutch and gear-box to a cross shaft which is connected to the rear axle by a single centrally-located chain. The car, which is provided with hand and foot brakes, wood wheels 760 mm. by 90 mm., and inclined wheel steering, weighs without body about 10 cwt. The 7-b.h.p. car is on identically similar lines, the only difference being in the motor, which has cylinders 85 mm. by 110 mm. stroke. It is fitted with a comfortable tonneau body. The largest car on the stand was a 16-b.h.p. covered wagonette, this comprising all the latest features, including combined honeycomb water-tank and radiator. The motor, one of which was shown separately, comprises four vertical cylinders, 92 mm. diameter by 120 mm. stroke, the normal speed being 900 revolutions per minute.

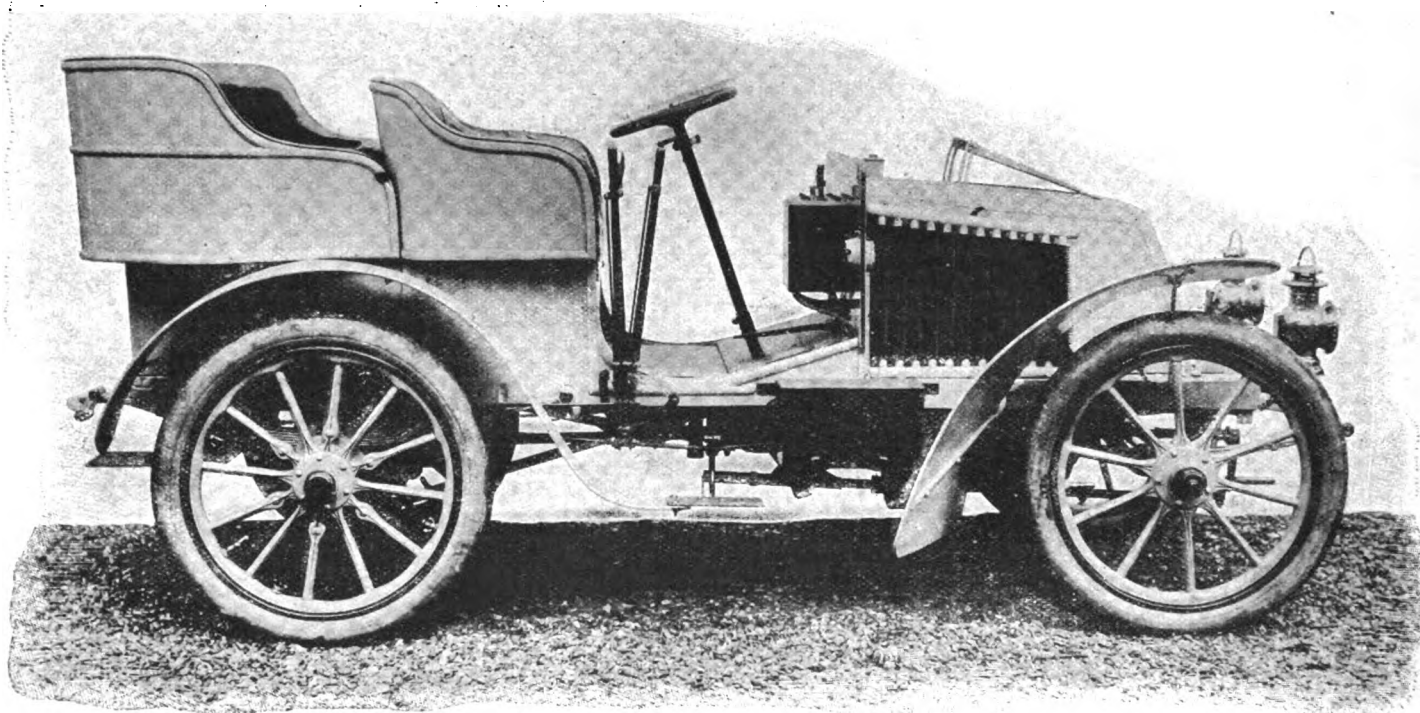


FIG. 46.—THE RENAULT 14-H.P. CAR. (SEE PAGE 960.)

L'Avenir de l'Automobile.

being a chassis, which was the centre of attraction all day long. On the other stand we found a number of Pipe and Magnet cars. The Pipe car is the production of La Compagnie Belge de Construction d'Automobiles, and, generally speaking, closely follows the lines adopted in the Panhard vehicles. The motor is of the four-cylinder, vertical type, with the cranks set at an angle of 90 degrees: it is made in two sizes, 15 and 20 h.p. Transmission is by gears and chains, four speeds forward and a reverse being available, all controlled by a single lever. One of the most handsomely finished cars in the show was a 20-h.p. Pipe tonneau with canopy, the body being painted in pale blue and most luxuriously upholstered. The Magnet car is made with 12-h.p. two-cylinder and 24-h.p. four-cylinder motors, fitted with the latest system of throttle governing, regulated from the steering pillar. Transmission is by gear and chains, four forward speeds and a reverse being available. The cars on the stand of this type comprised a stylishly finished Limousine and a tonneau. Reference must not be omitted to a fine example of the 20-h.p. Mercedes Simplex, with white tonneau body.

Under the name "Napoleon" Mr. Bernard Neave, of Richmond, is introducing a neat little car. In general arrangement it follows the now usual lines, but is noticeable on account of its low build. The car has a tubular frame, in the fore part of which is set a 6-h.p. De Dion motor. This drives the rear axle through a longitudinal shaft and bevel gear. Three speeds forward and a reverse are available, the power being transmitted direct on the top speed, which is about 25 miles an hour. The little vehicle, which is illustrated on page 976, is neatly finished, with tonneau body; in

Accumulator or magneto ignition can be fitted, the particular engine we examined being provided with the latter. The governor acts on the inlet, the connection being such that a quick action is obtained. The valves are mechanically operated, they are all interchangeable, the inlet valves being on one side and the exhaust valves on the other. The transmission is on the same lines as that adopted in the Panhard cars, four speeds and a reverse being available, the power on the top speed being transmitted direct. The car, which without body weighs about 16 cwt., can attain a speed of thirty-eight miles per hour on good roads.

The exhibits of the Ariel Motor Company, Limited, consisted of two 16-h.p. "Ariel" cars, two 10-h.p. cars, one 16-h.p. chassis, one 10-h.p. chassis, and an assortment of shafts mounted on a stand, which, with the chassis, gave visitors a good insight to the workmanship embodied in "Ariel" cars. The most striking feature of the exhibit was undoubtedly a 16-h.p. car, painted blue and yellow, upholstered in dark blue, built specially to the order of Major Kingsley Foster, J.P., of Redhill. It is a seven-seated car of the double tonneau type, fitted with a detachable brougham top enveloping the five rear seats, lit up by electric light. The seats behind the driver are reversible, enabling all the occupants of the brougham to sit *vis-a-vis*. The vehicles have undergone considerable improvement for 1903, both the 10-h.p. and the 16-h.p. models are fitted with four forward speeds and a reverse, the wheel base has been increased, and the road wheels are all of equal size. The frame is built up of steel tubing, stiffened by an underframe, to which the engine is bolted. The

10-h.p. motor has two cylinders, $3\frac{3}{4}$ in. bore, 4 in. stroke, cast in one piece with combustion chamber and water jacket complete. The crank-shaft is built up with two fly-wheels, which are inside the crank case. The fly-wheels carry balance weights opposite the crank-pins set at 180 degs., perfect equilibrium thus being ensured. The engine is of the high-speed type, developing 10 b.h.p. at 1,700 revolutions per minute. The 16-h.p. engine has four cylinders, $3\frac{3}{4}$ in. diameter, by $4\frac{1}{2}$ in. stroke. A point worthy of mention is that the exhaust pipes are of flexible metallic tubing. A small additional air inlet is fitted on the inlet pipe, which automatically comes into operation as the admission of gas is throttled by the governor. The latest type of radiator is fitted in front below the frame. The ignition is electrical, and on the 16-h.p. chassis we noticed that the new external jump sparking had been ingeniously fitted. From the engine the power is transmitted to a friction clutch and gear-box, and thence by means of bevel gear and cardan shaft to the rear live axle, the latter being mounted on rollers and balls. A double-acting, metal-to-metal band brake is fitted to the secondary shaft outside the gear-box, and actuated by foot lever, which, when applied, immediately releases the clutch. Double-acting band brakes are also fitted to each of the rear wheels, actuated by a hand lever. Altogether the exhibit of the Ariel Company was one deserving close attention.

In addition to a couple of motor-bicycles, the Kitto Automobile Company had on view a new American light car with the engine under the bonnet in the front part of the car. The frame is of angle steel, while the motor comprises two cylinders and develops 8-h.p. The power is transmitted through a clutch and gear-box to a counter shaft, and thence by a single chain, although we understand two chains will be used on future vehicles. The car is neatly arranged, with ample petrol and water capacity.

a friction grip, which enables them to be set to a nicety. While building cars, the company are not neglecting their popular Century motor-tandem, of which a couple, with 5-h.p. Aster engines, were shown. Although the general features are unchanged, we notice that the wick carburettor has been replaced by one of the float-feed spray type, and that a large friction clutch is being used.

The Elswick cars shown by the Elswick Motors, Limited, were of 6-h.p., with single-cylinder Aster engine, the transmission being of the familiar change-speed gear and propeller shaft type. Three speeds and a reverse are supplied. A long wheel base is a characteristic of these vehicles.

Mr. O. C. Selbach showed the single cylindered "Regal" cars, fitted with 6-h.p. De Dion engine of the water-cooled type. This is on similar lines to the Rigal car described in our report of the Stanley Show. An interesting display was completed with a full assortment of mechanically-operated valves, axles, frames, radiators, &c.

The English Motor Company showed the Oilmobile, to which we made reference in our report of the Stanley Automobile Exhibition, and also the 64-h.p. two-seated Lipscombe car. The engine is a water-cooled De Dion. There is the usual transmission through a gear box, and universal propeller shaft to the differential. There are three speeds forward and one reverse, the third speed driving direct on to a geared axle without chain. On the rear wheels, the internal expansion type of brake is provided, and a band brake on the main shaft. Wheel steering is adopted. The two seats are of the bucket type, and have a comfortable appearance.

A three-wheeled carriage for two people was shown by Messrs. Chas. Peacock and Co. This is the "Carpevien," fitted with a 24-h.p. air-cooled engine. A simple type of friction-clutch and chain gearing, controlled by a

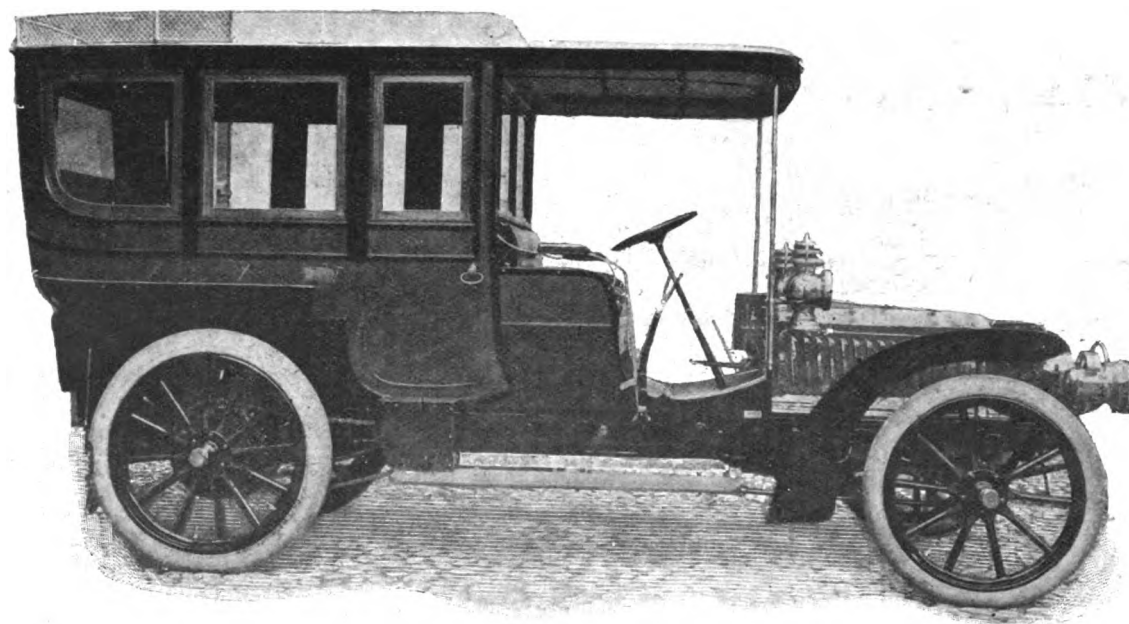


FIG. 47.—THE DE DIETRICH (TURCAT-MERY) DILIGENCE, WITH MONTEL BODY. (See last issue.)

Roller bearings are used on the back axle, while we noticed that the band brakes are of the metal-to-metal type.

The Century Engineering and Motor Company, Limited, are now devoting considerable attention to the construction of cars up to 16-h.p., and judging from the excellent specimens they had on view, the Century cars should quickly become a popular type. In general arrangement they follow what may be termed standard lines, four sizes—6½ h.p., 9 h.p., 12-h.p., and 16-h.p.—being shown. To deal with the 6½-h.p. car first, this is the company's latest production; it is a two-seated car, with a 6½-h.p. single-cylinder Aster motor set in the fore part of the frame; three speeds forward and reverse, and a governor acting on the admission. The 9-h.p. car has a double cylinder Aster engine (88 mm. diameter by 110 mm. stroke), running at a normal speed of from 900 to 1,000 revolutions per minute. The 12-h.p. cars are made in two forms, one having three speeds and a fast-running double-cylinder Aster engine, and another with four speeds and a slow-running Aster motor having twin cylinders, 105 mm. diameter by 130 mm. stroke. One of the finest cars on the stand was a 16-h.p. brougham, fitted with four-cylinder Aster engine and four forward speeds and reverse. In all the foregoing vehicles the power is transmitted through a friction clutch, gear-box, differential countershaft, and two side chains. The water radiators are on the latest lines, with continuous plates from tier to tier, thus giving a stronger construction than if the plates were all separate. Among other details to which we may refer are the use of planished steel bonnets; a small electric light on the change-speed lever to facilitate changing gear in the dark; as the driver moves the lever from notch to notch the circuit is completed, enabling him to make sure of setting the lever in the correct position, upon which the light is automatically switched off. The control levers on the steering column have

lever, has been provided, there being two speeds. The steering is of the tiller type. Electric ignition, two band brakes and a weldless steel tube frame are other features of this little car. The "Brutus" engine of 1, 1½ and 2 h.p. was also shown, the weights of these types being 17½ lbs., 25 lbs., and 27 lbs. respectively. Lamps, horns, etc., were also shown, as well as the Paree carburettor.

The Continental Automobile Company, Limited, showed the F.I.A.T. cars, the features of which were described in our issue of December 27th. They also exhibited a 14-h.p. "Continental" car, the engine of which is fitted with a regulator allowing the engine to run at from 200 to 2,000 revolutions without affecting either the carburettor or advancing the ignition. The transmission is by chain, but in the smaller-powered cars an universally-jointed shaft is used.

Messrs. H. M. Hobson, Limited, showed a 16-h.p. Dasse car, with fan cooled radiator and mechanical inlet valves. The car has three speeds and reverse and a tonneau body, seating four passengers and the driver. The firm also showed the Wydts electro-catalytic igniter, described in our columns on the 31st ult.

The Progress Cycle Co., Ltd., exhibited two of their neatly-finished 9-h.p. Progress cars, with tonneau bodies which have already been described in these columns. The chassis of a new 6½-h.p. two-seated car the company are bringing out was also on view. The motor, which is a single-cylinder Aster with a governor acting on a throttle-valve, is water cooled by natural circulation through a specially-designed water tank and radiator placed in the front of the bonnet. The frame of this vehicle is made of ash and strengthened by fitch plates, an underframe of light section channel steel being employed to support it. There are three speeds forward and reverse available, the drive on the top speed being

direct from the engine through the universally-pointed shaft and bevel gear to the live back axle. The rear axle and differential gear are contained in an oil-tight case. The end thrust is taken up by two large ball bearings. The speed control lever is arranged on a quadrant on the right hand side of the car, the hand lever controlling the expanding brakes on the back axle being fitted on the same quadrant. The application of either the hand or foot brake at the same time disengages the clutch.

Georges Richard and Mercedes cars formed the exhibit of Messrs. Mann and Overton. Of the former a 10-h.p. and 12-h.p. car were shown, both having double cylinder motors. The larger vehicle comprises a number of interesting new features, some of which were described in our report of the Paris Salon. The 12-h.p. double-cylinder engine (104 mm. diameter \times 100 mm. stroke) runs at a normal speed of 1,000 revolutions per minute, giving off 13-b.h.p.; it is automatically governed on the throttle, in a similar manner to the 10-h.p., the governor being entirely enclosed. The Brasier system of magneto ignition, arrangements being provided for the ignition to be retarded or advanced as desired. The water is circulated by a pump through the latest type of Loyal radiator. The transmission is by bevel gear on to a live axle, and is the same as in the 10-h.p. car, with the exception that there are four speeds forward instead of three, and a sliding universal joint without bolts. The universal joint between the clutch and the gear box works both ways, thus obviating any wear in the bushes of the engine and gear box. The engine is lubricated by means of an automatic lubricator on the dashboard: the live axle bearings are lubricated by means of rings running in an oil bath. Semi-irreversible steering, with tangent screw of the re-enforced Panhard type, with ball thrust bearing, is employed. Altogether the Georges Richard cars have been brought well up to date, and should continue to be a popular type in this country as well as in France. One of the handsome cars of the show was to be seen at this stand, viz.,

and a specimen of the ingenious change-speed and driving gear employed. A full description of the general arrangement adopted was given in our report of the 1902 Agricultural Hall Exhibition; a few slight modifications and improvements have been introduced, the main one being the provision of a reverse motion. No differential gear of the usual type is fitted, ratchet clutches being provided fitted to each driving wheel on the ends of the live axle to allow either wheel to over-run the other in turning corners.

Messrs. E. J. Coles and Co. showed a 22-h.p. four-cylindrical car, one with a 10-h.p. two-cylinder engine, and a 6-h.p. car, as well as the 8-h.p. "Belle" car, with which their name is favourably associated. The general arrangement of this car has already been described in the *Journal*, and in our issue of the 3rd ult. was a view of the latest type as shown at the Exhibition. The cylinders and water-jackets are cast in one piece and the valves and their seating can be taken out together. The tanks and radiators are of a larger size than those originally fitted.

Messrs. Botwood and Egerton drew attention to the well-known Gobron Brille cars, exhibiting specimens of the 9, 12, and 30-h.p. vehicles. These have already been described in the *Journal*, but mention should be made of the fine coach work of the bodies. This is done by Messrs. Botwood and Egerton at their Ipswich works, and was notable for its bold lines and for the excellent style of upholstery adopted. Examples of the Primus cars illustrated on page 977 were also shown, and served to attract many visitors to the stand. The 5-h.p. car has a single cylinder engine, the power being transmitted by a single belt to the change gears, which are directly connected with the differential shaft, and thence to the road wheels by chains. The gears are enclosed in an aluminium case, running in oil. A float-feed carburettor and electrical ignition are provided, while a half-turn of the handle is sufficient to start the engine. The radiator is on the side of the bonnet, the thermo-siphon system of

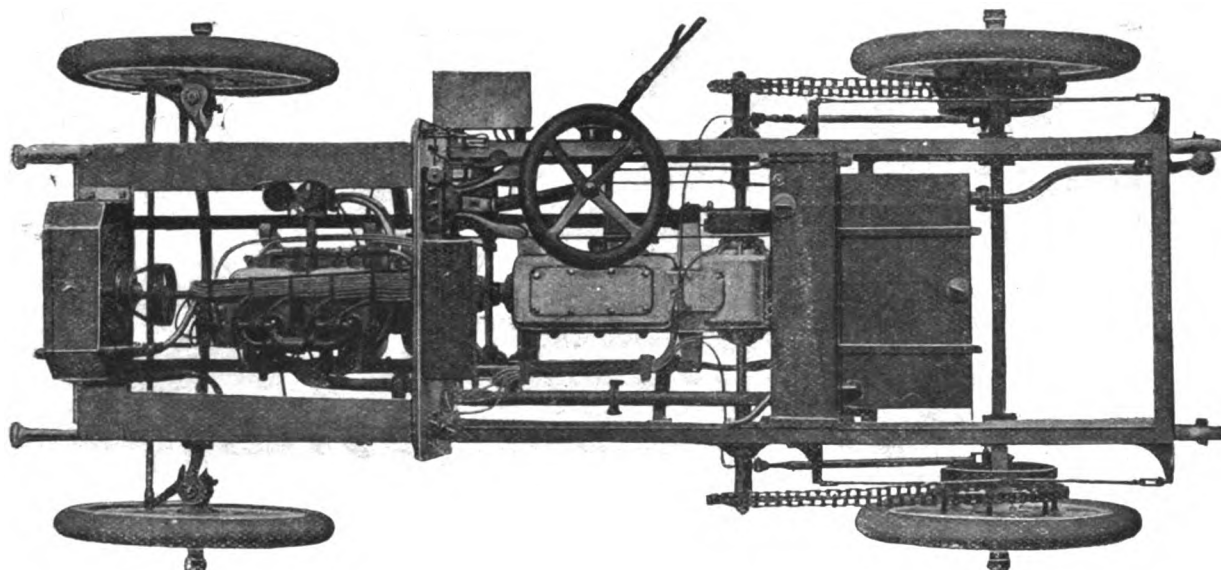


FIG. 48.—CHASSIS OF 12-H.P. GLADIATOR CAR. (See page 965.)

a 20-h.p. Mercedes-Simplex. The details of this well-known type need no description at this time, but we mention that the car exhibited was fitted with a comfortable tonneau body, painted in the usual Cannstatt red colour.

A 12-h.p. covered wagonette and a 16-h.p. four-cylinder tonneau, both of the Boyer type, were exhibited by the Automobile Supply Company, Limited, while Mr. F. H. Hunt had on view a chassis and two complete cars of the Maurer Union type, the feature of which is the friction drive. As this has already been dealt with in the *Journal*, a lengthy reference is unnecessary. The Burlington Carriage Company again exhibited a 16-h.p. De Dietrich chassis of the latest type.

The Wilson and Pilcher car has been dealt with at length in these columns, so that we need only mention that the main alteration for the 1903 season is the fitting of an engine of 10-h.p. in place of the 8-h.p. motor hitherto employed. The four cylinders are arranged in pairs on each side of the crank shaft, and a novel feature of the electrical ignition is the induction coil, which for four cylinders has only a single trembler. Four speeds forward and a reverse motion are available. The forward speeds are now controlled by a side hand lever, in place of the old rotating handle. The power is transmitted from the gear-box by a universally-jointed longitudinal shaft to the rear live-axle. The car is a remarkably silent one, a feature which has brought it well to the front in the motor world. In addition to the foregoing, Messrs. Wilson and Pilcher had on view samples of their special contact breakers, piston rings, and induction valves, of which we published descriptions last year.

A large array of the little 4½-h.p. two-seated Swift cars was to be seen on the stand of the Swift Motor Company, the exhibit including a chassis

circulation using on an average only three pints of water per 100 miles being adopted. A 9-h.p. car was also shown, and the bodies were fitted with every convenience for the tourist, even to such a detail as small pockets on the side of the vehicle for maps, papers, etc.

Two attractive stands were occupied by Mr. E. W. Hart, who has recently added the Parkside Garage, Regent's Park, to his other automobile activities. Among the cars shown were a 9-h.p. Renault, a 6-8-h.p. two-cylinder Panhard, and a 16-h.p. De Dietrich. The latter had a tonneau body fitted with a light canopy, giving the vehicle a most effective appearance. A 40-h.p. Panhard with a "Roi de Beige" body, attracted much attention, its white enamelled body, with red upholstery, giving it a charming appearance. Several Mercedes cars were staged, including the 16-20-h.p., and 28-35 h.p. types. Altogether Mr. Hart's display was thoroughly up to date, and well representative of the latest phases of motor-car design.

The Siddley Autocar Company made a very creditable first appearance as an exhibitor, showing three chassis, 8-11 h.p., 12-16 h.p. and 18-24 h.p., as well as two finished cars, one of 8-h.p. and the other, the "Little Siddley," a 6-h.p. The larger cars were of four cylinders, and followed well-known and approved lines, the features including mechanically operated inlet valves, and a Mercedes style of cooler with square air-tubes.

Several vehicles of the utilitarian type were shown by the Milnes Daimler, Limited, including a public service vehicle for the Penrith Motor Company, similar to the styles recently illustrated in the *Journal*. Two one-ton vans and a two-ton lorry were also shown. Fitted with a tonneau body was a 28-35-h.p. Mercedes car and also a 9-h.p. four-cylindrical car with a brougham top.

ELECTRICAL CARS.

The Automobile Supply Company, Limited, had on view a Scheele electrical car, supplied with two bodies—a victoria and a brougham—the connection being such that one can be quickly substituted for the other. The vehicle is provided with a battery of a capacity sufficient to run it a distance of 40 miles on one charge. A one-ton electrical delivery van was also shown by this company.

Two neat electrical runabouts formed the display of the Crowds Company. The frame is of tubular construction, the electric motor, which is supported at the rear, driving the rear axle through bevel gearing. The battery consists of 44 cells, one charge being sufficient to run the car a distance of about 50 miles. The feature of the vehicle is the one-lever control, all the various operations of steering, speed changing and applying the brakes being made by means of the tiller.

The exhibit of the Electromobile Company, Limited, was notable on account of the chassis which was exhibited, a display of this kind being not very usual. The Company has acquired the rights in the Contal system of electrical vehicles, which were shown for the first time in this country. The main features of the new vehicle are its "straight chassis" and "underslung interchangeable battery." The chassis is common to all types, so that any form of body can be attached to it. The frame is rectangular in plan, and is constructed of rolled channel steel. The wheel base is 7 feet, and the track 4 feet 6 inches; the road wheels are of the normal artillery pattern, fitted with either pneumatic tyres 810 by 90 mm., or 3 inch solid tyres. The underslung battery box system has been adopted to obtain (a) rapidly interchangeable batteries; (b) even distribution of weight on the wheels; (c) the collection of all the cells in a single box, to enable inspection to be thorough and manipulation simple; (d) a low centre of gravity to minimise side-slip. With the battery underslung, any acid fumes escape at once to the air instead of affecting the atmosphere inside the carriage. The wooden box containing the accumulators is braced by a light steel framework terminating in a lug at each corner. These lugs engage with strong taper pins sliding in brackets on the frame, and are operated from either side of the car by a simple screw mechanism. In the depot, the accumulator box is lowered from its position by a hydraulic lift, and conveyed to the battery department for examination and charging, thus avoiding the damage to the carriage that may ensue if the battery is charged *in situ*. The chassis and battery box together weigh 9½ cwt. The battery consists of 42 "Contal" cells of a special pasted type, and weighs about 8 cwt. Its capacity is 135 ampere hours, and affords sufficient power to propel the Victoria about fifty miles, and the double landaulette about forty-five miles, over average roads in fair condition. The motor is of 5-b.h.p. on a continuous load, but we are informed that it can safely exert over 10-h.p. for shorter periods. Its normal speed is about 1,500 revolutions per minute. It is a bi-polar and series-wound, having two separate commutators connected to separate armature windings. The motor, which weighs about 162 lbs., drives through a dual train of double helical gearing on to the differential, and thence to the hubs of the rear wheels by live shafts, which revolve in an external tubular axle. This axle is stationary except for the slight radial movement permitted by the suspension springs; carrying the motor. It consists of two tubes united by a cast steel gear box, and extending within the road wheel hubs, which revolve upon them. Thus the internal driving shafts are relieved of all bending stress, and are in simple torsion. The road wheels are so mounted that they can be removed as easily as ordinary carriage wheels. The motor casing is continued into the gear box, so that the entire driving mechanism is dust and waterproof, and can be entirely detached from the carriage by removing the spring clips and the pin by which the motor is suspended from the frame. The controller gives five forward speeds ranging from three to fifteen miles an hour, two electric brakes, and one reverse speed. Its position is horizontal, immediately below the floor boards, in which is a trap door exposing the brushes and terminals. The handle actuating the controller is below the steering wheel, and moves in a plane parallel to the wheel. The usual ratchet mechanism is provided to prevent any lingering between the positions of contact. The steering is effected by a wheel and spindle inclined at 30 deg. with the vertical, and transmitting motion to the ordinary levers through bevel gearing. In addition to the two electric brakes, a powerful double-acting expansion brake is fitted on the hubs of the rear wheels. It is applied by a pedal, and the pressure on the two wheels is equalised by the usual wire rope and pulley device. An ingenious form of quick break switch is connected with the brake pedal, so that the electric current is broken before the brake is applied. The cars exhibited comprised a two-seated Victoria, single and double landaulettes, and a brougham, the body work of which was of the highest class. The following are the approximate weights of the four types: Victoria, 22 cwt.; single landaulette, 23 cwt.; double landaulette, 23½ cwt.; and brougham, 22½ cwt., these weights including the whole battery and equipment.

A brougham of the Vehicle Equipment Company was shown on the stand of the Anglo-American Motor Car Company, Limited. The driver sits behind, giving the passengers an uninterrupted outlook before them. It will cover 35 miles on one charge. The under frame is an important feature, this being of the pedestal type, with full elliptical springs, both fore and aft. The yokes enclose the sliding blocks of the axle members and gives a universal movement to them, with all the desired flexibility. The battery is of the underslung type, cradled, and arranged in sections, each section comprising a separate tray. The double motor drive is used, the motors being of the General Electric type pivotally hung on the rear axle and driving directly to the spur gears of the rear wheels. Expansion brakes are used on drums on the rear wheels. The controller is of standard General Electric type, of the series parallel order, giving four speeds

ahead and two reverse, with an interlock between the reverse lever and main controller drum. The Baker electric racing car (Fig 49), of 7-h.p. nominal, attracted considerable attention. It is driven from storage batteries, and ball bearings are used everywhere to decrease the friction to the lowest possible point. Inside the long torpedo-shaped body two men sit tandem, the steerer peering out of the mica window of a small hatch coaming, while one confines his attention to the management of the propelling machinery.

MOTOR-CYCLES.

A representative collection of motor-cycles was to be found on the stand of Messrs. Humber, Ltd., these including motor-bicycles, tricycles, Olympia tandems as illustrated in our issue of the 24th ult., and a useful carrier, the latter being on the lines of the Olympia, but having a parcels chest in place of the front seat. The feature of all the machines is the chain-drive, which has already been dealt with in these columns. The motor-tricycle weighs about 170 lbs. In addition to a front-rim brake, the machine is fitted with the Humber double-action band-brake on the main axle, operated by a foot lever carried well forward of the bottom bracket and out of the way of the pedals.

Motor-bicycles fitted with 2-h.p. Minerva motors of the latest type were shown by Messrs. Alldays and Onions, Ltd.

The Bat Motor Manufacturing Company, Limited, made a big display of the Bat 2½-h.p. and 2½-h.p. motor-bicycles, which were described in our issue of November 29th last, and also a new avant-train, or fore-carriage. On the stand were also samples of the Batson's grip pulley, which is claimed to prevent any possibility of belt slip; the "Bat" instantaneous switch, which is fitted to the handlebar, and enabling the rider to cut the current and apply the brake simultaneously; and a patent belt fastener.

For the 1903 season the motor-bicycle of the Rex Motor Manufacturing Company, Limited, is being fitted with a 2½-h.p. engine, mounted vertically, near the crank bracket. Its main features have already been referred to in our pages, but we may refer to the method of carrying away the

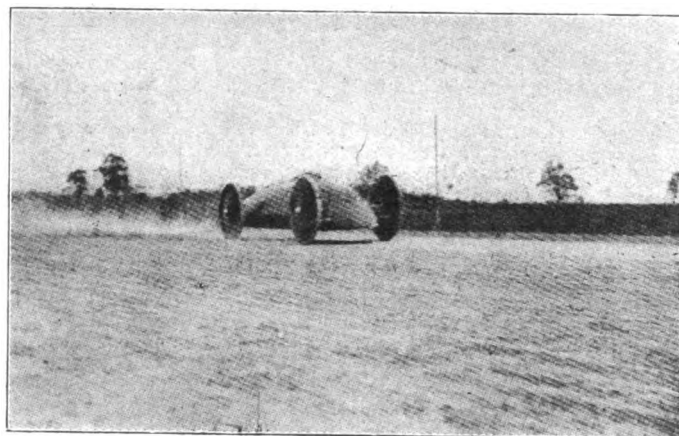


FIG. 49.—THE BAKER TORPEDO AT FULL SPEED.

exhaust. The usual exhaust pipe and box are dispensed with, and instead the exhaust box is ingeniously designed so as to be part of the motor itself.

The Firefly Motor Company are introducing a new two-speed, chain-driven motor-bicycle fitted with 2-h.p. engine set vertically in the frame.

The General Motor Car Company, Limited, displayed a 2½-h.p. motor-bicycle, fitted with a free engine, chain drive, and magneto ignition. The motor is mounted vertically in the lower angle of frame, in such a way that the latter is strengthened considerably. The speed of the motor is reduced by enclosed spur-gearing, the power being then transmitted through a chain and clutch to the rear wheel. The engine can thus be started before mounting, and kept running, although disconnected from the machine.

From the Emerald Isle came Messrs. W. R. McTaggart, Limited, with the "F.N." bicycle, so well known on both sides of St. George's Channel. The machine for 1903 is of 2-h.p. with the motor still in the vertical position, placed so that the distance between the pulley and the rear wheel is increased, as compared with earlier types. The frame is greatly strengthened, and the solid forged bridle protects the cylinder in an effective way. The other features of the "F.N." motor-bicycle are so well known that further reference is unnecessary. London readers will, in future, be able to see machines at 48, Wells Street, W.

The Kerry motor-bicycle was given a place on the stand of the East London Rubber Company. The engine is of 2½-h.p., at a speed of 1,400 revolutions per minute, the cylinder having a bore of 70 mm., with 80 mm. stroke. It is hung low in a loop frame and drives by a V-shaped Lincona belt. A float feed carburettor is fitted, a sight feed lubricator being also provided. In addition to the finished machine a large assortment of parts and accessories were on view, as well as a trailer of neat appearance.

McCurd's automatic motor-cycle "supports" have been previously described in the *Journal* as applied to motor-tricycles, and the same principle has now been extended to motor-bicycles.

Messrs. Dennis Brothers, Limited, are still turning out motor tricycles and quadricycles, specimens of which were to be seen on their stand. The quad had a 2½-h.p. De Dion with water-cooled head, and the Dupont two-speed gear. Messrs. Hewetsons, Limited, had on view a couple of the Hewetson motor-bicycles which have already been described in the *Journal*. Magneto ignition is adopted, while the carburettor and exhaust valve are controlled by a lever fitted on the left side of the handle-bar. A flat belt conveys the power to the rear wheel.

The Regina motor-bicycle introduced by the Ilford Motor-Car and Cycle Company, Limited, is fitted with a 2½-h.p. De Dion engine. The engine, which makes 1,500 revolutions per minute, is placed in a vertical position low down between the wheels. A solid V belt transmits the power. The De Dion float feed carburettor with throttle is fitted. A positive sight feed pump lubricator with an oil tank capacity said to be for 400 miles is provided.

The Weller motor-bicycle was shown late during the progress of the show. This is made with engines of 1½-h.p. and 2½-h.p. The motor has a mechanically operated inlet valve and an exhaust valve lifter. The carburettor is of the spray type, and the engine self-lubricating. Two batteries are provided, either of which can be put in circuit by means of a compound plug. The tank has a capacity for two gallons of petrol and two pints of lubricating oil. The frame is designed to allow the motor being fixed in a vertical position, still, however, retaining the triangular form of frame at the bottom bracket.

Westfield's "Autobike" was shown by the Rising Sun Motor and Engineering Works. The engine was of 2½-h.p., hung vertically in front of the bracket. Other types shown were an Autobike with a 2½-h.p. Kelecom engine, and a 2½-h.p. Auto-tandem. Accessories for motor-bicycles were also on view, including a non-spilling accumulator, float-feed carburettor for engines up to 2½-h.p., etc. The Leonard avant-train was shown at this stand. It is fitted with telescopic axle, and its pulp cane body upholstered in red morocco gave it a fine appearance. This excellent fore-carriage has already been illustrated in the *Journal*.

Mr. Douglas Cox showed the "Barter" motor-bicycle of Messrs. Humpage, Jacques, and Pedersen, Limited. This has a 2½-h.p. engine mounted vertically within the frame. A float-feed type of carburettor is fitted, and the transmission can be obtained by belt or chain drive.

Mr. F. Greville is introducing the Greville two-speed motor-bicycle, fitted with a 1½-h.p. motor located inside the frame. A round belt drives from a two-speed pulley on to a second pulley, which is mounted on an adjustable bracket. The bracket is fitted to the back forks. A small pinion gearing into a toothed ring is carried on the second wheel, which, being keyed to the hub of the driving wheel, reduces the gear as much as necessary. Mr. Greville also showed a motor-bicycle set adaptable to ordinary bicycles.

The "Royal George" motor-bicycle was shown by Messrs. Bransom, Kent and Co., Limited. The engine is a 2-h.p. Minerva, fitted with mechanical inlet valve and spray carburettor. A belt drive of V section is provided. A large range of accessories for automobiles was also on view, including the "Basse Michel" coil, the B.K. non-slipping pulley, the B.K. sparking plugs, lamps, horns, and the hundred and one articles associated with that branch of Messrs. Bransom, Kent and Co.'s business.

The "Rudge Wedge" motor-bicycle was shown by Messrs. H. M. Hobson, Limited, the type on view being fitted with a 1½-h.p. engine attached to the diagonal tube. A Lincona belt drive is adopted, as well as a surface carburettor, wipe contact breaker, and trembler coil.

The Bichrone Company showed a two-cycle engine for motor-bicycles, one cylinder acting as a pump and supplying gas to the other.

A good display was made by the Quadrant Cycle Company, Limited, special attention being directed to the 2 and 3-h.p. motor-bicycles. The motor is supported by three lugs on the crank case, the drive being by means of a Lincona belt. The Quadrant motor-tricycle shown on the stand was illustrated and described in our issue of November 29th last.

The "King" chain-driven motor-bicycle was exhibited by Messrs. W. King and Co., of Cambridge. This is made with a 2½ or 2½-h.p. Kelecom motor, a 3½-h.p. machine being also supplied for racing purposes.

At the stand of the Primus Motor Works were shown the "Ixion" two-cycle motors of 1½ and 2½-h.p., which were described in our issue of December 6th last, when a sectional drawing was given. The Morette safety motor-carriage, recently illustrated in our columns, was also on view.

The Bowden motor-bicycles were shown by the E. M. Bowden's Patents Syndicate, who also had on view levers demonstrating the Bowden method of power transmission, motor-bicycle frames, the "Bowden" lubricator, patent clutch hub, and new throttle. In one style of the latter a hollow piston is drawn up from a recess in the bottom of a well in the induction tube, closing it, and falling again when the wire is set free owing to the action of a spiral spring within the throttle. In another pattern the gas passes through the hollow piston, unless the latter be drawn up by the action of the wire. Then the side of the piston closes the supply pipe.

Mr. J. Van Hooydonk made a bold display of his "Trimo" and Phoenix motor-bicycles, the features of which have been made familiar to our readers. A new variable gear was also shown.

GENERAL.

The Aachener Stahlwaaren Fabrik, who are represented in this country by Messrs. G. Strauss and Co., Limited, had an exhibit which appealed more to the trade than to the motorist. It comprised petrol motors ranging in power from 1½-h.p. to 16-h.p. The firm are also engaged on the construction of a 25-h.p. four-cylinder engine, running at a normal speed

of 900 revolutions per minute. Among the various change gears displayed we noticed one giving three speeds and reverse, the top speed being direct on the arrangement adopted. Live axles, differential and bevel gears are other specialities of the Aachener Company, who are also now devoting attention to combination sets of petrol motor and dynamo for electric lighting purposes.

The motor-lawn motor shown at the 1902 Agricultural Hall exhibition, and illustrated in our issue of May 3rd last, was to be seen on the stand of Messrs. Ransomes, Sims, and Jefferies, Limited, who have made one or two slight innovations, of which the fitting of a radiator, in addition to the cooling tank, is the chief. The mower is now made with smaller cutting cylinders than the 42 in. (6-h.p.) previously shown, and examples of the 24 in. (2½-h.p.), 30 in. (3½-h.p.), and 36 in. machines are on view. The same machine can also be adapted for rolling cricket grounds, etc., and there is shown a mower, for Uppingham School, which by weighting the front rail—the cutting cylinder being removed—answers admirably for that purpose.

Insurance rates and conditions could be obtained from the stands of the General Accident Assurance Corporation, Limited; or of the Law Accident Insurance Society, Limited, both of which were in proximity to the stand of the *Journal*. Policies are issued indemnifying owners of motor-cars against accidental damage and accidents to the public; the same facilities being also extended to those in the possession of motor-cycles. Burglary, fire, etc., can also be insured against.

The "Twentieth" Century motor head, side, and tail lights drew attention to the South British Trading Company, who also showed the "Sterling" motor tool kit, consisting of a leather wallet in which are fitted about a dozen high-grade tools of daily use by motorists. Mr. Eugen Baedeker flashed his Helios paraffin headlights every night in excellent style, thus demonstrating the value of this special light. Paraffin being obtainable everywhere renders the lamp one that can always be depended on so far as the fuel is concerned. There is a glass chimney kept in a rigid position by means of a metal cylinder, held by a coiled spring. Thus any possible vibration is thwarted. A parabolic reflector is fitted, and having regard to the economy of consumption the result is certainly a very satisfactory illuminating power. Mr. Baedeker also had an acetylene lamp, and the specialities in motor-car and cycle lamps on this stand received careful inspection. A collection of motor-car horns completed the display. The new Blieriot lamp, "Eclairer Elliptique," was exhibited by Mr. Charles Bardies, to whose similar display at the recent Earl's Court exhibition brief reference has been made. In this ordinary calcium carbide can be employed should the firm's acetylene not be readily available. "Solar" lamps for motor-cars, though not enumerated in the catalogue, were staged by Messrs. Davis, Allen, and Co., the most powerful example shown being the Phare Solar Acetylene gas headlight. This has a candle power of 1,164, and is fitted with an independent generator, in which the water supply and the feed of gas are both controlled by one valve. Side and rear lamps on the same principle were also exhibited. Lamps formed the feature of the display of Messrs. Salsbury and Son, Limited, their over-lights and headlights being conspicuous, particularly one of the former, with an oval face. Petrol filter-spouts, funnels, sparking plugs, jacks, etc., were also part of the exhibit. About 150 "Ducellier" acetylene lamps were staged by M. A. Godin, the English agent for this excellent illuminating agency. It was fully described and illustrated by sectional drawings in our issue of June 3rd last, so that we need now only remind readers that the generation of the acetylene gas is entirely automatic, ordinary commercial carbide of calcium being used and giving a pure white light, which in the case of the lenticular "Phare Ducellier" is projected a distance of 165 yards. Every provision is made for cleaning the various parts. Paraffin oil lamps and motor horns of good design were also shown by M. Godin.

The Compound pump for inflating pneumatic tyres has been made familiar to motorists by Messrs. Hedley S. Hunt and Co. This is also useful for obtaining air pressure in the petrol tanks for the self-starters of the Serpollet cars. The next stand was occupied by Messrs. W. H. Wilcox and Co., Ltd., who had a display comprised in the description of "general motor engineers" stores, including water lifters, gauges, valves, and steam fittings, jacks, spanners, etc., the Penberthy injectors for supplying steam-car boilers, driving bands, etc. The Wilcox semi-rotary motor pump was on view, and attention was also directed to the Jones-Wilcox patent wire-bound hose, which is being largely used in connection with motor-cars. Having no rubber in its composition, it will not deteriorate or perish, and it is claimed to last longer than ordinary rubber hoses.

Lubricating oils, greases, belting, etc., provided the substance of Mr. P. Lawrence's display. He is evidently watching motor-car developments, and his special oils, etc., are certainly suitable for their particular uses. Price's Patent Candle Company, Limited, have been content to maintain the standard of their original preparations for motorists rather than extend the variety of their specialities. The productions already familiar to our readers were, therefore, the staple part of their exhibit, which included lubricating oils for cylinders and engines, the Belmoline solidified oil for gearing and axles, the Battersea gear oil for change speed gear, etc. Messrs. Stern Bros. are developing their business in automobile lubricators and lubricants, and had a large assortment of greases and oils of good constituency, as well as Rusticide, Fernbicide, Universoline, and similar specialities. Various "Vacuum" oils for motors were shown by the Vacuum Oil Company, Limited, who also had an extra "Hecla" cylinder oil on their stand. The "Pony Rochester" automatic lubricators for steam cars, oil cabinets, sight oil feeders, etc., were also on view.

Of strictly utilitarian import was the collection of door furniture for

carriage bodies on the stand of Messrs. Lowe, Bevan, and Co. A new hinge allowing the door to swing back at a very wide angle without unduly protruding itself, is of interest to carriage builders, while a small lock to doubly secure the door is of importance to all who ride. Spring clips, handles, etc., were shown, as well as an assortment of fittings in Perfecta silver, and of various kinds of motor lamps. The Perfecta metal is one-third the weight of brass, and being claimed to keep its excellent colour despite climatic changes and hard wear, is admirably suited for the purpose.

Chains were shown by Messrs. Brampton Brothers, who also exhibited chain wheels, pinions, and milling cutters. Special attention is being drawn to the 2½ in. pitch compound chain. The Coventry Chain Company were also represented in this section, their display including a new belt in which fibre is fitted in a chain. Compressed felt and raw hide can also be introduced in a similar way. Specimens of the motor roller chain fitted to the latest Royal Daimler car, with the bushes an integral part of the side plate, were also on view.

Detachable brougham tops were shown by the Long Acre Motor-Car Company, Limited, the special point being the adaptability of the arrangement in connection with any type of automobile. The top is fitted with all the accessories necessary to make it as comfortable as an ordinary private brougham, while the windows can be raised or lowered at will. Carriage work was shown by Messrs. Hayes and Son, of Stamford—a long-established firm of van builders. Mr. A. Meier, of Redhill, had a good type of *tonneau* body painted in cream colour picked with green, the whole having a good effect. Another Southern firm, the Brighton and Sussex Motor and Carriage Works, showed three examples of coachbuilding, a well-designed *tonneau* car body, a body of the Limousine type, and a round-cornered governess car. In this no aluminium is used, mahogany panels being substituted and enhancing the appearance of the car in no small degree. Artillery wheels as well as bodies were displayed by the Mulliner Motor Body Company, of Accrington. A Limousine body for a steam car fitted with a movable top was a central feature here. This has a canopy over the driver's seat and a wind-glass in front. A phaeton body with a good serviceable canopy was also exhibited by this northern firm. Messrs. Savage Brothers, Limited, who are entering into the construction of heavy motor vans, were represented by their smaller manufactures, reserving their steam lorries, etc., for the forthcoming exhibition at the Agricultural Hall. The motor wheels shown were of the artillery pattern, one having bosses on the spokes for carrying the sprocket wheel or brake drum, and another being fitted with special bosses on the spokes to suit the sprocket and brake when attached to the hub of the Humber pattern. A good sound workmanship characterises these productions. Messrs. Thrupp and Maberley had several car bodies of good design, in which every detail had been considered. The "Duchess" Co.'s bodies for cars are attaining much popularity, as they can be readily adapted to any *tonneau* body, transforming it into a closed brougham. They were shown fitted to 8 and 10-h.p. cars, and the care with which the details have been thought out is very noticeable in the result. The parts forming the brougham top are folded together and lowered into a rectangular space, with a width of about six inches, behind the driver's seat and well out of sight.

Tubes of the "Old Weldless" brand were exhibited by the Weldless Steel Tube Company, Limited, the manufactures including steel cylinders, exhaust coils, steam coils, flash boiler coils, motor steering tubes and frame tubes, motor axles, and motor-bicycle handle-bars and fork sides.

An oil economiser suitable for private users was on the stand occupied by Messrs. Joseph Kaye and Sons, Limited, who also showed seamless copper, brass and steel petrol squirt oilcans of good design and finish. The Jack de Lux was exhibited by Messrs. J. G. Statter and Company. It closes down to such a short length that it may be used with voiturettes; while when opened it reaches to a length that it is applicable to large cars, two concentric steel screws, one working within the other, securing these advantages.

Messrs. S. Smith and Son, Ltd., have become almost universally familiar among motorists, their timepieces, speed indicators, chronographs, clocks, etc., keeping reliable time and occupying a minimum of space on the car. An electrically lighted motor timepiece was appreciated by visitors who indulge in evening rides. A new instrument on the stand was a combined motor chronograph and speed indicator recording speeds varying up to 120 miles an hour, evidently just the thing for the county constabulary.

The Eisemann system of high tension magnet ignition was demonstrated at the stand of Messrs. G. T. Riches and Co. This device was illustrated in the *Journal* on December 6th last, and takes the place of the accumulator and contact breaker and only one coil without trembler is used, no matter the number of cylinders used. Accumulator charging sets, spare parts for all the leading cars, carburettors, auto-tremblers, etc., were shown, the firm also drawing attention to their stocks of high-tension wire and electrical accessories. Messrs. Riches and Co. are devoting much study to the requirements of motor-cyclists, and that portion of their exhibit was not the least attractive. The Electric Battery Co. showed accumulators for electric ignition, and directed notice to a new grid for holding the active material. Sparking plugs, etc., were also shown. Lithanode accumulators for ignition purposes were exhibited by Longstreths, Ltd., who will fit the accumulators in the Star car which is to run in the Eliminating Test in connection with the Gordon Bennett race. Mr. H. Waterson demonstrated his enterprise by showing the new "E. H." honeycomb radiators. British made induction coils, electrical switches,

terminals, etc., were also shown, as well as an attractive collection of motor-horns, goggles, English-made motor-gloves, clocks, pumps, jacks, etc. A new trembler coil attracted much attention, securing such a rapid succession of sparks that an apparently continuous current is obtained.

The "P.M." contact-breakers and plugs were conspicuous on Messrs. Peto and Radford's stand who demonstrated how electrical ignition is maintained, even though the breakers are filled with oil and grease. The breaker has a cam of insulating material, with a metal projection embedded in it and protruding at the edge. This projection is in connection with the metal frame of motor, and is made the negative pole. The positive pole is connected to an outside terminal, in connection with a metal buffer, which works in a sleeve, and is kept highly pressed on the cam by a strong spring inside the sleeve. The cam being slightly eccentric, makes a hard rubbing and clean contact, as it revolves and passes under the metal buffer, whilst during the time it is not in contact the metal buffer is pressed tightly against the insulated portion of the cam. The effect of this causes an absolutely reliable contact every time; the cam also cleans itself, and cannot work loose by vibration. "P. and R." accumulators in celluloid and ebonite cases, "armoured" accumulators, voltmeters, inductions coils, etc., were also on view.

The East London Rubber Company showed a representative and comprehensive collection of motor-car parts and fittings, including the "Miller" lamps. They also had a *chassis* fitted with a 6-h.p. De Dion, and demonstrated their capacity to meet all the requirements of motor-car builders.

An interesting display was made by the Begbie Manufacturing Company, whose exhibit comprised many components of general interest. A large show of Aster engines was made, including the new 16-h.p. four cylinder type, at 950 revolutions. This is fitted with a wipe contact breaker, comprising a spring-controlled roller, which rolls against the inner periphery of the outer case. This is insulated, and has phosphor bronze introduced at various points of its circumference to correspond with the number of cylinders employed. The Aster air-cooled 2½-h.p.

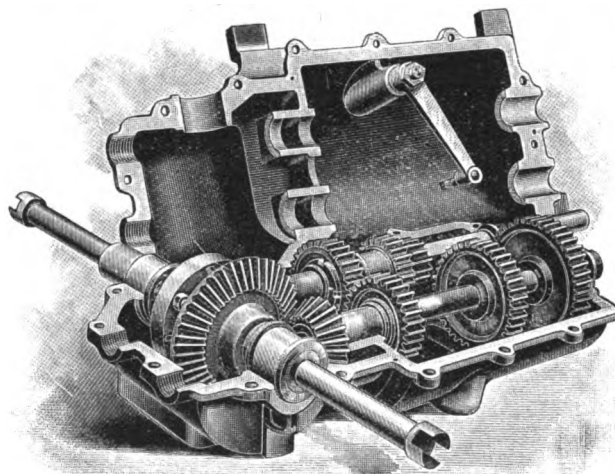


FIG. 50.—THE ASTER CHANGE-SPEED GEAR.

engine for motor-bicycles has been re-introduced to meet the demand for an engine powerful enough to take a trailer anywhere, and the ignition is identical with that fitted on all Aster engines up to 9-h.p. The Aster three-speed gear (Fig. 50) and reverse, with differential and clutch, was shown in the 6½-h.p. and 12-h.p. sizes. Other exhibits included new patterns of Begbie-Audin radiator, electric lighting sets, tanks, bonnets, etc.

The displays made by the United Motor Industries, Ltd., at exhibitions are always interesting, and their stand at the Crystal Palace had several features worth mentioning. Among many useful accessories known under the trade name of the "Castle" were accumulators fitted with a new plate, which is so constructed that the active material is held in an unbroken line from top to bottom of the plate, and yet secured most effectively. The result is that a maximum of active material is held in the plate and the value of the "Castle" for ignition purposes is considerably enhanced. Acetyloid lamps were shown in variety, a new model of good appearance being designed for cars of the 6 or 8 h.p. De Dion-Bouton type. It gives two powerful lights. An ample generator is provided, to be placed under the seat or the bonnet. "Castle" horns, voltmeters, plugs, etc., were shown as well as new honeycomb radiators, "Henry" lubricators, Longue-nare carburettors, "Empress" jacks, "D" and "P." oil, and the "Castle" change speed gear for 10-h.p. cars, etc. In connection with the Basse and Michel coils the new high speed trembler was shown, and a new model with a voltmeter attached. Reference to a new tyre shown on this stand is made in our concluding report on tyres.

Since its introduction a few months ago two important alterations have been made in Williams's counter-skid, which was shown fitted to a Daimler car. The discs are larger than was formerly the case, and are

set at a different angle, securing a more effective result. The counter-skid is an attachment to the back axle of a car, and consists of two hinged brackets, which can be raised or lowered at will. The lowering is done in an instant by the touch of a lever at the driver's elbow. The raising, which is done when danger is passed, is accomplished by turning a small hand-wheel close to the brake handle. At the end of each bracket is a revolving saucer-shaped disc, which, when any tendency to side-slip occurs, engages instantly and automatically with the road surface and checks it.

Messrs. Philip and Co. showed the "Lux" cars as well as a large range of engines, parts, motor axles, springs, speed, steering and differential gears, motor artillery wheels, radiators, lubricators, etc., and accessories of every description.

Several good things were shown by the Automotor Accessories Company, including the caloric heater which, having been placed in hot water

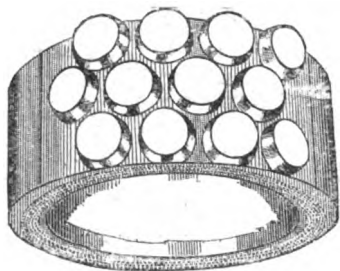


FIG. 51.—THE BAILEY "WON'T SLIP" TYRE.

for about a quarter of an hour, will remain warm from six to eight hours. Sprags, accumulators, roller bearings, odometers, etc., found a place on the stand of this company.

A large display was made by the Simms Manufacturing Company Limited, including the "Welbeck" frame, which is built to take any make of engine. It is made in two sizes, No. 1 taking the 6-h.p. single-cylinder or 10 h.p. twin cylinder Simms motor, and No. 2 the 20-24 h.p. or 30-35 h.p. four cylinder motor. This chassis has a wooden frame with tapered fitch plates, the motor being carried on channel inner frames supported by brackets. Working models showing the high tension and low tension systems of magneto ignition were also shown, as well as a collection of motors with one, two, and four cylinders ranging from 2-h.p. to 24-h.p.

Messrs. Van Raden and Co.'s specialties made an effective display, including accumulators, voltmeters, charging boards and dynamos, sparking plugs, tremblers, and non-trembler coils, etc. A watch-pocket voltmeter for motor-cars and accumulators was included in the collection.

Messrs. R. Melhuish, Sons, and Co. had a large collection of tools and appliances for motor-car work as well as fittings for automobiles.

Stauffer's lubricant, special lubricators for cars, split grip pulleys, etc., were shown by Messrs. Trier Bros., who drew special attention to their grip belt pulley for motor-bicycles. The special point in the construction of this pulley is that the outside flange is moveable on a universal joint.

Aluminium alloy castings made a bold show on the stand of Messrs. Walter Mills and Co., of Sunderland, who have every facility for the efficient production of such goods. Here were crank cases for petroleum-spirit motors up to 70 h.p., silencers, water-jacket cases, bonnets, etc., in aluminium, and we understand that the firm have made contracts with many leading makers of automobiles for 1904, as well as for 1903. The Birmingham Aluminium Castings Company, Limited, also made a good display of aluminium castings for cars, motor-bicycles, etc. Gear and crank case chambers, steering wheels, and levers were comprised in the collection.

Steel frames formed the humble but useful exhibit of Messrs. Rubery and Co., whose works in South Staffordshire are being equipped with a plant for making pressed frames for light cars. They showed motor-car and wagon frames, pressed steel channel shaped and ordinary flat fitch plates, as well as angle and tee sections used in the construction of motor-car frames. A collection of "Castle nuts," bolts and nuts, set screws and studs completed this eminently utilitarian display.

CLOTHING.

Many visitors took advantage of the electric stairway to reach the gallery where clothing firms were congregated in neighbourly proximity. Messrs. A. Dunhill and Company had a large display of garments and motor accessories, a mere category of which would occupy considerable space. Among the novelties is the ladies' fan, mentioned in our report of the Stanley Automobile Show, and which is shortly to be made with mica as well as in the present serviceable gauze. Leather clothing of every variety was displayed, including "Regent" leather jackets and coats for the use of gentlemen. Umbrella coats, aprons, caps, gloves, overalls, etc., were a considerable factor in the firm's display; while seal-skin and foal-skin coats proved an attractive feature, vying in interest with the "Ideal" clothing, in which motorists' garments are made to appear like ordinary raiment, an interlining of leather giving the necessary wind and wet resisting qualities. Mr. T. H. Holding's exhibit of motoring garments was worth a visit, and as he makes his own leather from the skins, he, naturally, lays emphasis on its excellence. The "Ayrshire" coat was shown as well as kangaroo leather vests, a motoring apron for two persons, and other specialties in which Mr. Holding's practical knowledge is fully exemplified. From

Southampton, Messrs. G. W. Batten and Sons came with two special lines—one of which is burdened with an unnecessarily long name, viz., the "Notatidignum" coat, in which, by an ingenious arrangement of the lapels eight thicknesses of leather are provided as protection to the chest, the coat otherwise being inconspicuous, and therefore acceptable to the motorist who abhors the grotesque costumes which were affected in the early days of the pastime. The "Pantrug" was also shown by Messrs. Batten and Sons, this being an adaptation of the rug and trouser idea. A "motocote" of good appearance was shown by Messrs. Thomas and Son, which cannot slip off the knees when the wearer sits down, and effectually protects the body and legs against even the stormiest weather. The exterior cloth is waterproofed by the firm's own process—a process which has also been applied to gloves for motorists, and to veils for ladies. A "Surtout Militaire" is a coat that will appeal to lady motorists, its general appearance being smart and ladylike. The method of buttoning round the neck is decidedly good. Waterproof clothing was the feature of Messrs. Abbott's display, which included patent aprons with a V-piece, ensuring comfort when driving, as well as convenience when walking. They had also a "Daimler" overcoat and a "Relta" light coat—both possessed of waterproof properties. Car covers, rubber mats, hat covers, and a miscellaneous collection of such goods were also shown. Leather clothing—leggings, gaiters, overalls, coats, etc.—constituted the display made by Messrs. Gibberd, and then three well-known tailors and a new comer in this department completed the tour of the Tailors' Gallery at the show. Messrs. Salsbury and Co. have entered the lists, and at their Long Acre depot are now running a clothing department, which was represented in a corner of the show. Messrs. Hoare and Sons had a good display, embracing the "Trowbridge" surtout for ladies, automobile waistcoats with sleeves, motor-cycle suits, the "Mota perfecta" and "pioneer" motor coats, the "Rex" motor-car and all-wool clothing for lady and gentlemen motorist. Attention was specially directed to the new combination livery suits, comprising coat, jacket, and trousers as supplied to the Viceregal Lodge, Dublin. Messrs. J. W. Lovegrove and Co. had a large display, in which raiment and accessories mingled with good effect. Many were the inquiries for the "Drimosit" rug, to which reference has already been made in these columns. The "Ideal" overcoat was also shown, this being recommended as a rain defying garment that gives no loophole to the most abusive weather. Goggles, boots, gauntlets, caps, masks, and the hundred and one other "incidentals" required by the motorist were shown by this well-known Piccadilly firm. Complete motor outfits formed the staple part of Mr. C. R. Base's exhibit—the basic portion, if we may say so, of an interesting display. Recently we referred to the specialties of this firm, and it now only remains to be said that good workmanship as well as excellent style are factors in the success that has been attained.

TYRES.

On the stand of the Clarkson and Capel Steam Car Syndicate were shown samples of the Bailey "Won't Slip" pneumatic tyres (Fig. 51), for which they have secured the sole rights in this country. It is claimed for these tyres, which are of American manufacture, that they prevent all slipping and skidding. Mr. Clarkson informs us that the $\frac{3}{4}$ in. bosses of which the tread consists show no appreciable wear after 1,000 miles of running, and that the tread entirely obviates side-slip.

The Double Arch Tyre Company's tyre is of the familiar appearance, having a thick rubber arch inserted according to the usual practice. Right through the rubber, however, is a tunnel, in which, bearing on the rim, is a smaller tyre. It is claimed that this double arch tyre is a happy medium between pneumatic and solid tyres. It is so filled in the rim that it cannot creep, and side pressure only causes it to grip the tighter. It keeps its resiliency till it is worn close to the rim.

Late in the week a new tyre was placed on the stand of the Clipper Company, which, had it been on view earlier, would have been made the subject of much inquiry. This is being made by the Continental Caoutchouc and Gutta Percha Company, and at their works in Hanover and on the German highways it has been submitted to a series of tests which have demonstrated its property of reducing side-slip to a minimum; in fact, it is claimed to obviate it altogether, a point upon which the experience of English users will shortly be available. The tyre is fitted with a flat tread extending all round the tyre. In the centre of the tread is embedded corrugated metal discs, 1 in. diameter and about $1\frac{1}{4}$ in. apart, which discs are entirely vulcanised into the rubber, and lay flush with the tread itself. They can be replaced when the corrugations are worn down, by new ones, which are screwed into the tread in an easy and secure way. The corrugated surface of the discs performs the usual service of considerably reducing the chances of slide-slip.

The new armoured device for motor tyres of the solid rubber variety was shown by the Buckingham Steel Faced Tyre Company. This is really a solid rubber tyre upon which are projections of rubber, the spaces between these being fitted with rim plates, which complete the circular form of the outer side of the tyre. The armoured portions of the tyre are attached to the wheel by a flange projecting inwardly, and secured under the outwardly turned edge of the rim of the steel tyre.

THE Jehu Motor Company, Limited, has been registered with a capital of £1,000, and offices in Brooke Street, Holborn. Messrs. C. Clayton and J. C. Clarke are the first directors.

THE ABUSE OF THE MOTOR-CAR.

NEXT to a correct knowledge of how to use a motor-vehicle is a knowledge of how not to use it, and many otherwise good drivers do not possess this latter knowledge. The result is that they abuse their vehicles unnecessarily, and do damage to the vehicles not only needlessly, but recklessly, and then sometimes complain because repair bills are high. As an example of this abuse, recently an owner of a two-seated car wished to make a trip, taking with him four ladies, and, being unable to borrow a four or six-seated car for the occasion, he mounted a temporary seat on the front end for two, put the other two in the main seat with himself, and the whole party proceeded on their journey merrily. The fact that the vehicle carried the load does not prove that it was the proper thing to do, for a two-seated car is certainly overloaded when four are carried, while five becomes an abuse. Either we must assume

man, pleased with the power, speed, and staunchness of his car, is, in this strenuous age, inclined to get a lever in each hand, a pedal under each foot, the steering wheel in his teeth, and "let her go," regardless of consequences. Fortunately, as we get more experienced drivers we find them discouraging this sort of foolishness.

A further form of abuse is needless "racing" of the motor. The experienced driver does not, as a rule, throw the throttle wide open and let the motor try to fly out of the car while he puts on his gloves or attends to some other little errand before starting, but, on the other hand, he takes a pride in making each turn of the motor carry him as far as possible, to the saving of fuel, noise, vibration, and odour, and at all times aims to keep the motor running at the lowest practical rate of speed.

Coupled with the racing motor is the sudden clutching abuse practised by the new man. With the motor running at high speed a sudden application of the clutch will cause the vehicle to



DIFFICULTIES OF LOCOMOTION IN PORTO RICO—A LOCOMOBILE FORDING A STREAM.

this, or that the springs and similar parts were much too stiff and heavy for the two passengers for which the car was designed, remarks a writer in the "Automobile Trade Journal." The feeling that there is ample power, and that the motor does not care, is largely responsible for this tendency to abuse the motor-vehicle, for very few drivers would attempt to load five passengers in a two-seated horse-drawn trap, and if they did, the trap would not stand it long. The result of such abuse is likely to be a strained spring, wheel, or axle and a breakdown at some future time, dating its beginning from this strain.

A second form of abuse is due to the driver's laziness. Rather than take the trouble to slow down or lift out his clutch he will bump over a newly metalled road without slackening speed, thus subjecting his car to damaging shocks needlessly. The horse-vehicle driver by years of experience has learned better and does not do this, and the experienced automobilist, having paid many repair bills, is likewise apt to do better; but the new

jump forward or backward, as the case may be, straining all parts of the driving gear, and moving the car so quickly that persons to the front or rear are more or less in danger. Possibly such abuse is frequently due to the inexperience or ignorance of the proper way, and it seems more charitable to assume this. The experienced driver takes a pride in moving away without a jar or jerk, and this is as true in driving a motor-car as in handling a locomotive.

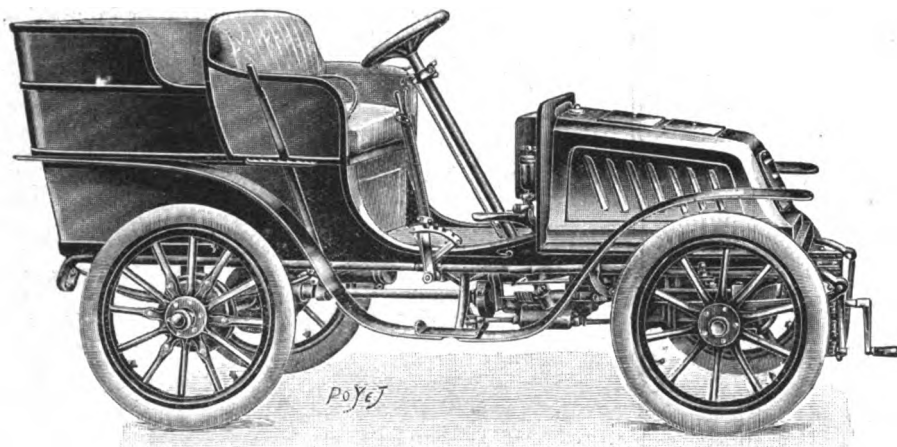
THE Bradford Corporation has lately put into service a motor telescopic tower for the inspection and repair of the overhead wires in connection with the electric tramways. The car, which was supplied by Messrs. G. F. Milnes and Company, Limited, carries, in addition to the telescopic tower, all the necessary tools, and is thus ready to be instantly despatched to the scene of a breakdown.

HERE AND THERE.

THE Gillet-Forest Company, of St. Cloud, near Paris, are building a 80-h.p. motor.

THE Frankfort Automobile Club will hold a series of track races on the 30th August next.

THE Anglo-American Motor-Car Company, Limited, has been registered with a capital of £20,000.



THE "NAPOLEON" CAR.

THE Northumberland County Council is making a reputation to the Local Government Board in favour of motor-cars carrying distinctive numbers.

THE postal service between Amsterdam and Haarlem, and Amsterdam and Utrecht, was recently carried on by automobiles, owing to the strike which occurred among the railwaymen on the Dutch railways.

THE Portuguese War Office has adopted the Locomobile for the use of officers. These machines have been used for some time by staff officers while making their tours of inspection among the several fortresses of the kingdom.

AN illustrated catalogue has been issued by Messrs. G. Straus and Company, Limited, giving illustrations and diagrams of the "Fafnir" petrol motors, speed gears, axles and accessories, as manufactured by the Aachener Stahlwaaren Fabrik, for whom they act as sole agents for England and the Colonies. The engines listed range from 1½-h.p. to 16-h.p. Motors for stationary use are also included, a petrol motor being shown coupled to a dynamo for electric lighting purposes.

WITH reference to the case at Marlborough Street, London, reported recently under the heading "Learning to Drive," the Motor Manufacturing Company, Limited, furnish us with the facts leading to the arrest of the accused. It appears that on the morning of the 23rd ult., Mrs. Hood informed the company that her husband's motor-car, a 7-h.p. M.M.C., had been stolen. About 5 o'clock in the afternoon the said car was brought to their premises in New Bond Street by A. Billings, who stated that he wanted certain things. [He was thereupon advised not to move from the spot if he valued his liberty, and Mr. Hood was sent for. That gentleman eventually arrived with two Scotland Yard officials, and the sequel was told in our issue of a fortnight ago.

THE Dudley, Stourbridge and District Electric Traction Company is using a 12-h.p. petrol motor-car for inspection purposes in its district. It has been in use since the beginning of December last, in all weathers, and is, we hear, giving great satisfaction.

A STRAKER five-ton steam lorry is now being used at Mr. J. Sweet's quarries at Liskeard.

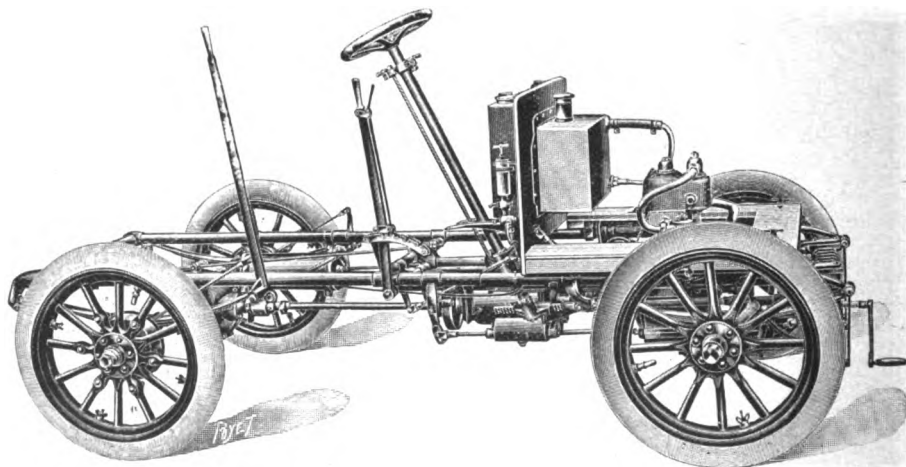
THE Mayor of Southport, Mr. T. L. Scarisbrook, is a motorist, being the owner of a 12-h.p. Daimler.

FOR not stopping when requested to do so by the driver of a restive horse, S. Girling has been fined 23s., including costs, at Devizes.

THE *Journal* has not yet started a humorous page, but the following extract of a "technical" description of a locally built petrol car, from the pen of a special contributor to a Lancaster newspaper, should afford some amusement to our readers:—"Everybody knows that a motor-car has to store water to keep the working parts cool. A motor works at something like 1,500 revolutions per minute, so it is easily understood that there is friction and heat combined unless you are careful." The writer in question then goes on to describe how half a dozen years ago he rode on a motor-car from Skipton to Lancaster. "We carried eighteen gallons of water to keep the machinery cool, and every twenty miles we had to stop for more. . . . No more need for such midnight adventures. The new car only carries two gallons of water, yet it is quite sufficient. . . . The difference is due to the presence of what is known as a 'radiator.' I can hardly explain what that is, except to say that the water is sent along and through a great length of pipes, and that, being brought in contact with such a great area of pipe, it never becomes hot. The motor is connected up to the axles by a live axle, and thus all the machinery is right in front."

WITH a capital of £15,000 the Petrol Motor Power Company has been registered to adopt an agreement with Messrs. Davis, Allen and Company, Limited, and to deal in motor-vehicles, accessories, etc.

THE death is announced of Mr. James Glaisher, who in the sixties made several notable balloon ascents. In 1862 he made an ascent from Wolverhampton and succeeded in reaching an altitude of five miles.



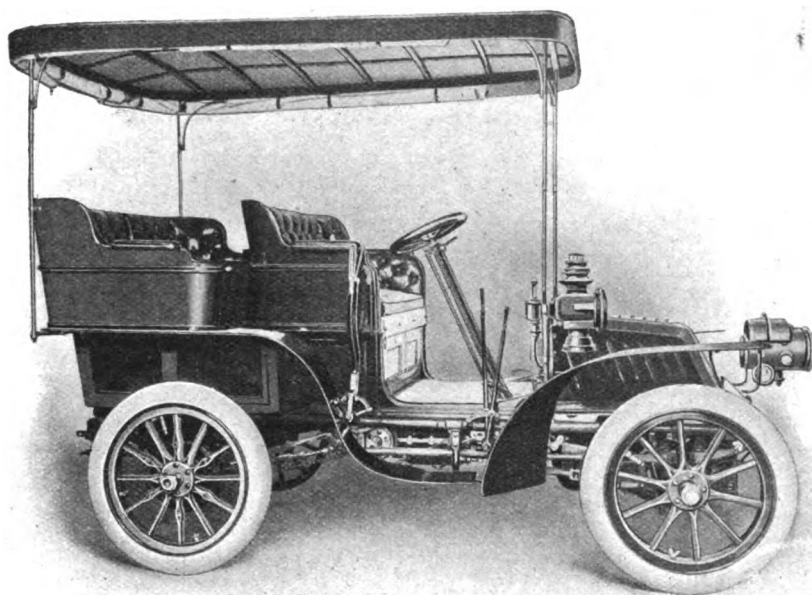
CHASSIS OF "NAPOLEON" CAR. (See page 968.)

THE Locomobile Company are, we hear, bringing out a steam tonneau car.

AN attractive catalogue has been issued by the London Motor Garage, Limited, which should do much to educate the public as to the "Magnet" and "Pipe" cars, which are splendidly illustrated in colours. Particulars are also given of the company's tariff for storing cars, as well as for washing, lubricating, and other services. Repair work is also undertaken by the London Motor Garage, Limited, as well as the supply of spare parts, accessories, etc.

AN automobile club has just been formed at Magdeburg, Germany.

WE hear that some local agriculturists are arranging for their produce to be carried between Honiton and Tiverton Junction, in Devonshire, by means of motor-cars.



THE COTTEREAU 10-H.P. TONNEAU. (See page 968.)

LAST week the King's motor-car, which had been sent on to Chatsworth, in view of the contemplated visit of His Majesty to Derbyshire, was housed by Mr. W. S. Laycock, at Sheffield.

THE Wilkinson Tyre and Tread Company inform us that their street letter-box has been periodically robbed for the last few weeks, and ask us to request those who have not had replies to correspondence to write again.

FROM Mr. G. Braulik, of 217-218, Upper Thames Street, E.C., comes a catalogue of the "Protos" motor-car accessories, and an invitation to our readers to visit his showrooms to inspect the chassis and cars there on view. Drawing and descriptions of the motors, speed gear, axles, carburettors, etc., are given as well as of the smaller accessories incidental to the car.

THE Directors of the New Grappler Pneumatic Tyre Company, Limited, report that the motor tyre business is steadily increasing. During the three closing months of the year the motor tyre orders increased over 50 per cent. as against the corresponding period for the previous year, and since the accounts were closed on September 30th last orders have been greater for the three months by one-fifth than for the previous twelve months.

ON Tuesday week the foundation stone of the new offices and works of the Clarendon Motor Car and Bicycle Company, Limited, Earlsdon, Coventry, was laid by Mrs. A. E. Ramsay, of Kensington, W., in the presence of the directors of the company and a large gathering of friends. Mr. W. G. Hammon, manager, informed our representative that the new premises would give them much-needed room for a larger and increased output. Among those present were Messrs. M. Standbridge (Birmingham), Johnson (King's Lynn), Hillman (Norwich), W. Perrott (Australia), and Gompertz (Bedford).

FROM an American contemporary we learn that the Century Motor Vehicle Company, Syracuse, N.Y., has made arrangements with Messrs. R. Reynold Jackson and Company, of Stirling's London Automobile Agency, Knightsbridge, to have the exclusive sale of the Century Tourist petrol cars in Great Britain and Ireland for the coming year.

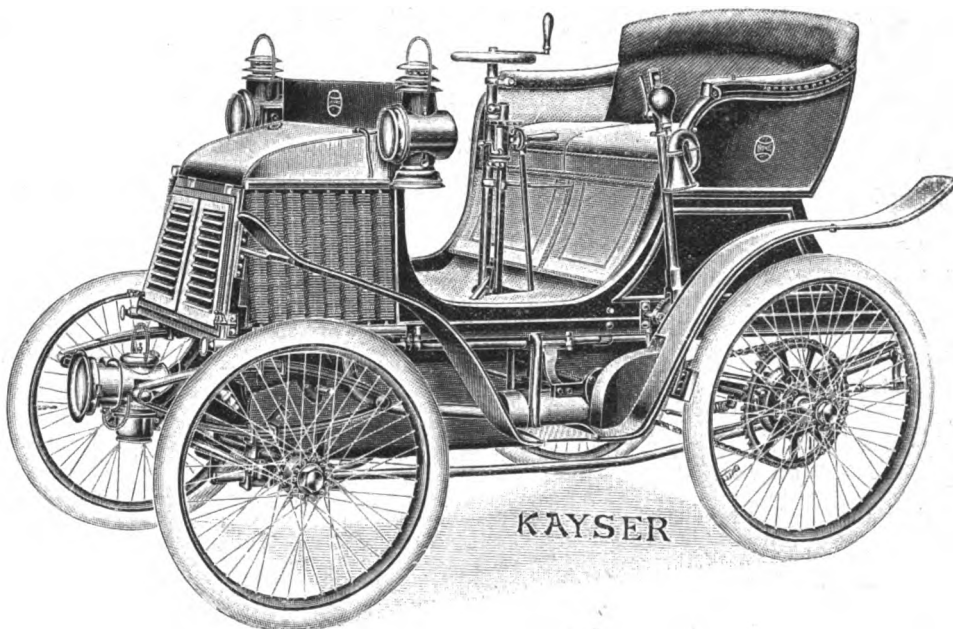
THE Parsons Non-skid Company, Limited, has been registered with a capital of £2,000 to carry on the business of makers of indiarubber and other tyres, etc. The first directors are Messrs. H. Parsons, H. Edmunds, W. J. Crampton, and P. E. Singer. The registered office is at 2, Queen Anne's Gate, S.W., and there will be no initial public issue of capital.

MESSRS. J. E. HOPKINSON AND COMPANY, LIMITED, send a price list of their motor-car tyres from their works, 121, Cromer Street, Gray's Inn Road, W.C. Prices are quoted for building up wheels on customers' own hubs and flanges, for tyreing and rubbering wheels with clinched rubber tyres, and also of inner tubes and outer sections. Drawings are given showing wired-on and clinched rubber tyre sections.

AN Automobile Exhibition is to be held in Stockholm, Sweden, in May next. The exhibition is intended more especially for motor-carriages and vehicles for industrial purposes, but will also include motor-cycles and their accessories. Applications for space must reach the Directorate of the Exhibition, Idrottsparc, Stockholm, by the end of March. We hear that a number of French and German concerns have already arranged to be represented.

THE Roots Oil Motor and Motor Car, Limited, have removed from Westminster Bridge Road, to Chicheley Street, York Road, S.E.

MR. G. F. RANSOME, of Liverpool, referring to recent offers of encouragement to locally-built motor-cars, says he is certain he can make a motor-car to withstand ten years' work without undue repair.



THE "PRIMUS" 5-H.P. VOITURETTE. (See page 970.)

MESSRS. F. F. WELLINGTON, LIMITED, have been appointed sole agents for the Brooke cars.

MESSRS. DE DION AND BOUTON, of Puteaux, near Paris, are at present engaged on the construction of a submarine boat, on the lines of the Goubet.

CORRESPONDENCE.

INLAND REVENUE METHODS

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In June last we opened an establishment as motor engineers for repairs, etc. About the middle of August a young man of respectable appearance presented himself at our premises, making all kinds of inquiries as though he was a possible purchaser of a car. About a month later he came again, making further inquiries, and closely followed by another person, and then they revealed themselves as Inland Revenue officers, and demanded from us the names and addresses of the owners of the cars which they saw before them in a tone and manner which we felt called upon in a measure to resent. The cars were with us for repairs.

On Saturday last our Mr. George Thornton was summoned to the Westminster police-court for keeping a carriage—i.e., a motor-car—without a license. And here comes the remarkable part of the case. The summons charged him with using a car for pleasure on September 19th. Now the only car outside our place on that date was one calling for some trifling repair, which was done in less than half an hour, and the car then proceeded on its way. But the vehicle in respect of which the summons was really taken out was seen by us for the first time and came into our hands on the morning of September 20th for the purpose of selling, and after giving our client a trial run the car was sold on that date, and for which a license has been taken out.

At the police-court the officer's only evidence was that on September 19th he saw a car outside our place covered in mud. He subpoenaed our client to give evidence. He did so with pleasure, confirming our statement in every particular. The magistrate dismissed the case, telling the officers it was no use taking such a case there without evidence.

Others may possibly find themselves in a similar position to the one here stated, and perhaps we may have an opinion from your readers as to whether they are required to reveal the names and addresses of their customers.—We are, obediently yours,

J. THORNTON AND SONS.

CARS FOR MEN OF MODERATE MEANS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have had a 10-h.p. Wolseley car with solid tyres about eighteen months, and always drive and do everything required to it myself. I have ample time, and a small engineer's workshop. The car is used for pleasure only. The cost from January to December, 1902, was as follows:—Petrol, 208 gallons, £12 10s. 6d.; recharging cells, two new cells, plugs, etc., £4 11s. 10d.; re-insurance, £10; my time at repairs (not upkeep), say 1s. per hour, 90½ hours, £4 10s. 6d.; repairs by others, £5 5s. 1d.; miles run in the year, 3,389; total cost for the year, £46 11s. 9d.

No allowance has been made for depreciation or my time in cleaning and adjusting. Running a car is just like running a yacht in one respect—one can spend almost anything on it, as witness Captain Campbell's description of his way of doing it; the above is my way of doing it. Each to his choice. My card is enclosed.—Yours truly,

WESTON-SUPER-MARE.

THE EXHIBITION QUESTION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The committee of the Automobile Mutual Protection Association, Limited, will be much obliged if you will give publication to the following warning in your next issue of the *Motor-Car Journal*.—Yours faithfully,

GEO. R. HELMORE, Secretary.

The Committee of the Automobile Mutual Protection Association, Limited, strongly advise members of the Association and the trade in general to refrain in their own interests from signing the bond attached to a document which has been issued by the committee of management of the Crystal Palace Automobile Show, stated to be the official show of the Society of Motor Manufacturers and Traders, Limited. The agreement in question purports to be between any company, firm, or person of the one part, and the Society of Motor Manufacturers and Traders, Limited, of the other part, and its terms are of so onerous and stringent a character that those who sign it may find themselves liable in heavy damages.

The Association views with great disfavour the attempt to boycott all shows other than the Crystal Palace Show. The trade should be unrestricted in their right to exhibit at any show they may choose to exhibit at. The terms of the bond in question are unjustifiable in the opinion of the Committee of this Association, and tend to hamper and restrict the trade in general and individual members of it in particular.

By order of the Committee of
THE AUTOMOBILE MUTUAL PROTECTION ASSOCIATION, LIMITED.

AN old resident of Bromley (Kent), suggests that drivers of motor-cars passing through that district should, even if their time is urgent, moderate their pace somewhat in the bye-roads and lanes off the main roads.

CLAIM FOR DAMAGES.

His Honour Judge Parry was the witness of a collision in Cross Street, Manchester, recently, as to which an action has just come before him in the Manchester County Court. As it happened there was no question of liability, the defendant failing to appear. The plaintiff was Thomas Wood, cab proprietor, and the defendant Mr. H. S. Buckley, of Wrycroft Hall, Audenshaw. The plaintiff was driving his cab when the defendant ran into him with a motor-car, doing serious damage to his cab. He consequently claimed £23 10s., the cost of repairs, etc. Judgment was given for the plaintiff for the amount claimed.

FATAL MOTOR-CAR ACCIDENT.

MR. WATLER SCHRODER, deputy coroner, held an inquiry on Saturday, at Hampstead, respecting the death of Mr. George Edward Colebrook, forty-two, an Australian merchant. It appeared that on the previous Sunday Mr. Colebrook went for a motor-car ride with his brother-in-law, being also accompanied by the owner of the car and a professional driver. There had been a sharp fall of snow and hail, and the roads were in a bad state. When attempting to pass at a moderate pace another car near the Royal Oak, Hendon, the hind wheels skidded, the car turned round and ran against a raised footpath, and then tilted over. Mr. Colebrook received severe injuries to his head, and died two days later from concussion of the brain, having been unconscious the whole time. His brother-in-law (Mr. Brooks) received a fractured arm and other injuries, and was too ill to attend the inquest, but it was stated that he had said there was no blame attaching to the driver. The jury returned a verdict of accidental death.

THE Marquis of Exeter has ordered a 20-h.p. Pick tonneau car.

A SCARCITY of petrol is being experienced in several places, and local agents would do well to keep their stocks well replenished.

MESSRS. W. R. McTaggart, Limited, Dublin, have opened a depot in London at 48, Wells Street, Oxford Street, W., for the sale of F.N. motor-cycles.

A SECTION devoted to automobiles is being organised in connection with the International Exhibition at Athens, to be held from April to October of the present year.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

VOL. IV.]

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[No. 207.]

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COMMENTS.



ON the afternoon of Saturday last the Yorkshire Club held their second run of the season, the venue being Knaresboro', a distance of some eighteen to twenty miles from Leeds and about twenty-four from Bradford. The day was very fine for the time of year, and the roads were in excellent condition; the wind, however, was very boisterous. Fourteen cars arrived at the Elephant and Castle Hotel, Knaresboro', before 4 p.m., some travelling via Harrogate and others via Follyfoot, in the latter case having to climb the steep hill (Brigate) into Knaresboro' (locally reported to have a gradient, in some places, of 1 in 6, though, from the way in which most cars negotiated it, we should think one in eight or nine is nearer the mark. Among those participating in the run were Messrs. H. R. Kirk, Dougill, Faiers, Broadbent, Jones, Woolf, Armitage, B. Walker, Wharam, Nicholls, Mortimer, W. F. Greenwood, H. A. Jones, and Dix, Mr. and Mrs. Harrison Benn, Mr. and Mrs. Atkinson, Mr. and Mrs. Bruce, Mr. and Mrs. Rowland Winn. After tea opportunity was taken of examining the various cars, which included Daimler, Gladiator, Loidis, Clement, Darraq, De Dion, Renault, and Pieper. The return journey was commenced at 6 p.m., and a fine though windy run home terminated one of the pleasantest outings the Club has had.

“Employment Bureau.”

“OWING to the increase of applications for experienced drivers and mechanics, we are compelled,” says the Auto-Motor Association, “to add yet another department to our extensive business.” The Auto-Motor Association is—according to its letter paper—“under distinguished patronage,” and its special department is an Employment Bureau. The address indicated as the office of this “Association” is occupied—according to the Directory—by a tobacconist, so it would appear that the “distinguished patronage” has not yet enabled this “extensive business” to occupy the whole of a building. A correspondent recently received a letter from the “Association” saying that they had vacancies for drivers and would forward a list “on receipt of registration fee of 2s. 6d.” He sent the half-crown and is still waiting for the list, despite the fact that a second application has been made.

The Legislative Proposals.

CONSIDERABLE discontent exists among metropolitan motorists, especially those who are members of the Automobile Club, with regard to the proposed discussion on the 6th prox. with reference to the legislative proposals of the Club. Of course the discussion has long been wanted, but the point of the dissatisfaction is that it is to take place at the Club House, which is by no means adequate for the large number of people who would like to take part in the meeting. Seeing the importance of the matter, we should have thought it would have been better

had the central organisation seen fit to take a large hall, and secure a really representative conference. As it is, we are afraid the discussion will leave much to be desired; and that those who are opposed to the action of the Committee will not have the opportunity they desire and deserve of making their views known. Certainly the room in which the meeting is to be held will not accommodate a tithe of the opposition.

Tram-rails v. Motor-Cars.

ON another page we report a case in which a well-known London stockbroker has secured damages against a tramway company. It appears he was touring in the South of England on a motor-car, when the off wheel of the vehicle sank into a rut in the roadway, an unfortunate accident occurring in consequence. His case was that the tramway company had not adequately maintained their lines, but the company, on their part, said that the accident was owing to the disgraceful state of the road and that the local authorities were responsible. Whichever was the delinquent hardly matters so long as the unoffending plaintiff secured his verdict. It is to be hoped that one result will be that the tramway companies and local authorities will be more anxious to mutually arrange that roads shall be kept in a proper state of repair. This particular accident is by no means an isolated case, and it is quite time matters were put right.

Military Motor-Cars.

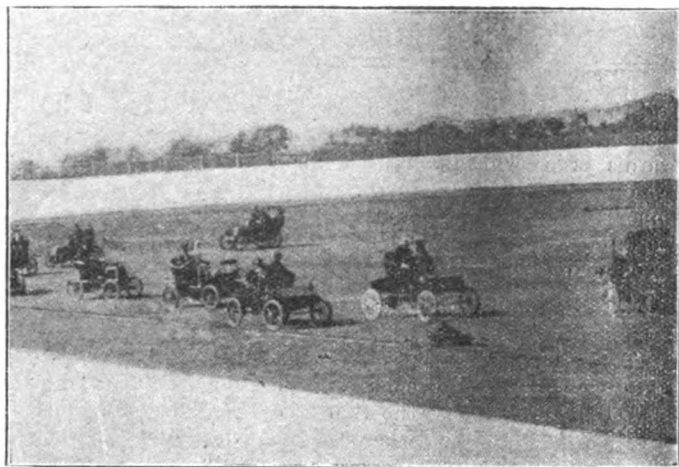
THE Continental countries are apparently determined to keep abreast of the times with regard to the adoption of automobiles in connection with military affairs, and although the French Chamber of Deputies recently cut down the vote for motor-cars for the Army to £800, there are already misgivings in French military circles. The German Reichstag has just allocated £14,000 for the purpose of the maintenance of motor-cars for the German Army, and Italy is also giving great consideration to the matter. At present the English War Office has not gone far in encouraging the use of the automobile, although its determination to make an allowance to officers owning motor-cars of their own is a step in the direction of the more liberal employment of automobiles in connection with the manoeuvres. And that we regard as a preliminary to their general adoption in the Army.

Cost of Maintenance.

OUR columns have lately borne witness to the interest felt in the subject of motor-cars for men of moderate means, and in our present issue we give an interesting letter from a correspondent who has tabulated the cost of maintaining two horses and a gig, and compared it with the upkeep of an automobile. His steam car apparently cost him £124 a year, whereas the horses and vehicle had previously run up to an expense of over £200 a year. In both cases his mileage is calculated at 3,000 per year, so that there is a saving by adopting the steam car, namely £76 a year, a substantial amount. The letter from “Cautious” is a specimen of the sort of thing that should convince those who have not yet taken to automobilism of the economy that can be effected by its means, and we welcome any such contributions to the discussion.

In South Africa.

ON February 7th the first automobile sports meeting in South Africa was held on the Green Point Track, Cape Town—a preliminary meet having been held a few days before for the purpose of making trials and preparations. It was on this occasion that the accompanying photograph was taken—notable as being the first of what will probably be a long series of such events, for South Africa is taking kindly to motoring, and the



authorities there will probably recognise the necessity of considering automobile traffic when making main roads.

The Scottish Club.

THE annual dinner of the Eastern Section of the Scottish Automobile Club was held on the 13th inst., at Edinburgh, with Dr. Dawson Turner in the chair. Mr. N. D. Macdonald gave the toast of "Our Guests," coupling with it the name of Mr. S. F. Edge. In reply the latter paid tribute to the inventiveness of Mr. Napier, whose work should not be overlooked in connection with the British victory in last year's Gordon Bennett race. He hoped that the race would take place in Ireland, and he pointed out that if that came about the whole world would be impressed with the fact that Great Britain was an important automobile centre. Dr. Ronaldson proposed the Scottish Automobile Club, to which Mr. John Macdonald replied. He said that the Club had now 212 members and was the largest organisation affiliated to the parent body. During the evening a telegram of congratulation was received from Mr. Roger Wallace on behalf of the members assembled in Piccadilly to hear Mr. Scott Montagu's paper on motor-cars as feeders to railways—a paper listened to by, among others, the Right Hon. Sir J. H. A. Macdonald, who was in town. Mr. J. W. Stocks gave an account of his journey from London to Edinburgh. He mentioned that he started on the morning of Wednesday week at 7.35 a.m. for Edinburgh with a 6-h.p. and an 8-h.p. De Dion Bouton car, accompanied by Mr. J. S. Matthew, of the Scottish Automobile Club. They reached Edinburgh at 9 p.m. the next day, having accomplished a run of 404 miles in 22 hours 40 minutes.

Western Section

ON Monday the Western Section of the Scottish Club held its annual meeting at Glasgow, under the chairmanship of the Lord Provost, who proposed the toast of the evening, "Automobilism," which he said was a factor to be considered in the physical well-being of the nation. The Lord Justice-Clerk, Sir J. H. A. Macdonald, K.C.B., in replying to the toast, said that for a long time automobilism was regarded as the pleasure of the rich and the annoyance of everyone else. The motorist should consider the rest of the community in the use of his car.

He had seen motorists in England pass other vehicles at such a speed on a dirty road as to cover the occupants with dust. He had seen it with the greatest possible regret, and he thought that the best way to give pleasure to themselves was to see that they had due consideration for others. With regard to speed limits, he might say anyone who imagined that a motor-car could be run at a speed less than that at which he and others drove their carriages should be made to realise that such a thing was impossible and unworkable. If that state of things was not altered by the Legislature it would be altered by the ordinary rules of common sense. It was beginning to be realised that the new method of locomotion was not one which was confined to amusement, but was one which was likely in the future to confer the greatest possible benefits on the community in their social life and commercial prosperity. The state of the roads throughout the country was a disgrace, not only because of the discomfort they occasioned, but because they retarded the progress of commerce. A system of automobilism would benefit large centres of commerce like Glasgow, because it would relieve them of the mass of population which would tend more and more to congest them. Among those present were Mr. R. W. Wallace, K.C., Bailie Stevenson, Sheriff Fyfe, Lieutenant-Colonel M'Farlane, Chief Constable Stevenson, Professor Hugh Galt, Dr. James Kirkland, Colonel Smith Park, Messrs. James Ochs, N. D. Macdonald, C. Johnson and R. J. Smith (hon. secretary).

Motor-Car Obstructions.

AT Exeter a commercial traveller of Birmingham has been fined 10s. for obstructing the traffic of the High Street with a motor-car. According to the evidence of the police the vehicle was left for more than an hour. A large crowd collected and traffic was obstructed. It was pointed out on behalf of the defendant that he had stationed his car in the offending position on account of the steepness of an adjoining street. That of course did not avail him when before the magistrate. Another case of obstruction by motor-car occurred on Saturday night, when a large crowd on the south side of Blackfriars Bridge, London, enjoyed the spectacle of half a dozen policemen in charge of an automobile. Apparently the vehicle had been left by its owner while he kept some appointment in the neighbourhood. The police were unable to drive it, but by asserting their strength they managed to push it along the road to Kennington Lane Police Station. If such cases become frequent, the provision of motor garages as well as ordinary cells at police stations may become a question for Scotland Yard to seriously consider.

Manchester's Show.

THE Manchester Cycle and Motor Show at St. James's Hall, Manchester, has proved a great success, and at the opening ceremony Alderman Rudman referred to the great success and steady progress which had always marked the show, even before it was held in that hall. Its scope had developed wonderfully since the introduction of motor-cycles and motors generally, and the exhibition was now of great instructional value. This is a point which should not be overlooked in estimating the value of exhibitions.

The Cork Exhibition.

EVERYTHING looks well for the success of the Cork International Exhibition this year, and at a meeting of the committee the Lord Mayor has outlined a most elaborate programme. It is in contemplation to have a motor-car service to convey visitors through the grounds. The secretary of the Automobile Club has paid a visit to the site, and has promised that the cars which will compete in the great race this year will be on view at the exhibition after the finish of the race. He also asked the Lord Mayor to look out for a straight mile which could be closed at each end and where they could hold a race.

Automobiles and Public Service.

It is a pity that representatives of the London omnibus companies were not present at the Automobile Club on Friday, the 13th inst., when Mr. Scott Montagu read a paper on motor-cars as feeders to railways, a summary of which appears on another page. He pointed out how omnibus companies had failed to appreciate the value of mechanical traction, a statement which had been contradicted, in anticipation, earlier in the week by the chairmen and secretaries of the leading companies. At the same time we quite agree with him that the 'bus of to-day is as slow and cumbrous as the 'bus of twenty years ago, and the companies might have done much more than they have. Unless they take up the matter quickly we shall have the railway companies establishing intercommunication by means of motor-buses between railway termini, to replace their existing horse vehicles; and if the railways become serious competitors with the 'bus companies for ordinary street traffic the outlook would be an unpleasant one for the shareholders of the 'bus companies. Tubes are costly, and overhead lines are apparently out of the question, so that the ordinary thoroughfares will have to be utilised for many years to come, and the question is, how can that be done most efficiently and economically? The competition between the London 'bus companies as well as the continuance of the traditions of their forerunners are factors which will certainly not make for either of these things. They will have to come to a practical encouragement of motor traction far more quickly than was anticipated even a couple of years ago. It was satisfactory to hear in the course of the discussion that the new double-decked omnibus which has been placed on the road between Liverpool Street and Victoria is apparently doing well. Should it prove a financial success, it will do something to hasten the action of those responsible for the 'bus traffic of the metropolis. In this connection it is interesting to learn that a Stirling motor-omnibus of 24-h.p. to accommodate sixteen passengers, and similar to those used in London, has been ordered for Johannesburg.

London 'Bus Traffic.

DURING the past half-year the London General Omnibus Company carried nearly 4,000,000 more passengers than in the corresponding period of the previous year, and the receipts were £22,969 better. The Road Car Company's accounts for the same period showed an increase in passengers of 2,000,000, making a total of 36,504,894, and in money of £11,932. An examination of the weekly average receipts per car by the latter concern reveals the fact that for the last six months the sum was £17 2s. 2d., while in 1899, the year before the opening of the "tube" the amount was £17 3s. 2d., though in 1900 there was a fall of about 10s., and the following year a still further decline amounting to £1.

What the Chairmen Say.

SPEAKING on Tuesday at the forty-fourth annual meeting of the London General Omnibus Company, the chairman, Mr. Alderman Pound, said the company did not intend to run into any expense with regard to the provision of motor omnibuses until they had gone carefully into the cost and the questions of maintenance and depreciation. Mr. Hicks, deputy chairman, said there was no kind of motor traction that would pay the company to take up. If anything was done in that direction it would be in the use of petrol. Steam was of doubtful utility, and he was doubtful if the Government would permit 15,000 such omnibuses running over the streets. In his opinion the time to take up motor-omnibuses had not yet arrived. At the annual meeting of the Road Car Company on the same day, Mr. J. H. Moore, the chairman, said that during the next few months they would see in the streets of London several road cars, the vehicles themselves somewhat of the ordinary type, with garden seats, driven by mechanical power of different kinds. Whether there was to be any material

saving in the cost of running the cars by mechanical power it was at present impossible to say, but there was no doubt that the mechanically-propelled road-cars, being able to travel at a faster speed than at present, would perform longer and more frequent journeys, consequently earning more money, and they would doubtless be preferred by the public, owing to their being able to take up and put down passengers everywhere en route.

Motoring Annual.

THE "Motoring Annual and Motorist's Year Book for 1903" has just been issued by our contemporary "Motoring Illustrated." An endeavour has been made to give within a convenient compass a record of the miscellaneous information that circulates through the Press during the year. In addition there is a directory of the trade and of petrol suppliers, a list of members of the A.C.G.B.I., a synopsis of the leading events of the past year, the regulations for motor-cars in various countries, and much other equally useful information. A good many pages are devoted to "Who's Who in Motoring," in which brief biographical details are given of well-known people. This is of somewhat unequal interest, and, while we wonder while some names have been included, we are equally surprised at the omission of such prominent motorists as Mr. R. W. Wallace, Chairman of the A.C.G.B.I. Similarly, under the name of Johnson we look in vain for the secretary, the only leading motorist of the name—according to this Annual—being "Miss E. F. Johnson, one of America's fairest and most expert motorists. Owns and drives her own car, and was very successful in the autumn reliability trials of 1902 in which she took part." These, however, are matters that can be remedied in the next edition.



MR. AND MRS. P. RICHARDSON ON THEIR 12-H.P. DAIMLER.
Photo by [Argent Archer.]

Modern Motor-Cars.

BASED upon recently published works on automobiles, an article in the last number of *The Edinburgh Review* presents an interesting view of the present position of the motor-car. Naturally, it contains little new matter—for the pioneer labours of Cugnot, Trevithick, Gurney and Ogle have been so often recited that the constant reiteration has become almost wearisome. More interesting to the public will be the references to Daimler, Serpollet, Benz, and the resuscitators of the automobile. The writer of the article is evidently familiar with the progress of the industry in recent years, and also an equally close student of the automobile press. He recognises the influence of the car in fashionable circles, reminds us of its possibilities in helping to solve

some social problems, and points out the potential force it is capable of exerting for the benefit of the British agriculturist. But in order to derive all these benefits there must be a reform in our present highway administration, and Parliament and the magistracy must not allow traditional prejudice to warp their views of the new movement, and so thwart the development of automobilism. Such is the sane conclusion of a very lucid article.

Motor-Wagons to Assist Railways.

ALONG the docks at Liverpool there are about thirty receiving depots provided by the railway companies. Shippers and agents have been saved a great deal of expense through the abolition of long cartage. Still, the cartage cost is very heavy, and the probability of lines being taken alongside the docks is somewhat remote. If cargoes could be shipped or unshipped directly without the intervening handling necessary in transferring goods from ship to cart, and cart to rail, there would be a considerable reduction in charges. In this quandary it has been suggested that motor wagons would be an acquisition, for they could move freely in all directions. They would move with rapidity, and the docks would not present the dirty appearance they sometimes do owing to the accumulated equine ordure. This seems at present to be the probable outcome of conferences now being held between the Liverpool Dock Board and the railways whose systems cater for the docks.

Progress at Swansea.

A REPORT by the Borough Surveyor of Swansea with regard to the comparative cost of the haulage of road material by motor and horses respectively has been referred to a sub-committee of the Streets Committee of the Corporation. He estimated that during the year ending March 31st, 1902, the road metal was hauled to the streets and depots from East Burrows Yard at an average cost of 16·07d. per ton mile, against which he estimated that haulage by motor would cost 18·05d. per ton mile. This result, he said, was due to the fact that the quantity of stone to be hauled was not sufficient to keep a motor vehicle working to its full extent, but in reply to the chairman he said he had not taken into account the depreciation of horses. Probably this item would make a considerable difference in the comparison.

Ireland Again.

THE Gordon Bennett Race is providing an exciting subject of conversation in Ireland, and rarely has any question been raised in the Emerald Isle which has elicited such a unanimous chorus of approval. Men whose opinions are at variance on practically every other subject under the sun are agreed that the holding of the race will be one of the finest things for the prosperity of the country that has occurred certainly during the last fifteen years. Mr. T. M. Healy, M.P., has written with reference to the petition, the gist of which we gave last week, saying "That he does not think that there is the least necessity for it, judging from the outburst of support already received. Get your bill drawn, he says, and ask Mr. Wyndham or Redmond to bring it in." Now that Irish support is assured, members representing English and Scotch, and, we might add, Welsh constituencies will have to be carefully watched so that they may do nothing to thwart the wishes of those who have taken so much trouble and spared no efforts in this attempt to secure a substantial advantage for British industry.

The Gordon Bennett Race.

PROBABLE competitors in the Gordon Bennett cup race seem agreed as to the suitability of the date—July 9th—suggested by the British Club, and the reply of the French competitors is being awaited with some curiosity. Meanwhile we hope that everything will be done to secure an excellent road surface, and that the English Parliament will accede to the unanimous wish of the Irish people with regard to

the race taking place in the Emerald Isle. It is reported that the constructors of vehicles for the English Eliminating Contest are anxious to experiment with British-made sparking plugs, and that information as to the most efficient will be welcomed. Certainly every effort will be made to retain possession of the Cup. Since the above was written we learn that the Sporting Commission of the French Automobile Club has agreed to July 9th as the date for the race, provided that the Irish course is definitely selected. Germany and the United States have also agreed, so that all that is now necessary is the Government's authorisation.

Instructing the Workmen.

THE better understanding of the general principles of construction and operation of automobiles—a thorough knowledge of the purposes and value of the different component parts—is without question desirable among the growing number of automobile mechanics. That its own employees, whether they be assemblers or machine tool operators, may know what they are making and for what purpose, the Packard Motor Car Company, of Warren, O., U.S.A., has, reports the "Motor Age," instituted what is probably the first school for automobile employees. Regular classes have been formed, in which the subjects of automobile theory, practice, construction and design are fully and plainly discussed. These were organised in the hope that they would attract some of the more enterprising members of the working force, but the expectations of the company were more than realised, for the attendance from the first averaged over sixty, and the project is now firmly fixed as a feature of the establishment. In addition to the classes a library has been inaugurated, in which current and standard motor literature, including the *Motor-Car Journal*, will be kept, in order that the workmen may become familiar with the steady progress of automobile production.

THE case against the motor-car driver, Alfred Good, who was charged with causing the death of a little girl at Tipton, has been dismissed.

DURING the Brussels Motor-car Show, H.M. the King of the Belgians increased his automobile stud by purchasing a Charron-Girardot-Voigt car.

It was decided, at a meeting of the French Cabinet on Tuesday, to authorise the Paris-Madrid race on the condition that all possible precautions be taken to avoid accidents.

DAMAGES to the amount of £500, with costs, were on Wednesday awarded at Sussex Assizes to Mr. Owen Townsend, of Dalston, against Mr. William Kirk, of Bexhill, for injuries caused by the latter's motor-car. The plaintiff was staying at Bexhill when Mr. Kirk's car ran into him and so seriously injured him that he was detained in hospital for a month.

A MOTOR-CYCLING club is about to be formed in Birmingham. It has already received the promised support of from twenty-five to thirty motor-cyclists, so that a strong club may be assured. Those interested in the movement are invited to send in their names at once to the hon. secretary pro tem., Mr. J. R. Bedford, Haigh Villa, Hunton Road, Gravelly Hill, Birmingham.

IN view of the rapidly increasing use of electrically-driven vehicles and the probable development of electrical light railways being likely to create a large demand among engineers and artisans for a thorough knowledge of electrical traction work, the governing body of the Battersea Polytechnic is arranging a special scheme of instruction with a view to establishing a School of Electric Traction in connection with the Electrical Engineering Department of the Polytechnic.

THE City and Suburban Electric Carriage Company (1903), Limited, has been registered with a capital of £152,000, to acquire the business carried on by P. E. Singer, of 19, Kensington Court, London, at Niagara, York Street, Westminster, and elsewhere, as the City and Suburban Electric Carriage Company, and to carry on the business of manufacturers of, dealers in, and proprietors of motor conveyances and appliance-constructors and owners of power-houses, garages, etc.

IN SNOW TIME.

LATE on a recent Saturday, accompanied by my young mechanic, Herbert Warren, I arrived in Ipswich on my little Primus car after a most eventful journey, and was met in Carr Street by a large cheering crowd who were awaiting our return. On Thursday, the 15th ult., at 6.40 a.m., we left John o' Groat's House for the South. It was almost dawn, a bitterly keen wind blew in our faces, ice and snow lay all around as the car sped southward over miles and miles of large, newly-laid-down granite. She was shod with Clipper Continentals, but for all that it could not be helped and the stones could not be avoided, so we just had to let her go over them. Wick was not much awake as we entered, but, fortunately, there were a few stragglers about who directed us on to the right road. Near Latheron, down went one front tyre, and "that's what we expected. Oh, those beastly stones!" ; but it wasn't the stones at all, the inner tube had been badly pinched under a clip. The spare tubes we carried were quite useless, so we had to mend this very horrid place. This was the sole and only tyre trouble we had of any sort, despite the fact that "we carried weight" in the shape of spare things, and thirty gallons of petrol, etc. We came to Berriedale long before we expected, but scenting danger we crawled down to find that it really was the famous Berriedale Hill; and it was well we did, for the turn at the bottom is so dreadfully sharp that at any ordinary speed it would be impossible to negotiate it. After climbing the long, steep ascent on the other side, we took a wrong turn at either Helmsdale or Brora, and did not discover our mistake till we had gone eight miles inland. We also had much difficulty in finding Bonar Bridge, and darkness setting in all too soon, the run was not nearly so pleasant through Tain and Dingwall to Inverness.

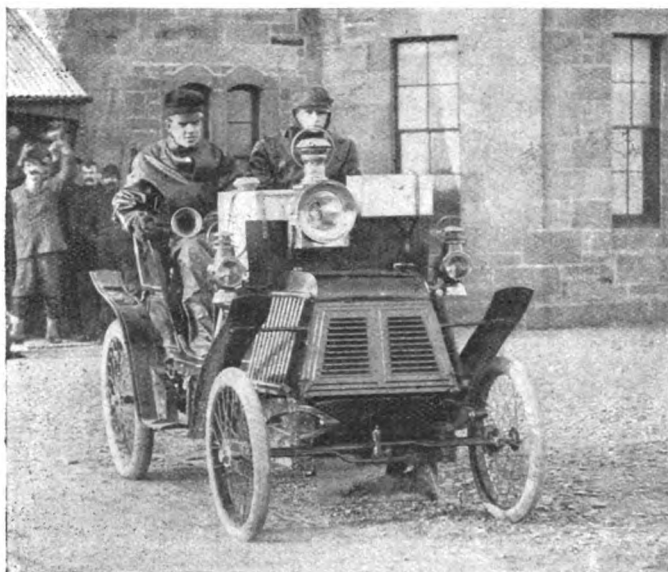
At Inverness the road leaves the coast, and going by Daviot and Kingussie, one is soon in the heart of the Highlands and a great height above sea level. The moon was now up and we could see pretty clearly the white track before us, but on going up one or two steep hills in the district, we found the snow deeper and deeper, till there was not more than a faint wheel track in a boundless expanse of snow and fir woods. Slower and slower became our progress and deeper and deeper got the snow, till at last we thought we must be on some disused track and hopelessly lost. However, as it would have been quite impossible to turn the car round owing to the great depth of the snow on each side, we kept crawling forward. "Crawling," for that is the best word, as for some time the high gear had had to be abandoned for the second, and at last the first had to be resorted to. We plodded on till at last we were actually climbing down fairly steep hills on the low gear, and then at the rise the engine wouldn't do it. This was nice. What was to be done? We tried driving on the low gear and shoving at the same time; but one cannot do much of that, and "played out" we realised we were stuck. We therefore rested, cogitated, and looked about us. Sure enough near at hand was a cottage to which, in time, we walked and rapped upon the door. Soon a head looked out. "Puir bodies, have ye been in the snow all night? We won't be long and will let you in." While the good woman dressed we sat down on the snow in our ponchos, and, leaning back against the railing, were

immediately asleep. "You'll catch your deaths sleeping in the snow," in a kind Scotch voice came upon my sleepy brain, as I awoke and banged Herbert. In the afternoon, with four men pushing hard, we managed to get the car out of the drift, and turned round on the way back to Inverness. Our progress back to Inverness was almost as slow as it had been coming.

We passed through Nairn, making enquiries as to the road to follow, and took the way to Forres. How smoothly and quietly we glided along, and how enjoyable was the clear, cold air as it beat in our faces. "Ugh!!!" "Are you hurt?" "What bad luck; now our trip is all over." "Well I never!" "Railway gates; why don't they light them?" With a terrific shock the car had suddenly been brought to a standstill! It did not throw us out, nor did I move in my seat, though Herbert went forward against the petrol tank. We had collided with an iron railway gate, unlighted, right across the road! I went in search of the station-master, and said a few words; the wonderful thing is that he quite agreed with me and said he always had considered those gates were dangerous as they were *never lit up*. Just fancy what a murderous practice. We might most easily have been killed. We three then inspected the damage with lanterns, and though we jacked up the wheels and measured, and looked and tested, nothing broken and nothing bent could we find except a slight leak here and there. But the iron gate, though double-strutted on both sides for strength, was hopelessly upset, and the top rail, 1½ in. by ½ in. solid iron, was broken in two, and the whole gate was bent and doubled in the middle.

After passing through Keith the snow again got deeper and deeper, till at length each slight climb was all we could manage. Now coming to a fork road, with a sign post which pointed to places unheard of by us, we feared taking the wrong one and experiencing the previous night's "pleasure." Therefore, espying a farm some way off the road, we left Miss Primus to look after herself, and at last reached the farm. We tapped gently at the door for some time, and got an answer at last. When

we got back we found the cracked radiator leaking like a sieve; nearly all the water had gone out. The petrol pipe also was leaking fast. This I managed to put right by making a new flange to the copper pipe, the old one having probably been broken by the shock of the gate. We pushed the car back down the hill we had just come up, bit by bit; it was very hard work, and at last got it to the bottom, where was another farm. The inmates by this time, being early birds, were having breakfast, and we very readily joined them, after which we took off the leaky radiator, carried it into the house out of the cold, and proceeded to mend it with rubber tape and solution. It wasn't a good mend, but it certainly stopped it from leaking quite so fast for the time being, and as soon as possible we got on our way again. They told us, however, that we must return to Keith, as the road by Huntley was not opened yet; so back we went again to Keith, from Keith to Banff, and on to Turriff. We did not get there without great loss of time, for, when passing through a village called King Edward, the leaky radiator burst out afresh, and at last, after trying various things in the shop of a most kindly blacksmith there, we plugged up the waterholes with corks and pieces of iron to keep them in, and ran on only one layer. The engine got very hot indeed, but no lubrication troubles



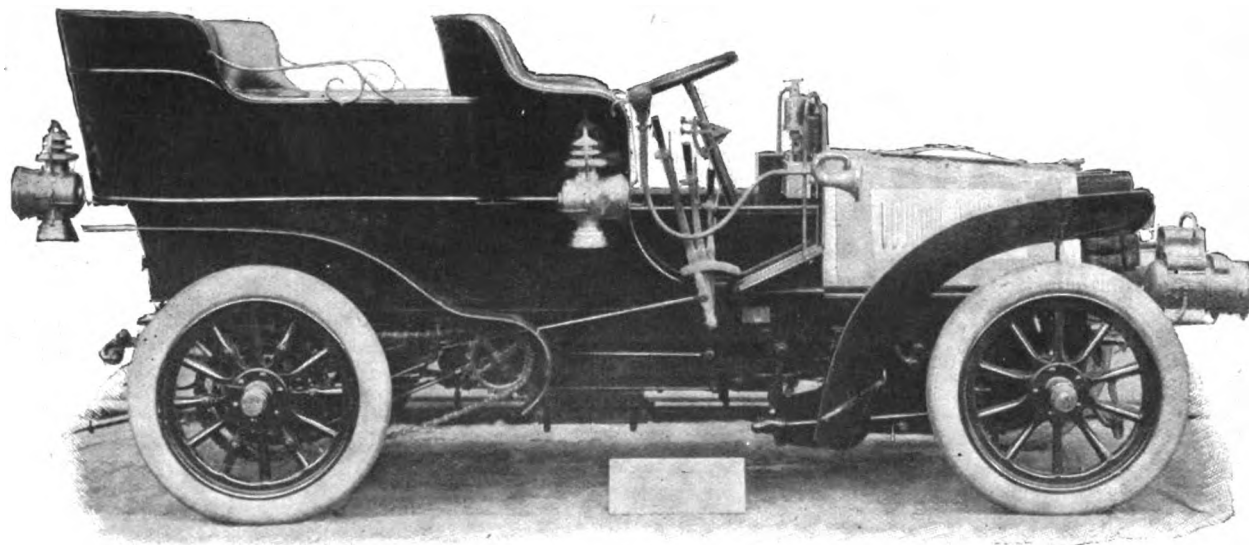
MR. R. EGERTON LEAVING JOHN O' GROAT'S ON HIS 7-H.P. "PRIMUS" CAR.

occurred in spite of this. At Turriff we put up at the Commercial Hotel, had a very good dinner and actually went to bed. This was Saturday night, and the first bed since leaving John o' Groat's early on Thursday. We did not get away till after noon on Sunday. With my poncho on over my motor coat, I was proof against all weather. The "Sabbath" is not the best day to get things in Scotland, so we were lucky in being told of the Caledonian Motor Company, where we found Mr. Paterson, the manager, most obliging. Soon we were on our way south with all we wanted, and full instructions as to the route to take, and the distances, and so on. We stayed the night at the Commercial Hotel, Stonehaven, and had a most pleasant evening. On Monday morning we left this haven, and journeying still south through Montrose and Arbroath, soon reached the Marmalade town. Here we had great difficulty in finding the ferry from Dundee to Tayport, and were charged 4s. 10d. to cross. At last, after passing over the most appalling roads to Fifeshire, which had had much more snow than some of the parts we had just come through, we arrived at 2.30 p.m. at Balfour, near Markinch, where the host and hostess received us with open arms. It was Wednesday noon before we were able to get away, and 3.15 p.m. before we could cross the ferry from Burntisland to Granton. Having crossed, we took the road through Edinburgh, Haddington, Dunbar, and Berwick, as, having once

CONTINENTAL NOTES.

BY "AUTOMAN."

DIFFICULTIES with the police and magistrates are not peculiar to any one country, but seem to crop up wherever automobiles happen to be. The following incident occurred in Germany at the beginning of this month. A German purchased a 40-h.p. Georges Richard in Paris, and set off for his own country driven by a French *mecanicien*. Whilst on his journey the car passed a battery of artillery at a slow speed. Just after passing the military there was a steep hill, and on the hill a cart was right across the road barring the passage. Thus it is clear that the car could not have proceeded quickly, even after it left the soldiers behind. Arriving at Ulm, the vehicle was stopped, and the owner and driver were arrested, without even knowing what was the nature of their offence. It seems that after they had passed the soldiers the horses drawing one of the wagons became unmanageable and the cart was thrown into the ditch. Unfortunately the driver was killed. After some days the owner being a German was released on bail, but the French *mecanicien*, notwithstanding the fact that bail was offered, was kept in prison, where he became ill. At the trial the public prosecutor asked for the driver to be



THE M.M.C. 20-H.P. FOUR-CYLINDER CAR BUILT FOR MR. J. JOEL.

departed from the old historical route to Land's End, I had decided to run down to Ipswich.

The roads now were very bad; a good deal of snow had fallen, which had thawed and frozen, and partly thawed again. When within about twelve or fifteen miles of Morpeth we went down a short, steep hill, and partly up; but when on the steepest part the car, with hind wheels going forward, began to slide backwards. The hill was one sheet of ice covered with a little water. We tried everything we knew to get up that hill, but having no rope or anything to wind round the tyres to give them a grip, we failed entirely.

On Friday we journeyed through Darlington, Northallerton, and Thirsk, and here I could not help noticing the splendid way in which the roads were made, and what skill, care, and attention must have been given them. On the Saturday we drove through Newark, Grantham, and Peterborough, and then over abominable roads to March, Ely, and Newmarket. Then to Bury, and over perhaps the worst bit of the lot, to Ipswich. The distance is roughly, I believe, about 870 miles in all, and we traversed every kind of road in every kind of condition, experiencing every sort of weather, except thunder. We were about six and a-half days running—a good test for the Primus.

REGINALD EGERTON.

condemned to a month's imprisonment, and if it had not been for the directors of the Cannstatt Daimler Company, who made trials on the road, and came forward with evidence that it was impossible for the car to have exceeded the legal limit, the poor fellow would certainly have been condemned for an accident which he did not cause, and which he did not even see.

It has been stated in several technical journals that the automobile signals devised for marking the roads of France were the work of the "Chambre Syndical de l'Automobile." This is an error, the originator of the system was the Association Générale Automobile. I was talking the other day with the secretary, and he told me of the efforts that were being made by the A.G.A. to have these signals accepted by all the affiliated clubs, so that a traveller by motor-car, in whatever country he may find himself, will be able to read the same signs along the roads. The signals suggested by the A.C.G.B.I. seemed to have been slightly modified, and it will be a great pity if a complete unification cannot be arrived at in this matter at the very beginning, for later it would be difficult and expensive, if not impossible to rectify such a mistake.

THE "Concours de Chronometrage" competition between

the different systems of time keeping took place last week at Dourdan. Mors had an easy victory with his new recording timekeeper. The chronometer has no stop movement, but goes on all the time. As it works, a paper strip is drawn through it, an electric contact perforates the paper, and marks the minutes, seconds, and fifths of seconds. Whether the paper passes at the same speed or at varying speeds makes no difference to the result, for each perforation represents a fraction of a second registered by the watch. The passage of the car at the starting post and also at the finishing post is marked on the tape, and the number of perforations between the two marks gives the time which has been occupied by the car in covering the measured distance. The paper tape may be kept for reference, and no mistake can be made, for the perforated record establishes indisputably the time occupied by every car. The ordinary chronometer with a stop movement may have a Kew certificate, but this certificate only deals with the watch when it is going, and the stop, quick fly back and restart movement destroys in a large measure the accuracy of the very best chronometer; whilst the apparatus invented by Mors, or rather by M. Pottier, the electrical engineer, who is at the head of the electrical department of the Mors firm, utilises the chronometer without the stop motion and thus obtains its full accuracy. The second prize of the competition has been accorded to M. Stocker, of Vienna, who has also a very accurate apparatus; unfortunately it is three or four times the price of the first one, but I understand that these two are to be officially authorised by the A.C.F. The question, however, as to automatically registering the passage of a car over the starting and finishing point has not yet been settled, for the wire stretched across the track has been found a complete failure; a project of making an electrical contact by a wire touching the *chassis* as it passes is being studied.

The vetoes on automobile races still continue; the latest is the Pau races, which were to have taken place to-morrow. The following letter has been written by the Prefet of the department to the President of the Automobile Club Bearnais:—"By his telegram of 3rd February, the President of the Council and Minister of the Interior, to whom I have submitted your request to obtain authorisation to organise an automobile race on 22nd February, informs me that he cannot agree to encourage new speed trials on the public roads, and that he must, above all, after the promise given to the Chamber of Deputies by his predecessor on 28th June, 1901, refuse his consent I think the meaning of it is that the Government intend to limit the road races, for the present, to the most important annual events, and the Paris-Madrid will probably be authorised in France as well as in Spain.

The first series of the entries for the Paris-Madrid closed last Sunday at 6 p.m. at the offices of the A.C.F. The entries have beaten all previous records and all the estimates that have been made. Many more entries may be expected, and there will undoubtedly be a bigger field than has ever yet been, and I should not be at all surprised if the two minutes' interval were found to be almost unworkable, and if one minute were adopted in its stead. Two hundred starters would mean over six and a half hours starting. But how about the arrivals? In races that have been held in the last few years under the best conditions the fastest cars begin to arrive from 10 a.m. until noon; should the conditions be bad, say the weather wet and stormy and the roads slippery, the first arrivals will be, of course, much later. But these are only the very fast cars; what shall I say about the voiturettes, which in any case cannot cover the distance in such a short time? The best of them will only begin to arrive late in the afternoon, and those who are late starters and unlucky will require a plentiful supply of Bleriot's.

The two great French houses, Panhard and Mors, who have always been the giants struggling for supremacy, are not going to continue their annual duel alone. There is a third colossus in the field in the shape of the Hotchkiss Ordnance Company of France,

who have entered four cars in the 1,000 kilo. category. The Hotchkiss Ordnance Company of France is not exactly new to the work, for it has been for some time manufacturing the most difficult parts for the leading firms in the automobile trade in France. Many of the great racers have carried off their trophies with steel parts of difficult and delicate workmanship turned out by the high-class machinery of the St. Denis Works founded by Hotchkiss in 1870. The Hotchkiss is a very high-powered machine with four steel cylinders. It has been designed and is being made after a careful study and combination of the best points of the existing makes, and will have, in addition, certain new features which should make it not only very fast but also very reliable.

A TOURIST excursion in connection with the Paris-Madrid race has been decided on, and the following route will be followed—Paris, Pougues, Royat, Le Viaduc de Gabarit, Murat, Vic-sur-Cere, Padirac, Rocamadour or Alvignac, Cahors, Agen, Biarritz, Saint-Sebastian, Zaraus, Bilbao, Vittoria, Miranda, Del Ebro, Burgo, Venta de Banos, Valladolid, Salamanca, Avila, Madrid. The route chosen is perfectly ideal, and the caravan will leave Paris on May 12th. Tourists may join the caravan at any point in France, but between Saint-Sebastian and Madrid they must con-

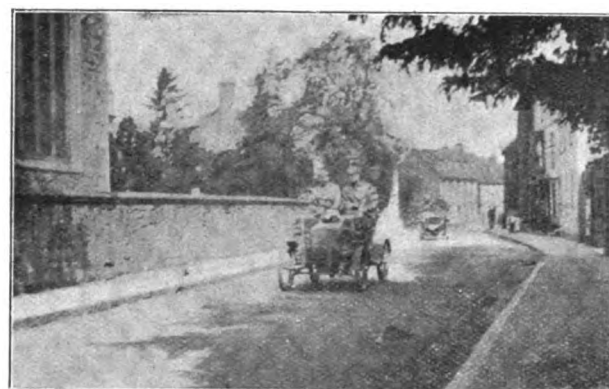


Photo by] A SNAPSHOT AT SEVENOAKS. [Mr. E. E. Pearson.

form strictly to the route, and it is obligatory to be controlled every evening on the Spanish part of the tour in order to obtain a certificate.

THE English entries for the Paris-Madrid race so far comprise Messrs. H. R. Kirk, S. F. Edge, C. Jarrott, Mark Mayhew, J. A. Holder, J. E. Hutton, E. H. Arnott, and the Wolseley Company. Up to Monday, the 16th inst., no less than 229 entries had been received.

HERR CARL BENZ, who has hitherto supervised the technical part of the business of Messrs. Benz and Co., of Mannheim, has just retired from active service, and has been succeeded by his son, Herr Eugen Benz.

A SMALL outbreak of fire has occurred at the premises of Mr. Hayter, motor engineer, Anlaby Road, Hull.

To clean a sparking plug which is fouled with oil, pour a few drops of petrol upon it and apply a light. The oil will be burnt away without leaving a sooty deposit, as one would expect.

WHEN the leaf of a spring breaks, it generally does so at its centre, where it is bolted to the other leaves. Clips, which would hold such a leaf in position, enabling it to do temporary duty, may be bought, and should always be carried in case of need.

GEAR-BOX grease should always, previous to use, be mixed with lubricating oil until the whole is of the consistency of treacle. If grease alone is used the gear wheels merely cut a path through it, and no efficient lubrication takes place.

AN IMPROVED HIGH-SPEED TREMBLER.

A NEW form of trembler for induction coils, known as the "Vulcan," has been devised by Messrs. Arnoux and Guerre, of Paris. As is well known, difficulties have been experienced with internal combustion motors running at high speeds owing to imperfect ignition, many of the ordinary trembler coils being incapable of giving a satisfactory spark at speeds exceeding 1,000 r.p.m. without continual adjustment.

The "Vulcan" trembler (Fig. 1) has been designed with a view to permitting practically unlimited speed of the motor



FIG. 1.—GENERAL VIEW OF VULCAN TREMBLER.

with perfect ignition under every condition. It is claimed for the new trembler, which is being introduced into this country by Messrs. Geipel and Lange, that a motor may be run to as high a speed as 5,000 r.p.m. without "missing" in the slightest. Moreover, the trembler is of such sensitiveness that it makes and breaks the circuit infinitely more times than the ordinary tremblers, the actual number of ruptures being, approximately, 450 per second. This increased speed of vibration results in a spark of great energy, and permits of low efficiency coils being rendered highly efficient.

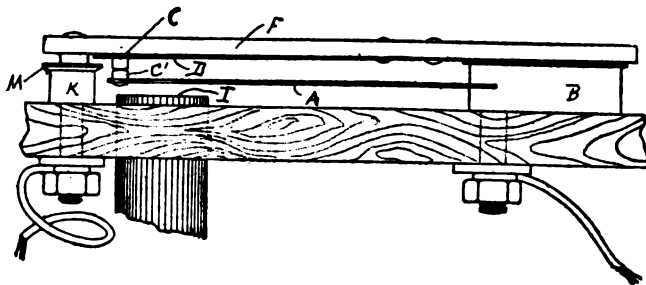


FIG. 2.—ARRANGEMENT OF VULCAN TREMBLER ON COIL.

The operation of the trembler is clearly shown in Fig. 2. The upper bar F is rigidly fixed at both ends to the pillars K B, and to its under side there is attached a subsidiary trembler, carrying at its free end a platinum contact C. The downward travel of this trembler is limited by the projection M on the pillar K. The actual trembler blade is of steel, and is fixed at one end in B; its free end, which is also furnished with a platinum contact C', vibrating in response to the impulses given by the core, which is magnetised and de-magnetised as the primary circuit

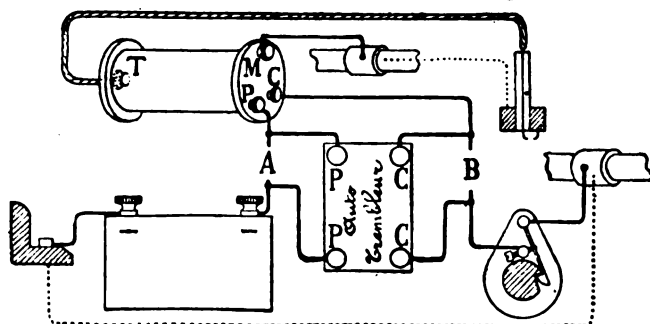


FIG. 3.—DIAGRAM SHOWING METHOD OF CONNECTING UP THE AUTO-TREMBLER.

is closed or opened by the wipe contact. It will be noted that there is no button of soft iron to add to the inertia of the trembler

blade, so that the total number of vibrations which may be made per second is practically unlimited. When the plate A is drawn down by the core I, the upper trembler blade D follows it until its end comes in contact with the projecting ledge M. The rupture is then made violently and suddenly between the two platinum points owing to trembler A being capable of further movement in the downward direction.

It will be noted that there is no regulating device for these blades, the trembler being sent out from the works permanently adjusted for use at any speed. The new trembler can be fitted to any existing coil by means of the two screws and nuts shown. The existing core does not require alteration, so that any ordinary low-speed coil may now be converted by means of this improved trembler to one of the latest pattern, and suitable for any high-speed duty.

A modification of the above trembler has also been arranged so that possessors of non-trembler coils can convert the same themselves without difficulty. The arrangement is that of a small primary winding in series with the primary winding of the existing coil. When the circuit is completed at the commutator, the trembler comes into action and makes and breaks the circuit as though it were attached to the coil itself. No structural alterations are necessary in adopting the auto-trembler, it being simply necessary to insert it in the primary circuit as shown in Fig. 3. The arrangement is most compact, the over-all size being 3 in. by 1½ in. by 3½ in., and the weight about four ounces.

SOME USEFUL NOTES.

AFTER each day's run it is advantageous to inject a tea-spoonful of paraffin into the cylinder or cylinders and give the engine a few sharp turns by hand; this will remove all "gumminess" from the cylinder walls and prevent the piston sticking. After about 500 miles running, it is also advisable to remove the sparking plugs and wash the engine out thoroughly by injecting about a wine glass full of paraffin into each cylinder; after turning sharply by hand for a few minutes remove the plug from the bottom of the crank case and allow all the waste oil and paraffin to drain off completely. Before starting the engine again it will be necessary, of course, to put a fresh charge of lubricating oil into the crank case.

WHEN the exhaust-valve is being ground in, it is advisable to place some cotton-wool between the combustion-chamber proper and the cylinder, in order to prevent any emery powder gaining access to the latter, which might result in the scoring of its walls. A mixture of emery powder and oil is generally used in this country for grinding in valves, but the use of paraffin instead of oil (a practice widely adopted in France) will be found to yield quicker and better results.

WHEN testing the spark by holding the end of the high tension wire near some part of the engine or frame, never hold it more than ¼ in. away. An attempt to get a longer spark may produce a short-circuit in the coil.

It is important to remember that much of the power of a motor depends on the correct tension of the inlet-valve spring. If this is too strong (in other words, if too much force is required to stretch it) the suction of the descending piston will not open the valve to its fullest extent, too little mixture will be admitted to the cylinder, and a feeble explosion will result. This is especially evident in hill-climbing, when the engine is slowing down, and there is rapid decrease of power, sometimes ending in complete extinction. The symptom of a weak inlet-valve spring is misfires when the engine is running fast on the level.

WHEN sparking troubles occur on the road, due to running down of the accumulator, place the points of the sparking plug a little closer together. This may save time, temper, and money, by enabling the exhausted cells to do temporary duty, unless they are *entirely* run out.

MOTOR-CYCLING NEWS.

As we mentioned last week, a Motor-Cycle Traders' Association is in course of formation, with Mr. E. H. Arnott as hon. sec. *pro tem*. A committee, consisting of Messrs. Arnott, Belcher, Citroen, Dring, Edge, Jackson, Garrard and Van Hooydonk, has been appointed to draw up a scheme for submission to a later meeting.

In connection with the 1903 Motor-Cycle Trials the following gentlemen will represent the trade in making arrangements with the Automobile Club in connection therewith, namely Messrs. J. Van Hooydonk, Cooper, Citroen, Arnott, Belcher, Goodwin, Martin, Jackson, Hart, and Batson.



MME. MADELEINE DE LA ROCHE ON HER WERNER MOTOR-BICYCLE.

At the Alexandra Palace Velodrome, on Saturday, Maurice Fournier broke his mile motor-bicycle record for the track by completing the distance in 1min 36 1-5sec., as against 1min. 38 1-5sec.

MOTOR-CYCLING suits are being made by Messrs. Holding and Son, whose garments for motor-carists have long been known. Among their leading lines is a Curragh Norfolk jacket made of West of England Riding Whipcords—a durable material that has the advantage of being waterproof and wind proof. It does not show the dust, an important consideration with motor-cyclists. The knickers are fitted with the Holding puttie knee band, which gives great elasticity and comfort. Overalls, waterproofs, vests, etc., specially designed for motor-cyclists form a special department of the enterprise of Messrs. Holding and Son, whose latest catalogue is a capital production.

THE Phoenix motor bicycles are illustrated and described in detail in the new catalogue just issued by Mr. J. Van Hooydonk. Reference is also made to the Phoenix "Trimo," tricycle and racer, and an illustration is given of the new lubricating device fitted to the 1903 machine.

THE inaugural dinner of the Motor Cycle Union of Ireland was held on Wednesday, under the presidency of Mr. J. B. Dunlop. Before the dinner a conference of motor-cyclists was held, attended by delegates from Belfast, Cork, and Ireland.

ON Saturday, the 7th prox., a motor-cycle event of considerable importance will be held on the Canning Town track. To obtain the track, Automobile Components, Limited, has had to purchase the gate of the football match. At four o'clock, Messrs. C. F. Barden and Fournier will race, riding in five heats of one mile, the contests beginning at 4 p.m. There will be two heats of one mile each with flying starts, two heats of one mile with standing starts, the remaining one to be decided with standing or flying start as may be decided, the decision on this point to be arrived at by the spinning of a coin.

The winner of the stakes and the whole of the gate money will be the man who wins three or more of the five heats.

ORIGINALLY the Automobile Components, Limited, included in their challenge a condition that the machine used should not exceed fifty kilos in weight. Barden, however, wished to ride a heavier motor-cycle, and this has been agreed to by the supporters of Fournier. The stakes have been raised to £500 a side, the amount of the prize money thus being £1,000. In addition to these interesting events Fournier will, at 5 p.m., make an attempt on the one hour's record with a machine fitted with the "Automotor" engine, and altogether a very exciting two hours will probably be enjoyed by those who go to the Canning Town track on the 7th prox.

QUITE a number of motor-bicycles have already been entered for the Paris-Madrid race, including Werners, Bichrones, and Rochets. As mentioned elsewhere, Mr. E. H. Arnott has sent in his entry for the race; he will also take part in the Circuit des Ardennes.

MR. LESLIE BUCKNALL, the well-known motorist and balloonist has recently purchased a Werner motor-bicycle for a novel purpose, namely, to take with him on his balloon ascents, as frequently the descent is made some miles from any town or railway.

THE New York Motor Cycle Club is setting an example which similar bodies in this country would do well to consider, if not to follow. To the member completing the greatest number of miles from March 1st to December 1st next, the New York Club will award a gold medal, and for the next best record a silver one. To all other members covering 3,000 miles or more bronze medals will be given.

A LADY'S motor-bicycle is one of the latest productions Mr. C. E. Carter, of the Dispatch Cycle Works, Grays, Essex. An illustration of the machine is given herewith. It is built up with Chater Lea fittings, having a very strong dropped frame, and the engine, a 1½-h.p. Minerva, is situated in the usual position under the down tube, the belt drive being neatly protected by an aluminium cover or shield. An F. N. carburettor supplies the mixture from a tank at the rear of the saddle, which is also



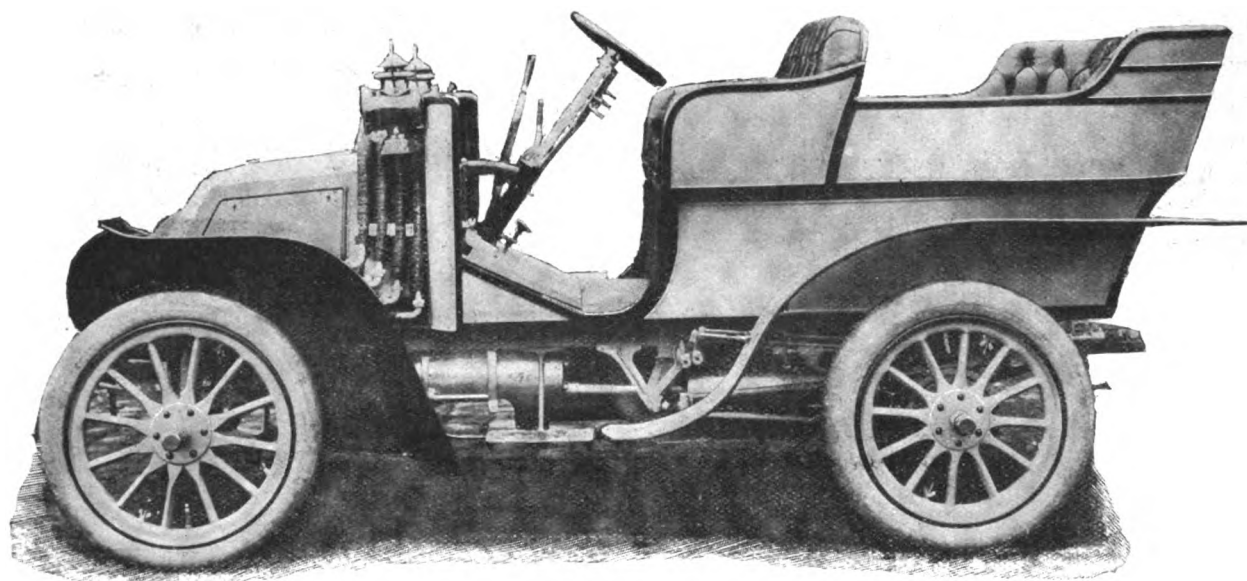
arranged to hold lubricating oil, and a special lubricating pump which can be operated from the saddle. Mr. Carter makes a special feature of the tank, which is well out of the way, giving plenty of dress room for the lady rider; its capacity for petrol is equal to eighty miles and of lubricating oil sufficient for 150 miles. Mr. Carter and his family are all expert motor-cyclists; not only do his wife and himself ride, but he has a daughter thirteen years and a son of ten years both of whom are experienced "tap twiddlers."

THE EFFECTS OF COMPRESSION IN EXPLOSION MOTORS.

ALTHOUGH gas and petroleum spirit motors are now in use to the number of many thousands, the average person seems to be better acquainted with the *modus operandi* of the steam engine than that of the explosion engine, and conditions of operation of the first are often erroneously applied to the second. Thus, for instance, the fact being well known that a high ratio of expansion in steam engines leads to economical results, petrol motor builders, imperfectly understanding the theory of that machine, often seek to devise means whereby similar effects can be produced in such engines. While it is true that carrying the expansion further than usual in explosive engines results in higher economy, the methods and means employed to this end must be entirely different from those used in steam engine practice. We have often heard it suggested that if the stroke of an engine were doubled, without increasing the bore, the gases would be expanded to a much lower pressure before the exhaust took place, and consequently a much greater proportion of the heat value of the gases would be

creases the proportion transformed into mechanical work, by decreasing the proportion going into the cooling water. A decrease of the compression space means, of course, a reduction of the cooling surface with which the burning charge is in contact, especially during the first part of the power stroke, and the direct cause of the diminished loss through this source is therefore apparent.

The question as to what influence the compression has upon the exhaust pressure is also of some interest. One manufacturer states that a low compression has the two serious disadvantages of the violence of the exhaust and the excess of heat thrown away due to a less complete expansion than would be obtained if the compression space were smaller. The "Horseless Age" takes the opposite view of the matter, namely, that the exhaust pressure will be higher, if anything, in a high compression engine. This would mean, of course, that the loss through the exhaust gases is greater with high compression, and this we believe to be the case, although the increase may be slight. The gain in mechanical power is then entirely due to a reduction of the jacket losses, while the increase in the exhaust losses is due to the same source. This conclusion is in line with the view entertained by M. Richard, a prominent gas engine authority, who states that any means by



THE MARSHALL 20-H.P. THREE-CYLINDER CAR. (See last issue, page 967.)

turned into useful work, whereas it is plain that such a proceeding would not result in increased expansion.

Similarly the effect of a higher or lower compression is not as well understood generally as it might be. It is known, of course, that the degree of compression employed affects the power of the motor, its fuel efficiency, the exhaust, the ignition, ease of starting, etc., but the nature of its relation to these various factors is not clear to many *chauffeurs* and experimenters. During the suction stroke the engine draws in a certain quantity of explosive mixture, depending upon the displacement of the piston per stroke, but independent of the compression space or the proportion of bore to stroke. After the mixture has been compressed it is ignited and burned, and the heat energy developed by this combustion is a fixed quantity, independent of the compression; the only thing which affects the quantity of heat developed is the proportion of the mixture, which is here assumed to be constant and the most favourable.

Of the heat liberated by the combustion of the mixture, a portion is converted into mechanical work, and the rest is dissipated through the cooling water and the exhaust gases. The distribution of the heat is affected by almost every change in the proportions of the combustion chamber, and a decrease in the compression space, and consequent increase in compression, in-

which the loss through one of these two great sources of waste (cooling water and exhaust) is reduced results usually in an increased loss through the other one. In two engines, otherwise the same, the quantity of gas per unit of cylinder volume (the density) at the end of the power stroke would be greater in the one with the smaller compression space; but density alone does not fix the pressure, which is also dependent upon temperature.

THE Delahaye Company, of Paris, are supplying a number of cars for the conveyance of the mails between Cattaro and Cettinge, Montenegro.

VISITORS to Nottingham, that favourite centre of automobilism, may like to know of the fine new garage recently opened by Messrs. Evarts-Hall, Limited. It is most centrally situated, being close to the Market Place, Theatre and Clarendon Hotel. Petrol and lubricating oil are stocked, and the premises are open day and night. The courteous manager, Mr. Binl gives personal attention to motorists. A large number of cars can be stored, and a special feature consists of a well-appointed reading-room, bath room and lavatories. The facilities offered by this fine garage for bringing purchaser and seller together supply a want long felt in that part of the Midlands.

HERE AND THERE.

THE sparking plug "discovery" continues to attract considerable attention, and devices providing for an external jump gap in the ignition circuit are making their appearance on the market in rapid succession. In Fig. 1 we illustrate the arrangement which has been introduced by Messrs. C. S. Rolls and Company. It will be seen that it is enclosed in a glass tube, so that it can be used on a tricycle, or on an engine exposed to rain, dirt and weather. The chief advantages of the external jump gap are that it ensures the sparking taking place at the plug, even though the

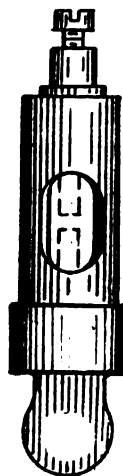


FIG. 1.

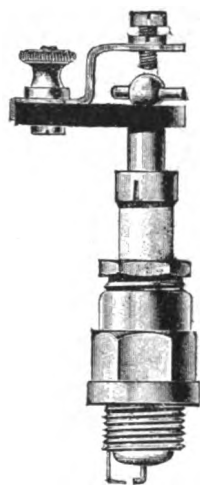


FIG. 2.

points be covered with soot, grease, or even rubber solution; it enables the engine to be run with more oil; it does away with miss-fires, facilitates starting the engine, and enables the sparking of all cylinders to be readily seen from the outside. Messrs. Rolls inform us that they have already received many letters from customers, stating in some cases that they find their cars will climb certain hills at a speed which they would not do before; in others that instances of persistent miss-fires have been cured by the use of the external gap. Fig. 2 shows the device serving the same purpose which Messrs. Gamage, Limited, have just put on the market, and to which they have given the name "Phaulak" spark intensifier.

A MOTOR CLUB is being formed for Brighton and district, Mr. J. Best having taken the initiative in the matter.

MR. F. SMITH, of Bowdon, has been elected Chairman of the Manchester Automobile Club Committee for the present year.

MESSRS. W. ATKINSON AND SONS, of Lancaster, have just issued a catalogue of their John o' Gaunt car, which is a belt-driven vehicle fitted with 6 or 8-h.p. M.M.C. motor.

THE Roadway Autocar Company, Limited, send the fifth edition of their catalogue, dealing with the Mors and Renault cars, the R.A.C. dust screen, and the various accessories stocked by the company, including lamps, plugs, accumulators, etc.

MR. A. ALBREGT, who has had several years' experience with a leading firm of motor-car constructors, has taken over the business of Mr. W. A. Hurren at Hythe (Kent) and will continue the same at 15, High Street, Hythe, and at Broadstairs. He is undertaking repairs and stocking accessories, petrol, etc.

MESSRS. S. F. EDGE have sent us an advance copy of the 1903 catalogue of Gladiator Light Motor Carriages, in which the most noticeable points of the new models are fully dealt with, and, so that clients may have a better impression as to the style and appearance of the cars, a large number of illustrations have been included. The catalogue also comprises a brief description of the chief characteristics of the cars and also a short resumé as to how they should be driven and kept in order.

WE hear that a great improvement has lately been made in the road between Whitby and Scarborough.

A MOTOR GARAGE has been established by Messrs. G. F. Heath and Company, at 49, John Bright Street, Birmingham.

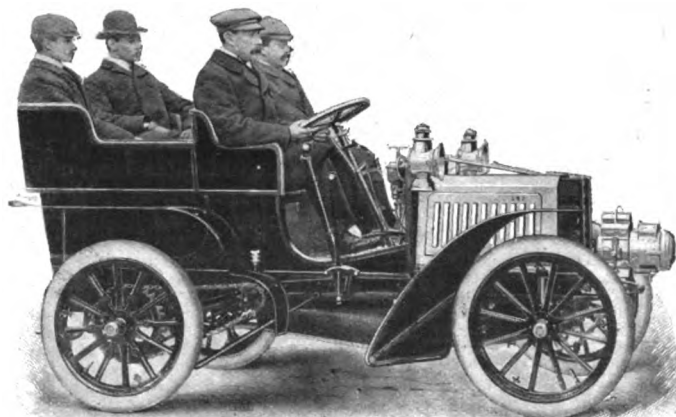
THE Hadley Cycle Engineering Company, High Street, Barnet, are now keeping a stock of motor spirit, oils and grease, etc.

ON the recommendation of Major J. S. Wickham, a danger board has been erected by the Automobile Club near a dangerous hill in Wansford.

THE Windsor Motor and Engineering Company are about to open motor repairing works and a garage in Sheet Street, Windsor.

FROM the School of Motoring, Liverpool, comes the "The Darracq and its Management," an excellent book of sixty pages, in which Mr. Archibald Ford gives a complete course of instruction in driving the particular vehicle indicated in the title. The hints given will be of service to the owners or drivers of any motor cars, and we would congratulate all responsible for its production on the improvement as well as the expansion of the little pamphlet issued two years ago into the present lucid and well-illustrated volume. A prospectus of the School of Motoring has also been issued by Mr. William Lea, which gives much information of general interest.

ON another page of the present issue we illustrate the car recently supplied by Milnes-Daimler, Limited, to the Duke of Portland, for the use of the beaters when shooting is indulged in on the Welbeck estate. The frame on which the body is supported is of channel steel; to the latter is also attached a tubular underframe, carrying the engine and gear box. The motor has four cylinders, each 3.54 in. bore by 5.11 in. stroke, giving 16-h.p. on the brake at a normal speed of 950 revolutions per minute. The engine is governed on the induction pipe, the throttle being controllable by the driver independently of the governor. Magneto ignition is adopted, while the water circulation for the cooling of the cylinders is maintained by pump and Cannstatt marine-type cooler. The power of the motor is transmitted to the change-speed gear through a conical friction clutch; the change gear is adapted to give four speeds forward and a



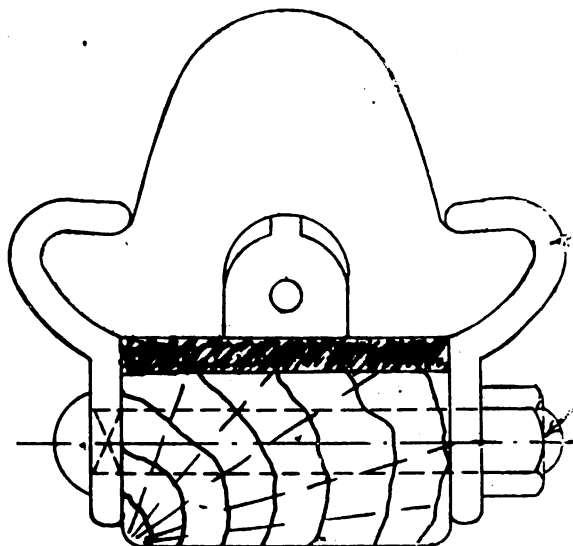
THE 12-H.P. SUNBEAM CAR (See issue February 7th, p. 945.)

reverse. From the gear-box a longitudinal universally-jointed shaft conveys the power to a countershaft parallel with and directly over the rear axle. The countershaft carries the differential gear at its centre, and at either end has pinions meshing with internally-toothed rings bolted to the rear road wheels. The front wheels are 2ft. 7½ in. in diameter, and the rear wheels 3 ft. 5½ in. All are shod with Goodyear solid rubber tyres. Three extremely powerful brakes are fitted—one a pedal-operated double-acting band brake on the rear end of the second change-gear shaft, and hand-operated brakes acting on the tyres of the rear road wheels. The vehicle, which is fitted with canopy and storm curtains, has accommodation for twenty persons.

THE Association Generale Automobile, of Paris, is organising an Easter tour to the Loire district.

THE February motor-car auction sale by Mr. Albert House at the Drill Hall, Belle Vue, Bradford, took place on the 13th inst.

THE French Automobile Club has decided to officially take part in the next year's International Exhibition at St. Louis, U.S.A.



SECTION OF DOUBLE-ARCH TYRE. (See last issue, page 974.)

THE total exports of automobiles from the United States during 1902 amounted to £213,974, as compared with only £73,474 in 1901, an increase of nearly 200 per cent.

THE Belgian Automobile Club is organising a fete to be held in the Parc du Cinquantenaire, Brussels, in April next. It is proposed to hold a gymkhana, a procession of decorated cars, etc.

THE London County Council has appointed a special committee of fifteen members to conduct the Council's case before the Royal Commission on London traffic. Earl Russell and Mr. J. Williams Benn have been included.

MESSRS. R. M. WRIGHT AND COMPANY, of Lincoln, are issuing an interesting sixteen-page circular relating to their business activities, which will be of considerable local utility. They are developing the hiring-out of motors, and also doing considerable business in sale and exchange.

THE American entries for the Gordon Bennett cup race closed on January 31. The candidates for the eliminating race are: Mr. Percy Owen, New York (Winton); Mr. L. P. Mooers, Cleveland (Peerless); Mr. H. S. Harkness, New York, and Mr. C. W. Matheson, Grand Rapids, Mich. Mr. Alexander Winton has been accorded a place in the team without participation in the eliminating contest.

THE value of the motor-car as an adjunct of war was recently illustrated by the Second Signal Corps, N.G.N.Y., in Brooklyn, in establishing a signal station. To the vehicle was attached a tender corresponding to that of a locomotive, and from it were shown electric lights for night signalling. The power for the lights was generated by the automobile and communicated to the tender by a belt passing over one of the wheels.

AT the invitation of Mr. E. W. Hart, we had an enjoyable run down to Luton on a four-cylinder Flying Darracq on Thursday last week. The car is one of those which took part in the Paris-Vienna race last year, but has since been fitted with a luxurious tonneau body. M. Wehrle, of Paris, was at the wheel, and we were greatly struck with the ease with which the car mounted the hills, no diminution of speed whatever being noticeable.

THE Gradior Machine Company, of Stafford, have just built their first motor-cycle.

A STANLEY steam carriage is reported to have recently been driven a mile on the beach at Daytona, Florida, in one minute and fourteen and two-fifths seconds.

A NOVEL form of motor-car was seen in Regent's Park one day last week. It takes the form of an ordinary governess pony trap, a motor wheel taking the place of the pony in the shafts.

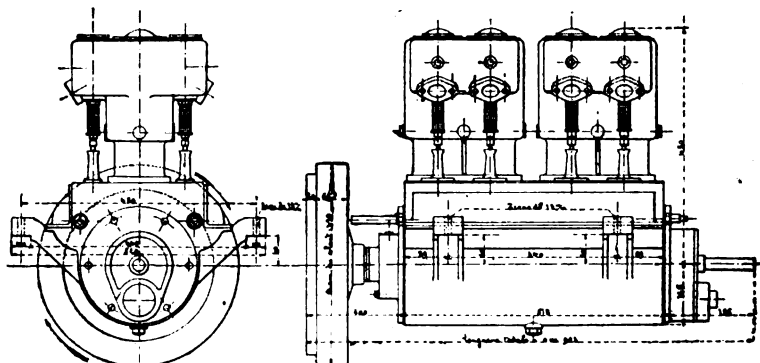
MR. WM. M. LETTS, of the Locomobile Company of Great Britain, in addition to purchasing a large number of Waverley electrical cars, during his recent visit to the United States, is reported to have placed orders for forty Locomobile petrol-cars.

A MOVEMENT is on foot to establish a racing track for motor-cars on the famous Daytona and Armand beach in Florida, U.S.A. This stretch of sand is about thirty miles long and as hard and smooth as a billiard table for making straight-away records of a mile or more. The Florida Automobile Association has been formed to further the project. The idea is to arrange annual tours to Florida for automobilists and an "automobile week."

MR. ALEXANDER WINTON and M. Henri Fournier have signed articles for a series of automobile races. The first event will take place at the Empire City Track, Yonkers, N.Y., on July 25. The second race will be run off at the Glenville track in Cleveland between August 1 and 12. The races will be for twenty-five miles, and standing starts will be made from opposite sides of the track. In case of accident to either vehicle in the first mile, the race will be stopped and restarted.

PROMPT steps are being taken to obtain the authority of Parliament for holding the Gordon Bennett motor-car race in Ireland. No opposition is anticipated from any quarter, but should any arise the Government will endeavour to overcome it. The Bill will be brought forward immediately the Address is agreed to, and the promoters maintain that the competition will not only take a great deal of money into Ireland, but do much to encourage the manufacture of cars of British design.

HEREWITH we illustrate the Abeille 4-cylinder motor with mechanically-operated inlet valves, which is being introduced by Messrs. Dalifol and Company, of Paris. The dimensions of the cylinders, which are cast in pairs, are 90 mm. bore by 180 mm. stroke, the normal speed being 900 revolutions per minute. The



carburettor is fixed to the motor, and has only one suction pipe for the four cylinders. The governor acts on the inlet by a valve operated by a double joint; the pump for the circulation of the water is placed in front of the motor and is driven by toothed wheels placed inside the case, as are the cams, operating the valves, so that they are always protected from dust, and run in an oil-bath. Messrs. Dalifol have also introduced two engines intended for use on motor boats. These have two or four cylinders, 140 mm. bore by 180 mm. stroke, with a normal speed of 750 revolutions per minute, giving 15 and 35-h.p. on the brake. Their low speed necessary for the good working of the screw is claimed to avoid vibration, and to ensure maximum efficiency.

MOTOR-CARS AS FEEDERS TO RAILWAYS.

MR. WORBY BEAUMONT presided at the Automobile Club on Friday, the 13th inst., when a paper on the above subject was read by the Hon. Scott Montagu, M.P., in the course of which he said:—In this paper I propose to deal with motor-cars as feeders for railways from two points of view—firstly that of passenger traffic, secondly that of goods traffic. The passenger may be divided roughly into two classes, the regular passenger and the occasional passenger. With the former, every minute is precious, and he has to reckon his journey, not by the time taken in the train only, but also the time taken from door to door. He does not use the expression, "I live so many miles from town," but "I live so many minutes from town." On a main line within five minutes' walk of, say, the following stations, all of them about 50 miles from London—Brighton, Basingstoke, Didcot, Bletchley, and Bedford—supposing that the terminus to which the passenger goes is fairly close to his business destination, he will probably reach his office from door to door in the space of about one hour and a quarter. If the same man lives within a 25 miles radius, say, for instance, at such places as Woking or Bishop's Stortford, and is about 4 miles from the station, he has to allow half an hour for the road portion of the journey, and is therefore approximately in the same position as the man living double the distance by rail. In these cases I think railway companies should collect their passengers by motor-car as they now collect goods by vans and horses. Supposing that the average Londoner is turning over in his mind whether he shall go for a day's excursion to the seaside, the company which will send a motor-car and collect him at his door and convey him to the terminal station from which he departs, will undoubtedly secure his fare. The connection of small centres of population by motor-cars would enable more people to live in the country, with greater economy of money and time, and if suitable fast trains were arranged—say, two in the morning and two in the evening—in connection with the motor-car services, a great increase in the number of persons travelling between these stations would almost immediately take place. If built on suitable lines, the motor-cars could be used for the conveyance of light parcels traffic at any time when all the space was not required for passengers. Business men would soon accommodate themselves to the two or three motor-car and fast train services in the morning and evening. I will now pass on to the second class of passenger, the occasional traveller. For the use of such people there might be a motor-car service running in connection with express trains stopping at principal stations, and distributing and collecting the passengers to and from villages and small towns which at present are not tapped, or are badly served by branch lines. There is no reason in this case why a motor-car service, averaging 20 miles an hour, should not be established between Peterborough and Stamford, which would serve not only Stamford, but intermediate districts as well. In the same way the Great Eastern might collect passengers from Dunmow on the one side and from the Hertford villages on the other, to a centre like Bishop's Stortford, saving much of the present train-running on the Dunmow branch line, and at the same time providing a more convenient local service. There are large areas of country in the Eastern counties which could be organised from the outskirts of such towns as Cambridge, Thetford, Ipswich, and Colchester. In the case of comparatively large towns like Stamford, a service three or four times a day each way would probably be found necessary, but in more rural districts the motor-car might work three days a week in one direction and three days in the other, thus giving travelling facilities to villages hitherto untapped. There are many places in Scotland where there are towns of considerable importance that have as yet no railway communication, owing sometimes to engineering difficulties and consequent prohibitive expense, and sometimes to the fact that the traffic is not constant, and would only pay during the summer and autumn months. In this case, the motor-cars could be suspended, or partially suspended, during the winter months, or else their activity shifted to another sphere. A large excursion traffic of superior character, i.e., first and second class, might thus be established which hardly exists to-day, the third-class excursionist being probably 90 per cent. of the passengers carried in this particular class of traffic. The railway manager might ask at this point: But who is to superintend and organise this new departure? My answer is that the same department which now supervises horses, vans, and parcels would take the matter in hand.

With reference to branch lines, some undoubtedly pay; but there are more cases where it would be economy to abandon them and substitute a motor-car service instead, and in some cases it would pay better to boldly make them into motor roads, which might easily be done by bringing the material on the road bed up to the level of the rails (without, of course, necessarily removing them) in a similar manner to the tramlines now laid in our streets to-day. The motor-car running on such a road would have no speed limits, and could prolong its journey beyond the present terminal station.

An obvious question has yet to be put and answered. Is there a reliable motor which, above all things, will be free from breakdowns? I think I may honestly say that there are several firms now in the market capable of building and supplying really reliable cars which have already proved of commercial value to the different firms using them. It would be invidious here to mention any particular firm; and, as to the expense, if the railway companies were to give a sufficiently large order to any of the bigger makers, they would find that on 100 motor-cars they would get a great reduction in cost.

I will now deal with a special class of traffic which is surely capable

of more development, and which should be encouraged and retained in this country by British railways. I refer to the milk traffic. We import foreign milk with cows at our doors. Here the automobile can help, and already there are farmers near London who are arranging to organise a motor-car service for the conveyance of their produce. If the railway companies in dairy districts would run motor services across country, say, from Peterborough to Leicester, or, to take a case on the South-Western line, down the Avon Valley from Salisbury, via Ringwood, to Christchurch, they would assist the farmers in such districts, who so far are backward in combining, and can rarely afford the capital requisite. Such a system would stimulate existing traffic, and could tap individual farms on the road, picking up agricultural products *en route*. On the return journey the cans could be dropped at the same points, and other goods distributed at the same time, and a farmer would be only too glad to be relieved of the trouble and expense of keeping a man, horse, and probably a cart for this special purpose. There is another use also which can be made of the automobile system, namely, the running of automotor railway carriages, similar to the ordinary tramcar. The charge for goods freight is made up of many items. One of the principal is the cost of distribution and collection from sender to receiver outside the mere train journey. In London, for instance, the goods van mileage compared with the weight of goods carried is ridiculous, and a van may often be seen leaving the various receiving offices of the different railway companies half or one-quarter loaded, or starting from a terminal station with goods for a certain district, possibly with one man



A WINTON CAR IN THE ROCKY MOUNTAINS.

and a boy in charge, two horses drawing the van, and the whole value of the consignment inside amounting to only a few shillings. Van horses cannot be expected to work every day of the week, and the distance they cover, I am told, rarely, if ever, exceeds 15 miles per day. While the horses are resting, a certain proportion of the staff must be resting too, whereas in the case of motor-car vans the latter would be able to cover much greater distances at less expense and be working continuously—in itself a great saving. Perhaps before long it will be found cheaper to organise a system of motor lorries to take freight and merchandise to some big goods stations outside the metropolitan area—for instance, to Willesden for the North-Western, instead of loading up the wagons at the present goods yard near Euston, where space is so valuable. There are numerous manufactories also dotted about all over the country, some distance from their main station and not connected by any siding, which are now heavily handicapped. These could be linked up if desirable, and a regular service established. From personal experience in the working of the Schultz Gunpowder Company, which has to convey its raw product, and eventually the manufactured article, some ten miles in each direction, I may say that the statistics which we have already show that the steam lorry now working in connection with the business is saving us eight horses, and works out at a far cheaper rate per mile than the former three-horse vans. I can think of no class

more suitable for the position of driver than the old locomotive driver, perhaps slightly past his prime, but steady and reliable, and fully fit for many more years' work, though perhaps not quite equal to the strain of express train driving. The question of cost of running will naturally be the first subject for consideration by the general managers. I therefore give a few facts as to cost, though, of course, if taken on a large scale, the cost per ton-mile would come out at a good deal less. For passenger conveyance it may be calculated that the consumption of petrol will not exceed 1d. per mile, while the wear and tear of solid rubber tyres, which will probably be found most suitable for this purpose, ought not to exceed 2d. Men's wages on the basis of a driver at 35s. and conductor at 25s. per week, and assuming that the vehicle covers 30 miles a day and works six days a week, would cost 4d. per mile, and 2d. should be written off for wear, tear, and depreciation. These figures must necessarily vary slightly according to speed and type of vehicle adopted, but they err on the extravagant side, and thus 9d. per mile is reached. Assuming that such vehicles capable of carrying twenty convey an average of twelve persons each journey, 1d. per mile might be charged, or possibly a higher fare for better seats or quicker services, which shows a profit of 3d. per mile. For comparison, the London United Tramways, in their last report, state that the average fare per passenger per mile is 49d., or half of the sum I suggest should be charged.

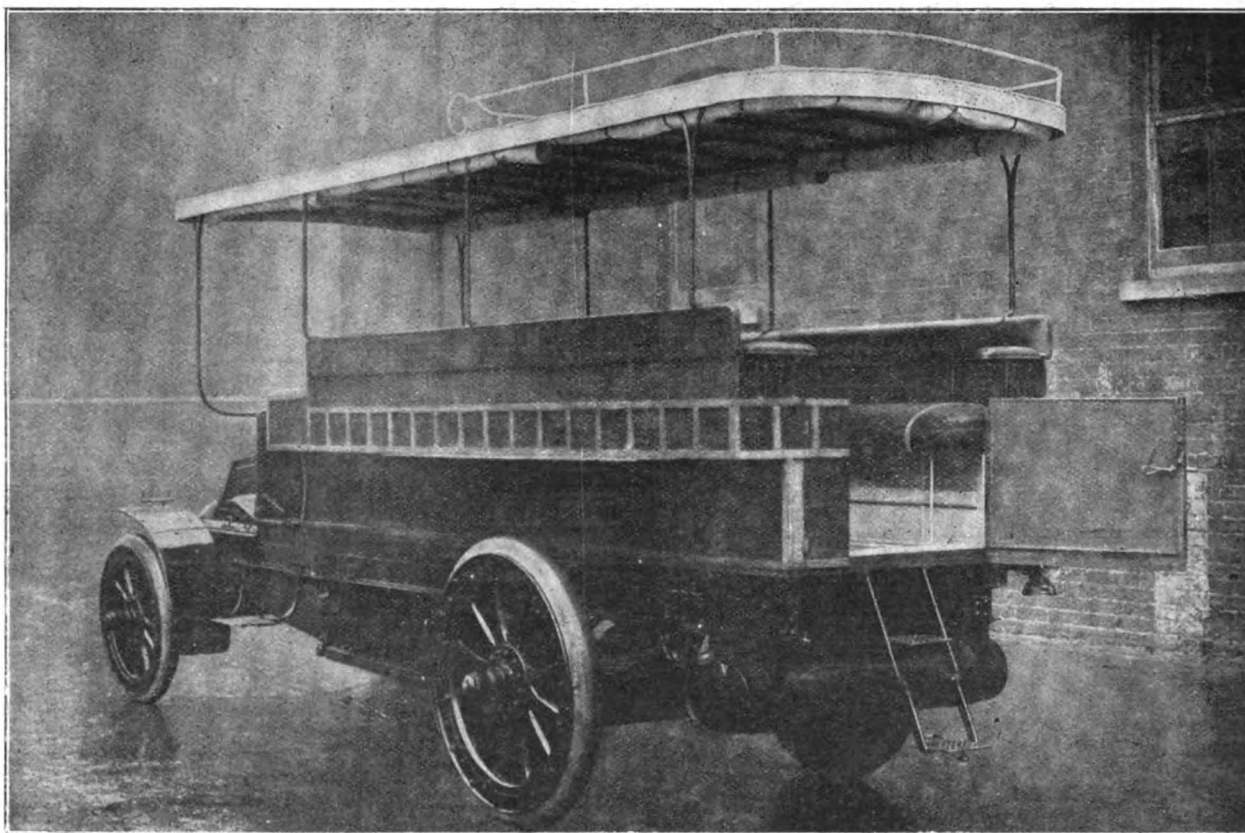
As to goods, the possibility of carrying heavier loads longer distances comes out cheaper as compared with short journeys. The horse hardly

Mr. Monkton, in opening the discussion, announced that the directors of the Great Central Railway were proposing to make a tramway line of their own to the new docks at Grimsby. He believed the time was coming when motor-cars as well as tramways would have to be considered by the railway companies.

Colonel Crompton said that although good points had been put forward, the railway directors would look at the matter from a financial point of view. It would pay them very well for the reason that the total return per annum that might be expected from 100 or 1,000 cars of standard type would be much greater than that capital could earn if expended on fixed plant. Traffic varied in different districts with the seasons, and there the convenience of the motor-car would be appreciated. Manufacturers would have to recognise the difference between pleasure and public service vehicles. The tyre question would also have to be considered, and it might be found well to go back to wheels of a larger diameter, which would alter the construction of cars.

Mr. R. W. Buttemer pointed out that in country districts it might be found better to leave the provision of motor-car services to private enterprise. If railway companies started depots out of town the question of widening the roads would have to be considered.

Mr. H. G. Burford regarded a speed of more than twelve miles an hour on ordinary roads to be impracticable in connection with public service vehicles. It was not advisable to allow those in charge of the horse departments to take over the supervision of motor-car work, and he would prefer



THE DUKE OF PORTLAND'S MILNES-DAIMLER 16-H.P. SHOOTING CAR. (See page 989.)

averages more than 10 to 15 miles a day; but the distance that could be covered by a motor lorry is limited only by its speed, and the number of hours the men in charge can work. Messrs. Bass have given me some figures as to cost of the motor-cars as compared with horses, which show that, although at first the motor-car proved slightly more expensive, when the men and the service were properly organised there was a slight saving over horses, and eventually they tell me they have no doubt that even better results will be shown.

I give the figures as given to me by a partner of the firm:—Tons carried, 2,326; cost per ton, 4s. 0½d.; cleaning, 36 days; repairs, 20½ days; wages, £224 16s.; fuel, etc., £72; repairs, £32 6s. 11d.; insurance, £15 16s.; total, £344 19s. 5d.; depreciation, £100; interest, £25; total cost, £469 19s. 5d. I doubt if the figures of pair-horse railway van work show per ton carried such good results as these.

"Festina Lente" may have been good enough in past years, but we live now in an age of hurry, and railway authorities must realise the demands of the age, and meet the wants and wishes of the population through which they run. To do this, every new mode of traction must be linked up and utilised in conjunction with existing methods. If, on the other hand, the gospel of the "have beens" prevails, I see a future by no means rosy for British railways. Progression or decay is as much a law of commerce as of Nature.

that a special department should be constituted for the work. Referring to the successful carrying of the mails between Liverpool and Manchester, he said it worked out at 8d. per mile.

Mr. J. S. Critchley agreed that a speed of twenty miles an hour was out of the question. He referred to the difficulty of getting suitable tyres. The lack of progress in the past had been mainly due, not to the manufacturers of automobiles, but to the makers of component parts.

Mr. E. V. Calthrop said that no public service of motor-cars could be run successfully unless efficient inspection was provided. That was necessary to the reliable running of the locomotive, and organisers of motor-car services should be equally careful.

Mr. Shrapnell Smith agreed that motor-cars would ultimately benefit the railways very largely. They might lose a certain amount of local traffic, but ultimately they would gain largely. The proposal to do away with local receiving stations in cities was one that would not commend itself to railway managers.

The chairman pointed out the importance of good roads in connection with the further developments of mechanical traction, and, in replying to the discussion, Mr. Montagu urged that, in some cases, the railway companies might contribute to the maintenance of local highways.

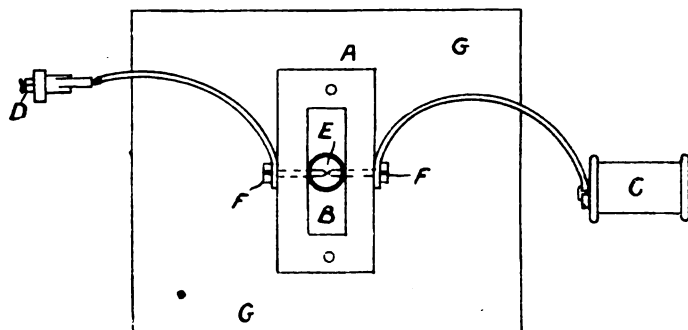
A vote of thanks to the writer of the paper brought the proceedings to a close.

CORRESPONDENCE.

THE SPARKING PLUG "DISCOVERY."

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It struck me, after reading in your issue of the 31st ult. *re* Pannhard's discovery by breaking the wire, and leaving a small gap before the current reaches the sparking plug, that this is a very useful hint. I have myself made a few experiments, and found it most valuable. I have made a small inexpensive arrangement whereby it can be placed on the dash-



A. Block of insulation fibre or vulcanite screwed to pushboard.
B. 1/4 in. hole in same.
C. Induction coil.
D. Sparking plug.
E. Spark gap.
F. Two-set screw, by means of which gap can be adjusted.
G. Dashboard.

board of the car, and the spark can be seen all the time. I think it would be a good thing for other users, and in the case of a make and break contact, by placing one's ear near the gap one can distinctly hear whether the trembler is trembling or not, a point which has been more than once discussed in your useful paper. I enclose rough sketch, which will explain itself.—Yours truly,

R. WINN.

CARS FOR MEN OF MODERATE MEANS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Now that a correspondence is going on in your valuable journal with reference to the cost of maintaining small cars, it seems to me that a word of warning to the man of moderate means may not be out of place. Nothing is more sad than for a person who is not well off to save and scrape, perhaps for a couple of years, in order to be able to buy a car, and then find in the end that he has not purchased a suitable article. The market is now being flooded with cheap imitations of the De Dion *populaire*, which are as different from the original as light from darkness. What the poor man wants are good workmanship and accessibility. It is easy enough for our foreign friends to give a voiturette a grand name worthy of a British battleship, and supply a pleasing exterior as far as paint, varnish, and seats are concerned, but the luckless buyer soon discovers to his cost that he has purchased a pig in the poke. An instance is given. A friend recently wished to present his son with a voiturette from the Paris Show; he fixed his affections on a genuine De Dion, but the younger man thought he could go one better and invested his money in a car with three speeds and reverse, a tonneau body, and a 6-h.p. De Dion engine. He was uncommonly pleased with his bargain and drove it to England. Precisely four weeks later he asked the writer to go for a drive with him. The car was already rattled to pieces, and neither the foot nor hand-brake would act. The result was that, in rounding a corner, the driver unexpectedly came upon a horse and cart, and in his efforts to avoid them he took the curb stone. A stoutly-built vehicle would probably have suffered no damage; as it was the axle gave way, and we only escaped a serious accident by a miracle. We were forced to return by train, and a new axle had to be fitted. Shortly afterwards the owner drove the car back to town. He collided with a horse and cart and knocked a man over, owing to being minus brakes. Arrived at his destination, the whole of the gear smashed up, and the luckless *bargain* had to be towed to a repairing shop. When examined by experts, it was pronounced to be absolutely unsafe and a danger to human life. Wheels, axles, springs, were light to a degree, and the advice tendered was to sell it for what it would fetch. So much for safety. As to accessibility, the prevailing fashion places the radiators on the front of the bonnet, the water tank well over the engine. In a large car there is space, but on the small ones to get at the trembler and platinum screw resolves itself into a conjuring trick. To unscrew the inlet valve presents a similar problem, for if a spanner is used large enough to fit the nut of the pipe, then it is impossible to turn it on account of the water tank. A small spanner cannot be employed, owing to the jaws being deficient in width and strength. When the poor man buys a car he must buy wisely and well. It is of all importance. One had only to visit the Crystal Palace Show to perceive what immense strides our native manufacturers have made. If the person of moderate means wants a vehicle to wear well, look well, and last well, let him invest his money in a British article, home-made throughout, save for the 6-h.p. De Dion or Aster engine. There are many such on the market to be obtained for about £200. The native

product is a good, sterling little car, thoroughly soundly constructed, and not mere pretty, trumpery rubbish. After using it for two or three years, if a change is desired, the owner can always sell again at a reasonable loss, and, unlike the son of the writer's friend, he will not be told, after the lapse of a month or five weeks, that his vehicle is only fit to be placed on the scrap heap.—Yours truly,

(MRS) M. E. KENNARD.

SIR,—With reference to the interesting paper read by Captain Campbell on "Motors for Men of Moderate Means," I have carefully prepared tables showing the annual expense of maintaining, on one side a carriage and two horses, and on the other a steam motor-car costing £300. The first table is based on ten years' actual experience, but the figures that relate to the motor-car are largely estimated.

After a visit to the late exhibition, and a fair knowledge of the idiosyncrasies of motor-cars, I have come to the conclusion that a car capable of doing the mileage specified in the table, in a hilly district, would cost about £300; and for the comparatively short but hilly daily runs that my horse and gig has been doing for the last twelve years should be of the steam rather than the petrol motor type.

TABLE SHOWING THE COMPARATIVE COST PER ANNUM OF KEEPING TWO HORSES, WITH GIG, AND A MOTOR-CAR, BOTH TO COVER 3,000 MILES PER YEAR.

Two Horses and Gig.		£	s.	d.
(1) Maintaining, during ten years, two horses by buying (£270), and selling (£108) after a useful life averaging three years, i.e., net cost per annum		16	4	0
(2) Buying for £30 and selling for £12, after running 36,000 miles in twelve years, one gig, i.e., net cost per annum		1	10	0
(3) Forage at 10s. per horse, per week		52	0	0
(4) Veterinary expenses		5	6	0
(5) Shoeing		6	14	0
(6) Harness and stable utensils		9	13	10
(7) Carriage licence		0	15	0
(8) Man's licence		0	15	0
(9) Man's wages at £1 1s. per week		54	12	0
(10) Repairs, renewals, and repainting of gig		10	0	0
(11) Insurance for £100 at 1s. 6d. per cent. (fire only)		0	1	6
(12) Miscellaneous		4	0	0
(13) Man's livery		4	12	10
(14) Stabling (stables, coach house and harness room)		30	0	0
(15) Light and fuel for above		5	0	0
		£201	4	2

Steam Car.		£	s.	d.
(1) Buying for £300 and selling for £50 after running 21,000 miles in seven years, one steam car, i.e., net cost per annum		35	14	4
(2) Car licence		2	2	0
(3) Insurance for £300 at 15 per cent. (fire only)		2	5	0
(4) Running expenses:—				
(a) Petrol at 1·00d. per mile		12	10	0
(b) Lubricating oil, etc., at 0·10d. per mile		1	5	0
(c) Tyres, renewals, etc., at 1·12d. per mile		14	0	0
(d) All repairs at 1·60d. per mile		20	0	0
(e) Cleaning materials at 0·16d. per mile		2	0	0
(f) Miscellaneous at 0·32d. per mile		4	0	0
Total at 4·30d. per mile		53	15	0
(5) Boy's wages at 5s. per week		13	0	0
(6) Licence for boy		0	15	0
(7) Boy's uniform or livery		3	0	0
(8) Rent of car-house		12	0	0
(9) Light and fuel for above		2	0	0
		124	11	4
Saving effected over two horses and gig		76	12	10
		£201	4	2

It will be seen from the above that I have assumed the "man of moderate means" to be one who can afford to spend about £200 a year on horses and carriage. And that if, instead, he invests in a motor-car, but keeps on his man and his stabling for the use of visitors, etc., he will be able to indulge in a week's tour (700 miles) without additional cost; whilst if he can do with only a boy, and let his stables, he can get his tour and be £64 to the good at the end of the year.

Many of your readers can, perhaps, correct or confirm my figures, and if general experience should prove them to be right, they should go far to undo the damage to the motor-car trade that Captain Campbell's paper is so calculated to inflict.—Yours truly,

CAUTIONS.

M. D. writes:—Would any of your readers, more especially medical men, who are users of the White steam car, kindly give me their experiences of the same? Is the car a suitable one for all weathers, and all conditions of roads?

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Bow Street... (London)	E. Leverett	—	20s. etc.
Brentford ...	*J. Athell, Shepherd's Bush	20 m. p. h.	20s., etc.
Lambeth	W. Glass, Croydon	—	Dismissed.
Cambridge ...	L. de Rothschild, Trinity College, Cambridge	—	£5, etc.
Derby	*S. R. Turner	—	20s., etc.

Where no alleged speed is given it is understood to be above the legal limit.
*Motor-Cycle Cases.

HEAVY PENALTIES AGAINST MOTORISTS.

At the Chippenham Petty Session, Talbot Clifton, of Lytham Hall, Lancashire, was summoned by Meredith M. Brown, of Nonsuch House (1), for negligently causing damage when driving motor-car; (2) driving motor at illegal speed; (3) not stopping motor when signalled to do so; and (4) driving motor at dangerous speed. Ernest Amor, in the employ of Mr. Brown, stated that on January 2nd he was in charge of two hunters, riding one and leading the other. He was coming along the London Road from Derry Hill, and when opposite the nurseries he saw a motor-car coming along at a terrific pace. He knew the horses were restive on meeting motors, and he put up his hand as well as he could (having the reins in it) for the driver to stop, but he did not, and one of the animals jumped back, pulling him on to the road. He was hurt a good deal. Both horses were injured. Walter Williams, in the employ of the defendant as mechanic, stated that the roads were very greasy, and the defendant had to drive cautiously until they got to the boundary of the borough, when the speed was increased, but it was not an excessive speed. The motor was 200 yards off when he first saw the horses. When they got to within 100 yards of him, Amor waved his hand for them to go from the left to the right hand side, which was done. They saw the man had fallen from the horse, and Mr. Clifton was prepared to stop, but Amor was up on his feet again in a moment, and the defendant then continued his journey.

The Bench, having consulted in private, said it was most heartless conduct on the part of the defendant in pursuing his way when he saw that an accident had occurred. All the charges had been proved with the exception of giving the signal, and the magistrates were not quite satisfied that Amor could carry that out. For the first and second offences a fine of £10 and costs would be imposed in each case, and for the fourth the penalty would be £5 and costs.

Sheriff J. Gray Webster, Elgin, has issued his decision in the action heard before him about a year ago at the instance of John Mavor, farmer, Lochyhill, Forres, against Sir Edward Sassoon, Bart, M.P., claiming £52 15s. This sum was sued for in name of damages alleged sustained by a flock of sheep which pursuer was driving from Rafford to Elgin. The sheep were met and passed by a motor-car hired by defender, at a narrow part of the road, and in consequence of the driver failing to stop, it was contended that the sheep were crushed and injured. Pursuer at the time was holding a bicycle, which was also damaged by the car. The Sheriff has awarded pursuer £24 16s. in respect of the damage to the sheep and £3 for the damage to the bicycle. He also found pursuer entitled to expenses.

ON THE WRONG SIDE.

At Derby, on Monday, Samuel Bakewell, Belper, was summoned for riding a motor-cycle on the wrong side of the road, on the 5th inst. Defendant was motoring towards Belper, and was drawing his wife in a "trailer." Being on his wrong side, and travelling at the rate of 8 miles an hour, he collided with a cab. All were thrown to the ground. Defendant pleaded that he was near-sighted, and could not avoid the accident. He was fined 20s. and the costs.

TRAM LINES v. MOTOR CAR.

BEFORE Mr. Justice Channell and a common jury at Winchester last week, the case of Torrington Monier-Williams and Wife v. The Provincial Tramways Company was heard. The claim was for damages done to a motor-car which the plaintiff was driving in Gosport, while on a tour with his wife. The car got to Gosport safely, but when it reached Forton Road the off-wheel sank and entered into a rut on the roadway. The car was thrown out of its course, became unmanageable, and dashed into a plate-glass window. Both the plaintiff and his wife were seriously shaken. The plaintiff's case was that the cause of the accident was the careless and improper way in which the defendants had laid their lines and maintained them. The defendants' case was that they had kept their line in excellent repair, but that the cause of the accident was the disgraceful state of the road,

for which the defendants were not liable, but that the persons responsible were the urban district council. A further plea of contributory negligence was alleged, the plaintiff being, it was said, on the wrong side of the road. The jury expressed a wish to see the place, and the Judge adjourned the case for that purpose. They subsequently returned a verdict for the plaintiffs for £40, and judgment was given accordingly.

POLICE AND MOTORIST.

WILLIAM GLASS, of High Street, Croydon, was summoned at Lambeth Police Court, by the police, for driving a motor-car to the common danger. Mr. C. H. Dewey, Streatham, stated that on the afternoon of Saturday, December 27th, he was sitting on the front seat on top of a tram-car at Brixton Hill proceeding towards Streatham. He saw a motor-car coming towards him driven at a very rapid rate—not less, he considered, than twenty miles an hour. Two other witnesses were called in support of the summons, but neither of them were able to identify the defendant, and they both agreed that the car was of a light colour. Mr. Firth, for the defendant, submitted that the case had not been made out, and that it must fall to the ground for want of identification. Mr. Glass, the defendant, went into the witness-box and gave evidence to the effect that on the day in question he was driving a car which was painted a bright Post Office red. Mr. Francis thereupon dismissed the summons. Mr. Firth asked for costs, but the magistrate declined to allow them.

THE Motor Club d'Epernay have just been formed at Epernay, France, with Count Gaston de Maignet as first president.

The Long Island Railroad is having several automobiles made to be used in the express service of New York.

A COMPANY has lately been formed in Sydney with the title the Victor Motor Company and a capital of £10,000. Works have been established at Double Bay, N.S.W., and these are now turning out heavy oil motors for launches. The plant is under the managership of Mr. Gustav Ey, who was formerly with the Cannstatt Daimler Company, so that it is not improbable that the construction of engines for motor-cars will be taken up in Australia at an early date.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE Motor-Car Journal.

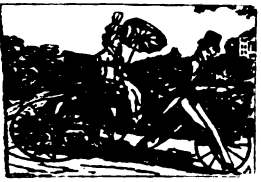
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COMMENTS.



THERE is plenty of fun to be obtained from the motor-bicycle, and, as was evidenced at the Automobile Club on the 20th, when Mr. Mervyn O'Gorman, scorning dull technicalities, and avoiding cranks and fads, treated the members to a display of Irish wit which should make them all the more

anxious to have the Gordon Bennett race run in the Emerald Isle. Elsewhere we give some extracts from the paper, and in our "Motor-Cycling News" appear some points from a rather feeble discussion. But we cannot refrain from giving in its entirety Mr. O'Gorman's recipe for courting on the motor-bicycle. Motor bicycling is not, he gravely informed his audience, a "solitary game. You will find in summer weather that free-wheeling is an exercise which your girl friends greatly enjoy. Now, waltzing is a very legitimate pastime, during which your right hand is gently pressed against the waist of your partner. I have heard that waltzing is also found agreeable. Imitate the position after you have mounted your motor-bicycle when *she* is on her 'free wheel.' Begin at ten miles per hour 'just to help'; she will soon stop pedalling, and you can increase to fifteen. You get to Henley quite nicely that way; you can chat, part company to pass a cart, meet again in front of it, allow her to help you by pedalling on the up grades, and on no account, if you value her safety and comfort, agree to any suggestion by which she is tied to you by a string, follows in your dust, consumes the exhaust gases, cannot converse with you, and listens appalled to the maxims which are being quick-fired at her by the engine. In fact, the popularity of the 'little bit of string' is on the wane with all who have tried it, despite the charms of a certain sweet singer. I much prefer this to a trailer, and do not find the extended arm grow tired. But, of course, the lady should be consulted." And all this in the course of a paper read to an audience over which a learned professor presided during a portion of the time!

The Crusade against Numbering.

THE fate which befel Mr. Montagu's Bill on Tuesday seems to be equally persistent with regard to the other Parliamentary measure with which his name is associated. The Wolverhampton and District Automobile Club is circularising Midland M.P.'s on the proposal to number automobiles, and points out that one object for which the Bill is being introduced is to ensure identification of the person unlawfully driving or assisting in driving a motor-propelled vehicle; "this object will not be accomplished in consequence of the vehicle bearing a number or other mark of identification, inasmuch as, in the event of an offence being committed, and it being admitted that the number of the vehicle has been accurately taken, that is no evidence that the owner of the car, or that any particular person was driving or assisting in driving it at the time of the offence complained of. The identification by means of numbering is objectionable, as, whether an offence has or has not been committed, any prejudiced person may take the number of a car, the driver of which he alleges has committed an offence, and may lay a complaint without the

knowledge of the driver until receipt by him of the summons, consequently no opportunity would be given to him to obtain evidence at the time and place where the offence is alleged to have been committed. The repugnance attaching to the disfigurement by numbering of private vehicles is equally strong, whether the vehicles are drawn by horses or propelled by motive power, and, in the event of the Bill passing, the members of the Wolverhampton Club have every reason to believe that many will decline to adopt a method of transport which is subject to such unfair and offensive regulations."

"General Con- demnation" of the Attitude of the A.C.G.B.I.

So strongly do the members of the Wolverhampton Club feel on the subject that, in addition to thus ably arguing it, they point out that the Automobile Club of Great Britain and Ireland, in a circular letter sent by them to the members of the County Councils in 1900, "protested strongly against the proposal to number motor propelled vehicles, and they then stated that 'by voting for the compulsory numbering of vehicles under existing or suggested conditions you will be imposing a restriction which will cripple, if not destroy, an important industry.' The attitude that Club is now assuming in supporting the proposed Bill has received general condemnation. We contend that any alteration in the law affecting motor-vehicles, except such as will place them on the same basis as other vehicles, is undesirable, and we therefore respectfully request you to oppose, except so far as relates to the repeal of the speed limit, the Bill referred to when introduced into Parliament, and to assist in the introduction of any measure which will provide increased facilities for locomotion, and encourage an industry the importance of which, upon social, sanitary, and commercial grounds, it is impossible to estimate."

Motor-Car Dangers.

AN engineer living at St. Helens was severely burnt on Saturday. It appears that he went underneath the motor-car to put the mechanism in order, when a quantity of waste was set on fire and he was burnt about the arms and face. Another motor-car mishap is reported from Blackpool. Mr. George Calvert, who was staying at the Victory Hotel, was found lying in an unconscious condition in the stable adjoining the hotel, where his motor-car was standing. He was conveyed to the Victoria Hospital, where he was found to be suffering from gas poisoning, and he now lies in a critical condition. It is supposed that he was overpowered by the exhaust from his motor-car.

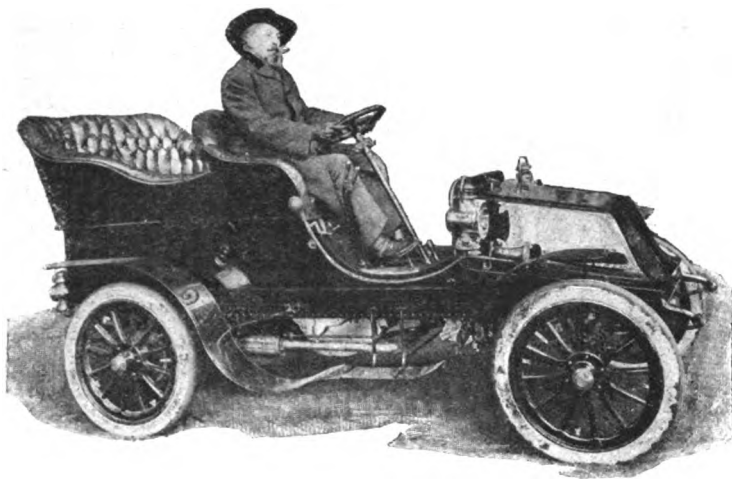
The Annual Meeting of the A.C.G.B.I.

THE annual general meeting of the Automobile Club is to be held on Friday, the 27th. After deducting losses by deaths and resignations, the membership has reached 2,177, nearly half of which was added last year. There is little in the annual report to call for comment, although the policy of associating the Club with a proposal to provide for some means of the identification of motorists is of dubious value to the movement.

This is now regarded as such by some of the Committee, hence the suggestion to call a meeting of members on the subject. To this latter point we referred last week, and hope to learn that, even at this late hour, more adequate accommodation than was originally contemplated will be made for the large number who will doubtless want to attend.

Covered Vans.

THE Home Secretary has consented to a new bye-law suggested by the London County Council, which will prohibit the driving of any vehicle in London in which the driver cannot obtain a complete view of the traffic on either side as well as in front of him. The light covered vans in which the driver sits under the hood, and which are so familiar among our London traffic, are the cause of numerous accidents, even when driven by careful drivers; but when heedlessly driven they constitute a real danger in London streets. It will be interesting to watch the development of the form of the delivery van, should such bye-laws become general throughout the country. Certainly we would suggest to the makers of motor delivery vans who are considering designs in view of the trials to be held at the end of the year to give attention to this point, and see that the covered vans are so devised that the driver can see on either side of him and thus avoid passing traffic.



COL. CODY—"BUFFALO BILL"—ON A 20-H.P. WINTON CAR.

A Morning Run!

THE spring is beginning to make its influence felt in the country, and a pleasant spin through Richmond Park the other morning with Mr. A. E. Cohen, of the Weston Motor Syndicate, brought ample evidence of the fact. We were mounted on a 10-h.p. Chenard-Walcker car, the quiet behaviour and steady running of which contrasted well with the noisy, undulating method of progression associated with motoring in the pioneer days. From Mortimer Street we went in and out the traffic on top speed and glided along to the Marble Arch, where we watched the policeman's finger with the obedience to the powers that be that characterises all good and true users of the road. Thanks to the combination clutch and brake the driver had complete control of the car, and, driving on top speed all the way, was able to stop in traffic and get away again with a quietness of running that was distinctly notable. Curiously enough, on the same day we were enjoying our morning spin on a Chenard-Walcker car in London, the vehicles were winning distinction in the Consumption Trials in France, as recorded by our continental correspondent. The winning car, weighing 1,170 kilog., travelled a distance of 62 miles on an average of 46½ miles on one gallon of petrol, or, on a ton mile basis, 52 miles per gallon of petrol.

Motor-car Imports and Exports.

THE returns now available relating to the British imports and exports of motor-cars and cycles during January last show an increase both as regards the imports and exports. To deal first with the imports, no less than 540 cars and cycles were imported into this country last month, the value of the same being returned at £152,970. The value of the "parts thereof" is given as £14,142, so that we get a combined total of £167,112, as compared with only £62,473 in December last and £43,855 (representing 173 cars) in January, 1901. Indeed, it may be pointed out that the January total is the largest so far recorded in the history of the trade. Some of the imports were only of a temporary character, being re-shipped to foreign destinations. Thus last month the re-shipments comprised fourteen vehicles, amounting in value to £3,743, and £290 of parts, bringing down the net imports in January to £163,079, as against only £41,190 in the same month a year ago. As regards the exports of automobiles of home manufacture, the shipments during the past month amounted to sixty-two vehicles of a value of £14,955. Of parts, the exports attained a value of £1,921, making a combined total for January of £16,876, as compared with £33,395 in December last, and £10,992 (representing twenty-seven vehicles) in January, 1902. In the monthly Board of Trade Returns, both as regards the imports and exports, motor-cars and motor-cycles are lumped together. We had hoped the authorities would have seen their way this year to have given them separate classifications, a course which we trust they will deem it well to adopt when the question of revision next comes up for consideration.

Motor-cars at the Levee.

THE most noticeable feature of the King's recent Levee was the extraordinary number of guests who drove to Buckingham Palace in their motor-carriages. Never before had so large a number of automobiles carrying exalted personages been seen in the Mall. Most of the vehicles were of the type of electric brougham that may be seen any night in the West-End when the theatres are emptying. To go to the King's Levee in a hansom or four-wheeler is a perfectly correct thing, and many notabilities adopted this form of conveyance. It is one of the peculiarities of Court etiquette; but somehow to go to a Levee, which is one of the highest Court functions, in furs and goggles seems at first blush to be a feat of daring that only a modern D'Artagnan could accomplish. But we live and learn. The fashion has been set, and so it must remain. The scene in the Mall, where the carriages were drawn up, was unique. The man in the street who sauntered casually into this historic boulevard might have imagined himself in the midst of an automobile show. Extending halfway down the broad leafless avenues there were three parallel lines of carriages and motor-cars waiting to take away the King's guests. This famous lounge, so rich in historical associations, resembled for the time being, says the "Morning Post," a vast stableyard. The thoroughfare swarmed with coachmen, lackeys, and *chauffeurs*, idly chatting amongst themselves, and policemen with nothing to do. It was an up-to-date scene, very different from the days of pomp and pageantry with which the Mall is indelibly associated.

Scottish Automobile Club Runs.

THE Western section have issued the following programme of runs, etc., for the ensuing season:—March 28th, Ayr (Station Hotel), 3 o'clock; April 25th, Callander (Dreadnought Hotel), 2 p.m.; joint meet with Eastern section; May 13th and 14th, Glasgow to London non-stop trial; May 23rd, Lanark and hill-climbing competition on Kirkfieldbank Hill, jointly with Eastern section; June 13th, Tarbet, 3.30 o'clock; July 4th to 10th (provisional), Irish week, Gordon Bennett race;

August 8th, Biggar, 3.30 p.m.; September 19th, Aberfoyle, 3.30 o'clock; October 17th (provisional), "Anniversary" run, Dunblane, cars meet in Glasgow at noon. With the exception of the last named the times mentioned are the hours of arriving at the destination. At a meeting of the section on Monday, the 9th prox., Mr. Wm. Weir, of Cathcart, is to read a paper on "The Possible Developments of Automobiles and Automobilism."

Next Month's Exhibition.

INTEREST in the forthcoming Automobile Exhibition at the Agricultural Hall, London, is growing, and many new types of vehicles which the makers have been unable to get ready earlier for the coming season will be on exhibition for the first time. This fact alone will be sufficient to draw a large attendance of motorists, while the thoroughly representative character of the display of 1903 patterns will give the Exhibition an interest greater than that aroused by any previous display in this country. From the inquiries which the promoters are receiving daily, it is evident that there will not be a vacant space when the Exhibition opens on the 21st prox. Already all the spaces on the ground floor have been taken, as well as the gallery, minor halls, arcades, etc. As was the case last year, the Wednesday (March 25th) will be reserved as a Club day, when the admission will be half-a-crown. On other days the admission will be one shilling, and the convenience of the public as well as of exhibitors is being carefully considered.

The Tyre Trials.

ALTHOUGH the awards in connection with the tyre trials of the Automobile Club have been published, we have not yet heard the last of the matter. The view expressed in these columns a few weeks ago as to the unsatisfactory way in which the conclusion has been announced, has found expression in many letters we have received on the subject. Considerations of space preclude the publication of all these; but we would suggest that in future it would be well, firstly, that the points of the award should be distinctly stated before entrance fees are received; secondly, that no information with regard to matters of detail should be issued by those responsible for the conduct of the tests until the judges' award is made known; and thirdly, that when the awards are made they should not be vitiated by the official publication of the fact that Continental tyre makers did not enter, thus apparently robbing English firms of the credit to which they are entitled.

Down in Donegal.

At a meeting of the Finance Committee of the Donegal County Council, Captain Stoney, D.L., presiding, the condition of the roads in the district was discussed. Councillor Teague Magee, J.P., complained of the state of the roads in the southern division of the county, and was of opinion that the only way in which matters could be improved was to stop the salaries of the surveyors and their assistants. The latter, he contended, were devoting more time to private practice than to the discharge of their official duties. The Chairman and Councillor W. J. Hanna, J.P., deprecated such a drastic course as Councillor Magee suggested, but thought that the surveyors should be warned that such a proposal had come under the notice of the committee. Eventually, on the motion of the Chairman, seconded by Councillor Magee, the following resolution was unanimously adopted:—"That we have had complaints of the condition of the county roads in all directions brought before us, and the question of withholding the salaries of the county and assistant surveyors on this ground was suggested. It was resolved that no action of this kind should be taken at present, but that we recommend the County Council to consider what steps should be taken to remedy this state of things."

Moderate Speed Over the Course.

It has been agreed by the Executive Committee of the A.C.G.B.I. that any competitor in the Gordon Bennett race driving or being driven in or on a car over the course from this time forward until the start of the race shall be disqualified, if the car is capable of travelling on the flat at a speed exceeding forty miles an hour, it being understood that, in making this proviso, it must not be taken to imply that the cars should be driven at their maximum speed. Motorists generally, too, are requested not to drive over the course prior to the race in cars capable of travelling on the flat at over forty miles an hour, and to drive only at moderate speeds, and to show proper respect for the property and comfort of other users of the road. Any motorist who may disregard this request is liable, if a member of the Club, to expulsion or suspension, and if not a member of the Club, to disqualification from participation in any competition held under the rules of the Automobile Club.



A DURYEA CAR IN JAPAN. [Automobile Magazine.]

Improving the Route.

THE efforts of the Automobile Club to improve the roads on the proposed Gordon Bennett course is worthy the support of all enthusiastic motorists, and in several quarters appeals are being circulated which should have the effect of securing a substantial fund. Some clubs, like the Yorkshire, are specially urging their members to subscribe, and we would renew our suggestion of a fortnight ago that unattached *chauffeurs* should join their fellow motorists in this work and send subscriptions—10s. is the suggested amount—to the Secretary of the A.C.G.B.I., 119, Piccadilly, W.

Parliamentary Approval.

A PRELIMINARY Parliamentary skirmish in connection with the Bill legalising the Gordon Bennett race in Ireland took place on Monday, when Mr. James O'Connor asked the Chief Secretary for Ireland whether, in view of the desire in Ireland that the international automobile race should be run in that country, and considering that the local councils through whose districts the cars will speed were prepared to take every precaution for the safety of life, he would introduce a Bill to enable the competitors to hold the race in Ireland. Colonel

Saunderson asked for a favourable reply to the question, and the Chief Secretary in response said that in view of the unanimous desire which was shared by all the local bodies representing the districts through which the proposed route would run, and by all the members for Irish constituencies without distinction of party, he ventured to express the hope on the part of the Government that the Bill introduced by Mr. Scott Montagu would be regarded as non-controversial. He did not contemplate the possibility of those not directly interested in Ireland opposing a Bill brought forward with the unanimous support of the Irish members especially as no one could be interested in opposing it.

Unanimity.

THE "backers" of the Light Locomotives (Ireland) Bill which Mr. Scott Montagu has introduced, represent about as many interests as it would have been possible to have placed upon the rear page of this measure. They include the Hon. Arthur Stanley, a Conservative member, who is interested in motor-vehicles for heavy traffic; Mr. C. D. Rose, a newly-elected Liberal member, whose interest is confined to motoring for pleasure; Colonel Sanderson and Mr. Patrick O'Brien, who have rarely agreed upon any other subject; and Messrs. W. Delaney and M. J. Minch, the two Nationalist members for Queen's County and South Kildare, through whose constituencies it is proposed to run the great race. Mr. Scott Montagu only came out number 65 in his ballot, but news of his success in securing a first reading on Friday, the 20th inst., was received with enthusiasm when announced at the Automobile Club on the same evening.

Blocking the Bill.

By lifting his hat to block the Bill legalising the race, Mr. W. J. Galloway has incurred the wrath of Ireland and excited the indignation of his constituents, as well as the general body of motorists. Really we should have thought that a gentleman connected with the engineering industry, and whose versatility can embrace the advocacy of a National Opera House, the publication of a book on Australia, and the presidency of a bicycle club—the latter by way of recreation—would have recognised the injury he was doing to British industry in blocking this permissive Bill. Surely he must recognise the unsportsmanlike character of such a proceeding, and when he next enters one of his half-dozen clubs will have to encounter questioners among Society people who were anticipating the event with an extraordinary amount of pleasure.

Success in Sight.

MR. MONTAGU and Mr. Arthur Stanley intend being at the House each evening in order to take advantage of the first opportunity to secure the second reading of the Light Locomotives (Ireland) Bill. This will probably take place before our next issue, Mr. Galloway's "blocking" being on the technical ground that the measure had not been printed—a very poor excuse for delaying the matter.

A Case Struck Out.

THERE was a touch of humour in a case which has just been heard at Brentwood, and which has ended very satisfactorily for the defendant, Mr. Charles Watt, of Hutton, who was summoned for driving a motor-car at an excessive speed at Brentwood on Jan. 1st. As already reported in our columns, the matter was dismissed, the prosecution closing their case without putting in a copy of the regulations of the Local Government Board. The police, however, had determined to have their victim, and issued a fresh summons, which was heard last week. Mr. Watt's legal adviser, however, contended that as the case had already been dismissed the bench had no power to adjudicate—an interesting point that led to a further adjourn-

ment so that the magistrates might consider the nicety of the point raised. At the final hearing the Bench said they had no jurisdiction to try it, and therefore it was struck out. Such, we may rightly add, should be the fate of nine out of every ten of the summonses which are issued against motorists.

Trade v. Amateur.

AN interesting discussion has taken place at the Lincolnshire Automobile Club as to the advisability of gentlemen connected with the trade taking prominent official positions in automobile organisations. The meeting was somewhat divided, some members advocating that gentlemen with trading associations might be nominated for the committee, but not for chairmanship, secretaryship and other offices. Others stoutly declared for the amateur character of such clubs to be rigidly maintained, members of the trade being kept, as is now the case in Lincolnshire, off all committees. A few days ago the same question cropped up at another provincial club, and it is a point which all interested in the organisations connected with the industry should carefully watch. Up to the present little harm has been done by the presence of gentlemen prominently identified with the trade in the central councils of automobilism; but evidently there is a growing feeling that as the industry grows, it will become advisable to keep the social side of the movement quite distinct from the trade aspect. Members of the trade serving prominently on club committees, necessarily have great prominence in their locality, and the feeling that such may destroy the purely amateur side of club life is probably responsible for the interesting discussions now taking place on the subject.

LORD DUDLEY, Lord Lieutenant of Ireland, gave a most sympathetic consideration to the deputation from the Kildare County Council, which last week waited upon him, asking his lordship to use his influence in favour of the Bill to permit that the Gordon Bennett race should be run in the Emerald Isle.

MR. CLAUDE JOHNSON has informed the Executive Committee of the A.C.G.B.I. of his desire to resign his appointment to the International Racing Commission, as he ceases to be secretary of the Club on June 2nd, and does not know whether he will be in Europe at the time of the Gordon Bennett race. A sub-committee has been appointed to consider the question of a successor, or successors, with full power to act.

THE case of Mr. W. K. Vanderbilt, who some months ago was sentenced to two days' imprisonment and a fine of 8s. for driving his motor-car in Paris at more than regulation speed, has taken another turn. He has appealed against the sentence in the Paris Police Court, pointing out that it was monstrous to condemn him for an offence with which he had nothing to do. Thereupon M. Coubar, the *mecanic'en*, was asked if he would accept the sentence in lieu of his employer, but he declined with thanks. The case was accordingly adjourned until March 18th, when the *mecanicien* will appear with Mr. Vanderbilt as a defendant.

A GENERAL meeting of the Aeronautical Institute and Club was held at St. Bride's Institute, E.C., on Friday, the 20th inst., when a paper was read by Mr. W. J. Griffiths, entitled "A Novel Method of Navigating the Air," which gave some interesting particulars of a flying machine built on the aeroplane principle. The machine consists of superposed aeroplanes, supported by a framework, and capable of being adjusted at any required angle. The car containing the aeronaut and machinery is suspended below, and the machine is driven by six propellers. A paper which followed, entitled "An Improved Kite or Flying Machine," by Messrs. Tarozal, Poheim, and Simko, gave the description of a kite constructed of "stepped" aeroplanes. This apparatus, if furnished with suitable motive power and propellers, could be used as a flying machine, the design of the machine giving it great stability when in the air.

MECHANICAL INLET VALVES.

TRULY, "there is nothing new under the sun," and the mechanically-operated inlet valve is no exception to the old maxim. It had been used in internal combustion engines before automobiles—under that name—existed; while its superior efficiency has been asserted by scientific engineers, and demonstrated by laboratory tests at frequent intervals during the seven years of automobilism. All this, however, was but as a preaching in the wilderness until its adoption by the Mercedes firm at one end of the scale, and by one of the largest manufacturers of bicycle-motors at the other, and while it is to the former that the example is due, much of the popular interest in the subject is owing to the latter, and was the prelude to a general *volte-face* among the principal makers, nearly all of whom are now following the German lead. How far this has been an unmixed benefit is still, one may say, *sub judice*, and food for too often acrimonious discussion.

It is not difficult, of course, to describe the qualities that should belong to a perfect inlet valve. It should open instantaneously, and to its full extent, as soon as the exhaust gases have been so far got rid of that the pressure in the cylinder is equal to that of the atmosphere, *i.e.*, to such a point that no

seen, at times, in a pulsating or hammering of the valve, instead of the sharp opening and closing that is desirable; this also being an active cause of worn and broken valve stems.

The mechanical valve, on the other hand, can make a much nearer approach to perfect instantaneous opening and closing, and these can take place at a definitely predetermined point in the stroke. (The idea of making these points variable to suit the speed does not seem to have been suggested yet, and would probably be too complicated a refinement.) The valve may be heavier, if necessary, without detriment (so valve-stems need not be so fragile) and is less liable to be affected by dirt, burnt oil, and the like. As for the alleged extra complication, it is sufficient to ask which gives most trouble, an ordinary inlet valve with a spring, the adjustment of which for best efficiency is a delicate matter, or an ordinary exhaust valve if we exclude the burnt stems, regrinding, etc., which are due simply to its being exposed to exhaust gases, and not to its mechanical movement. The fitting of a mechanically-operated valve simply amounts to having two "exhaust" valves, one of which is exempt from the ills to which an exhaust valve is heir, and in return being free from the troubles of stuck inlet valves and the adjustment of light springs to them. As regards their increased efficiency, from 5 to as much as 25 per cent. has been claimed,

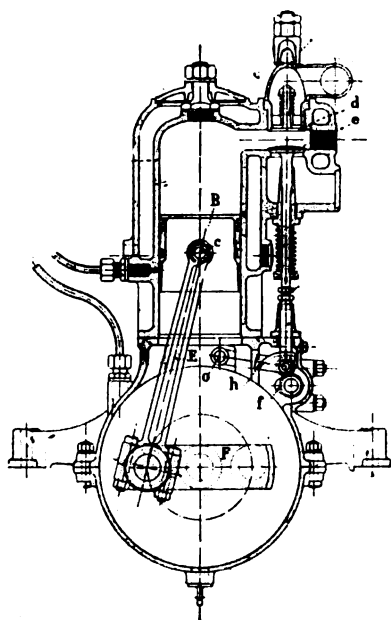


FIG. 1.—SECTION OF PETROL MOTOR WITH ORDINARY SUCTION INLET VALVE.

gas can return along the inlet pipe. This need not, and probably does not, mean at the exact commencement of outstroke. It should close as soon as the piston, passing its outer dead point, raises the pressure of the cylinder contents to that of the gas in the inlet pipe. This may be somewhat above atmospheric pressure, owing to the inertia of entering gas, and so need not—probably does not—coincide with end of outstroke.

How far, then, we may ask, does the ordinary atmospheric inlet valve fulfil these conditions? First of all, it must obviously open too late, owing to the resistance of its spring having to be overcome; too late again and too slowly, owing to its inertia, and the fault may be aggravated by accidental dirt or stickiness about its stem and seat. Next, it must tend to close too early at slow speeds, owing again to its spring, which may be neutralised or even over-corrected at high speeds by its inertia.

The absolutely correct times of opening and closing must vary somewhat for different speeds, and while the atmospheric valve cannot open too early, and may adapt itself somewhat to varying speeds as regards opening, though always a little late, its time of closing may be subject to more error, and that this is considerable under ordinary working conditions may be

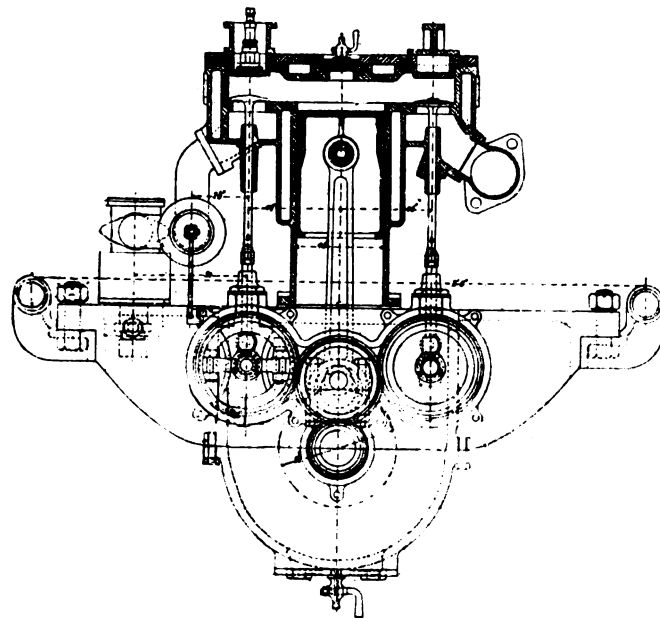


FIG. 2.—SECTION OF PETROL MOTOR WITH MECHANICALLY-OPERATED INLET VALVE.

the latter at high speeds; while there are makers who disclaim increased efficiency, though still adopting them. Undoubtedly they should give it, but it lies with the manufacturers to turn them out with the nearest approach to correct timing for their particular engine, the power of adjustment which is possible with the spring of the atmospheric valve being absent. This, however, considering the difficulty of getting two or four light springs to be and remain of equal strength, is a doubtful loss, and perhaps the strongest argument in favour of the mechanically-operated valve is the improved synchronism that can be obtained in multiple-cylinder engines. The amount of power lost by want of equality in the performance of the two or more cylinders of a modern motor is hardly realised by many drivers, and it is by no means an easy task to obviate it with atmospheric inlet valves.

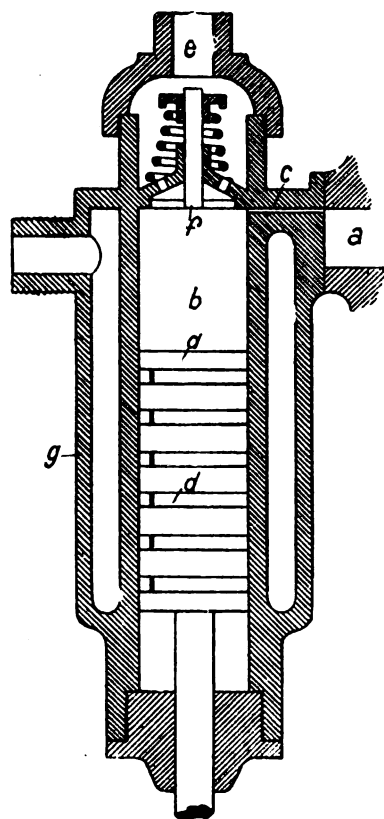
It may be fairly admitted, then, good design being presupposed, that a distinct improvement is to be expected from the adoption of mechanically-operated valves, slight perhaps at normal speeds, but increasing at speeds much above or below normal; while there is no reason to expect any additional trouble from their use,

As regards the timing of the valve, the general result of various experiments seems to show that the opening should take place when the crank has passed about 10 deg. beyond dead point, and close at a somewhat less interval after completion of outstroke; but exact data are wanting, and a comparison of the practice of the different makers who have adopted the mechanically-operated valve would be of interest.

R. W. BUTTEMER.

THE DE DION SELF-IGNITION DEVICE.

MESSRS. DE DION AND BOUTON have taken out a patent in France for a device intended to be used for the ignition of the charge in explosion motors, in which the heat of compression in a special small cylinder is caused to produce a flame. The small cylinder (*b*) is fastened to the side of the main cylinder, and is in communication with the compression space (*a*) of the latter by a small passage (*c*). In the small cylinder works a tight-fitting piston, which is forced upward in it, once for every two revolutions of the motor crank-shaft.



An explosive mixture is admitted to the cylinder at the upper end thereof through an automatic suction valve (*f*). When the piston in the small cylinder is forced upward the gaseous charge therein is compressed to the point of self-ignition, and the flame travels through the small passage to the compression chamber in the main cylinder and explodes the charge therein. In order to vary the time of ignition the mechanism by which the piston in the small cylinder is operated must be arranged to effect this operation at a variable period.

On Monday, Mr. W. Worby Beaumont will open a discussion on "Road Traffic in and near Large Cities" before the Society of Engineers.

MESSRS. HUGGINS AND CHAMBERS stock motor-spirit, oils, etc., at their premises in the High Street, Utttoxeter, and are always glad to help motorists in difficulties in their neighbourhood. There is an excellent garage at the White Hart Hotel, in Utttoxeter, and about half-a-dozen private owners of cars in the little town.

THE HYDROLEUM SYSTEM.

THE fuel system introduced by the Hydroleum Motor Company, Ltd., has been made the subject of trials by Mr. W. Worby Beaumont, a Locomobile being used for the purpose of the tests. In one case petrol was burned with the Locomobile burner, and in the other crude Texas oil with the Hydroleum burner. The trials consisted of two runs of fifty and fifty-two miles over practically the same road, namely, to and from the twenty-third milestone beyond Godstone, on days when the roads were in an approximately similar condition of surface and through similar traffic. The main purpose of the trials was to ascertain the relative evaporation power of the same boiler with the two very different kinds of fuel. The run with the petrol burner in use was made without any noteworthy incident, the burner behaving uniformly well. On the trials with the Hydroleum burner the driver was skilled in its use, but not sufficiently so on the road to avoid occasional excess in water level and consequent wetness of steam passed to the boiler. In the evaporation tests with the car standing, similar conditions as to feed-water temperature, and feeding were observed. The records were commenced after evaporative conditions had become normal, a two-hours test then being sufficient for so very small a boiler. From the table of results we notice that with the petrol the evaporation per lb. of fuel was much greater when the car was running and the boiler in a constant state of small oscillation and vibration than when the car was standing still. When referred to the usual standard of evaporation, namely, from and at 212 degrees, the evaporation on the road trial was 15.8 lbs. of water per lb. of petroleum spirit, while, with the car standing, the corresponding equivalent evaporation was 11.5 lbs. per lb. of fuel. The figures referring to the Hydroleum burner trials show that the equivalent evaporation with the car on the road was rather more than with the petroleum spirit with the car standing, but was rather less than with the Hydroleum burner with the car standing, the equivalent evaporation per lb. of oil being 11.88 and 11.92 lbs. from and at 212 degrees, which must be considered a highly satisfactory quantitative result with so small a boiler. If the Hydroleum burner had not been extinguished four times during the run from Godstone to Willesden, a higher rate of evaporation per lb. of oil would no doubt have been obtained when running. The water evaporated per gallon of fuel was higher with the oil than with the petroleum spirit, and the quantity of water evaporated per hour and per mile covered was greater with the oil than with the petroleum spirit, again pointing to wetness of steam during the oil run. The rate of evaporation per hour with the petroleum spirit burner was much lower when the highest duty per lb. of fuel was obtained than with the higher rates of evaporation per hour. When the boiler evaporated as much per hour during the petroleum spirit trial as in the oil trial on the road, the consumption of fuel was greater than with the oil. From this it will be seen that with the smaller rate of evaporation per hour dryer steam is obtained with greater economy and used with greater economy. The cost of fuel for the two journeys was 3s. 6d. with the standard petrol burner and only 8 1/32d. when the Hydroleum system was employed—a considerable economy being thus effected.

THE City Fathers of Edinburgh have been treated to an exhibition of the advantages of the motor fire engine, Messrs. Merryweather and Sons, of London, having sent to the Scotch capital the motor fire engine which they have built for the municipal authorities of Wanganui, New Zealand.

On Saturday evening Mr. Balfour went eastward on his 12-h.p. Napier car, calling for his cousin, Lady Gwendolen Cecil, at St. James's Church, Walthamstow, where she had been laying a foundation stone. Subsequently they drove in the direction of Tottenham on the way to Hatfield, amid the cheers of the crowd. Such excursions as this would have been impossible but for the use of the automobile.

THE COULTHARD SIX-TON STEAM LORRY.

WE are pre-eminently a commercial rather than a pleasure-seeking people, and, for this reason, perhaps, the heavier class of commercial vehicles has received keener attention in Great Britain than elsewhere. The matter has not been entirely overlooked on the Continent, but, undoubtedly, the pleasure automobile appeals more to the Continental nature; and the latter has been pushed prejudicially, perhaps, to the commercial vehicle.

The subject of the accompanying illustration is a motor-wagon built by Messrs. T. Coulthard and Company, Limited, Preston, and supplied to Messrs. Leslie and Company, Limited, contractors, of Kensington. This firm is amongst those who have been associated with the manufacture of commercial motor-vehicles since the "revival" of the industry; and with their lengthy experience, details of design and construction have been so perfected as to give practical, efficient, and durable vehicles for road service. The following description of the lorry illustrated, which is one of the largest type, gives the characteristic features of their products, the essential working parts being in

an outer shell with equal distribution of metal throughout, so minimising the risk of leaky tubes due to unequal expansion and contraction. The fire bars and ash pan are divided and hinged to allow the ashes and fire to be dropped out. The smoke box is of conical formation, making a receptacle for fuel, and the lid of the feed tube being lifted, the fuel automatically falls on to the fire. This fuel container is replenished from the bunkers at convenient times, as, for instance, when stopping. One man only is thus needed to manage the vehicle.

The power is sufficient for all ordinary purposes, but for any accidental emergencies the compound engine can be instantly converted into a double high-pressure engine with separate exhausts. Should soft ground be encountered and the wheels sink or revolve without driving, the differential gear can be locked and the two driving wheels made to act together, enabling the vehicle to better extricate itself from any difficulty.

The working pressure is 200lbs. to the square inch. Coke or coal is used for fuel, the bunkers having a capacity sufficient for a run of about thirty-five miles. The boiler is placed behind the front axle, and the fuel bunker in front. A very simple two-speed gear is provided giving normal speeds of $2\frac{1}{2}$ and 5 miles an hour, but, on average roads, 6 miles an hour can be easily maintained. The crank-shaft and the eccentrics are cut out of a



THE COULTHARD 5-6 TON STEAM LORRY.

all cases practically the same, although the superstructure or body can be made to suit requirements. Three sizes of vehicles are constructed, with a carrying capacity of two, four and six tons respectively, and, if necessary, under favourable conditions, a trailer may be used, transporting an additional one to four tons according to the size of the wagon.

The frame is of channel steel, strongly braced, and carries the whole of the machinery, but the engine and transmission gear are so attached as to render them quite insulated from any deleterious influence of torque or twisting of the frame, which is inevitably the result of uneven roads, and shifting and variation of loads. This resultant is obtained by means of a special system of spherical bearings and flexible connection difficult to explain without drawings, but making it impossible for the gears to get out of mesh or alignment though the framework may be actually buckled up.

The motive power consists of a 30-h.p. compound steam engine of the link reversing pattern, running at a normal speed of 450 revs. One cover is used for the two cylinders and piston valves, this cover also acting as a receiver and "multiplier," referred to below. The steam is generated in a vertical fire-tube boiler specially designed for vehicular work and centrally fed through a tube passing from the fire box through the water space. This enables a fire door to be dispensed with and allows

solid steel billet. On one end of the shaft is a pinion engaging with a spur wheel on the counter-shaft.

On a square in the centre of this shaft slide a pair of unequal pinions, either of which may be caused to engage with corresponding gear wheels carried on the crown of the differential gear. The engine and all gearing are contained in one casing, which acts as an oil bath in which the parts constantly run. The automatic feed pump is so constructed that no grit or dirt can get at the ram, and is regulated from the driver's seat. The water on its way to the boiler passes through a coil heated by the exhaust steam, for which it acts as a muffler. After passing through the feed-water heater the exhaust steam mingle with the combustion gases and passes out of the chimney, so superheated as to render it quite invisible. An auxiliary steam pump is provided in case of accident to the main pump, having a separate delivery and check valve on the boiler.

A double-acting brake operates on the driving wheels and is equally efficient in either direction. No strain is transmitted to any parts, the re-action being on one another. The steering is effected by means of enclosed worm and wheel running in oil. The front wheels are 33 inches in diameter and the rear wheels 36 inches. The wooden wheels have cast steel artillery hubs lined with phosphor bronze bushes. The weldless tyres are 5 inches and 7 inches wide respectively, and are of steel with smooth faces.

CONTINENTAL NOTES.

By "AUTOMAN."

THE authorisation for the French section of the Paris-Madrid motor-car road race has been granted by the Government. The Spanish authorisation was given more than a month ago, so that the event is now a certainty, and will be an end-to-end race, with as little neutralised ground as possible. I well remember, on the Berlin racecourse in 1901, the Baron von Zuylen, President of the A.C.F., saying regretfully that Paris-Berlin would be the last road race, and yet Paris-Vienna is now historic. At Vienna the consensus of opinion was that the last international race with neutralised areas had

dipped his hand in the urn and produced a number for each entry. The only incident was the annulment of three numbers representing three entries which were not regular, and the arrival of a cablegram from America which added three numbers at the end of the list. Last week's issue gave the British entries, now made complete by the inclusion of Lt. Mansfield Smith-Cumming, who will drive a 50-h.p. Wolseley car.

The race begins with a car, and properly ends (so far as this series is concerned) with a motor-cycle. De Dietrich is in luck, for not only has he won the No. 1, but he has two cars in the first five. Panhard, with twelve cars entered, has, it is true, No. 2, but has only one car in the first thirty-seven. Mercedes' first car



THE STARTING POINT.



THE 6 1/2-H.P. PEUGEOT CAR. THE WINNER OF THE LIGHT CAR CLASS.



MEASURING THE CONSUMPTION OF THE 8-H.P. HERALD CAR.



FILLING UP THE PETROL TANKS.

THE CONSUMPTION CRITERION.

been run, and yet we are now in full swing organising for Paris-Madrid and Paris-Rome is looming into view for 1904.

Two hundred and thirty-two entries for the Paris-Madrid race were registered at the A.C.F. when the first list closed, and on the following day the ballot for places took place in the library of the club, when an animated assembly of chauffeurs waited patiently or impatiently, as the case may be, the good or bad luck provided for them. The numbers were placed in an urn, and Monsieur Hoemelle, the Secretary of the Racing Committee, read out the names of the entries in their order, whilst Monsieur Chaix

starts No. 14, and the whole six Mercedes cars are in the first eighty-six starters. Out of ten entries, Renault Freres have No. 3, but, on the other hand, only three cars in the first 112. The first Mors starts No. 7, but out of ten entries only five are in the first 168. Hotchkiss has No. 12. Darracq, Serpollet, and C. G. V. have bad luck, and none of them have a car in the first forty-six. Darracq's first starts No. 47, C. G. V., No. 53, and Serpollet No. 90. The Englishmen have drawn the following numbers: Kirk, 17; Smith-Cumming, 22; Arnott, 84; Edge, 89; Mayhew, 138; Jarrott, 176; the Wolseley Company, 214; Hutton, 216; and Holder, 227. There are two motor-cycles in

the first thirty starters, the first of them having the No. 6. There is an old saying that "everyone must eat his peck of dust," but it is safe to say that if the weather is dry No. 6 will eat a considerable extra quantity of dust and more than his share before the big cars have done passing him. Out of 232 entries there are 98 heavy cars, entrance fee £16=£1,568; 58 light cars, ditto £12=£696; 36 voituresses, ditto £8=£288; 40 motor-cycles, ditto £2=£80—making a total entry fee of £2,632. The 232 cars are worth from £250,000 to £300,000, which is a large sum of money to have racing within a few hours' distance across France and Spain.

THE following are the principal conditions for running a car in the tourist section of the Paris-Madrid competition. Each car must be driven or accompanied by a member of one of the affiliated clubs, in whose name the car must be entered. The entrance fee of 200 francs, £8, must be paid before April 30th, either to the A.C.F., 6, Place de la Concorde, Paris, or to the R.A.C. d'Espagne, No. 1, Calle del Duque de Rivas at Madrid, and the entrance fee will be retained for the expenses of organising the tour, whether the car runs or not. The excursion will last six days, commencing at Paris May 14th, and ending at Madrid May 20th. Diplomas and medals will be given to all who complete the journey according to the regulations laid down. An excursion to Andalusia will be organised after the racing cars arrive in Madrid.

THE "Criterium de Consommation" organised by the *Auto* took place on the 19th inst., over a course of 100 kilometres, commencing at the Waterworks and ending at the Chalets du Cycle. Fifty-six cars were entered, and forty started, out of which thirty-eight completed the distance in the stipulated time. The weather in the morning was rather chilly, but in the afternoon the sun shone and the temperature was springlike. The success of the competition goes principally to Peugeot, whose lorry won the general classification per kilometric ton. He also won the light car category, and had four cars in the first nine vehicles in the kilometric ton general classification, which is a remarkable result. In the 650-1,000 kilog. category Messrs. Chenard and Walcker fully sustained the reputation they gained last year, and came out first, third, and seventh with three cars, Bardon being second and fourth. De Dion-Bouton won the voituress section with a 6-h.p. Populaire. The economic results show a considerable progress in comparison with last year, and this in every category without exception. From some statistics that have been prepared since the trial I take the following figures:—

Consumption in litres per kilometric ton.

	Voituresses.	Light cars.	Heavy cars.	Delivery wagons carrying more than one ton.
1901	0.171	0.136	0.113	0.096
1902	0.105	0.084	0.059	0.070
1903	0.0733	0.053	0.054	0.048

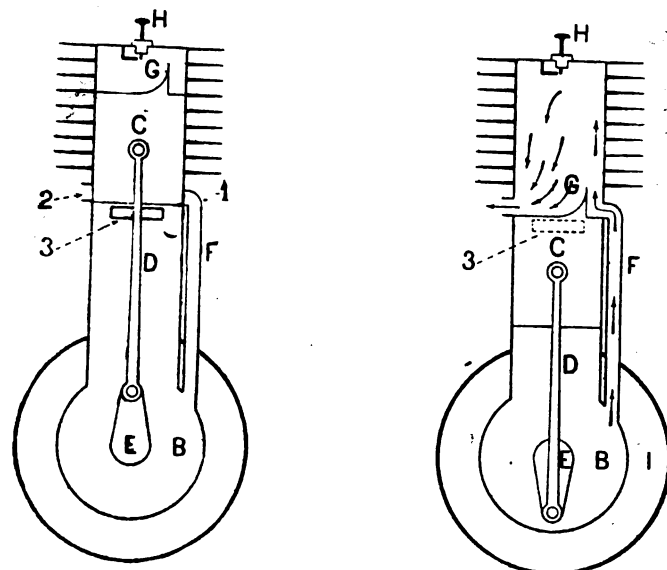
A glance at the figures above will show how little difference there is in efficiency between the different classes—if anything, as the cars get heavier the consumption is reduced. This trial, although it does not attract much attention, is certainly one of the most interesting of the year, for it affects most directly the user who does not require speed at the sacrifice of economy.

VISITORS to Paris in the late winter or early spring will remember the processions and carnivals which take place on Shrove Tuesday and on Mi-careme, or mid-Lent day. The boulevards on these occasions are crowded with sightseers and confetti throwers, and by evening there is a carpet of multi-coloured paper discs several inches deep. At the Mi-careme the Queen of Queens, in the shape of the prettiest washerwoman, is drawn round the city on a triumphal car, surrounded by her ladies-in-waiting. She calls on the President of the Republic, who even embraces her and gives her a present. The royal car and two others following it are this year to be automobile wagons, and four or five voituresses suitably decorated will also be in the pro-

cession, and the committees, who usually follow the procession in landaus, will this year be accommodated with motor-cars; in fact, the whole affair will be up-to-date, and it will be the first time on record that the new locomotion has "knocked the old horse out" for a French public fete.

NICE week is shorn of its important road race, and the following will be the programme:—March 26th, arrival of the caravan Paris-Nice at Pioula, where it will be met and there will be an evening fete; March 27th, entry into Nice of the caravan; March 28, brake tests; March 29th, automobile battle of flowers; March 30th and 31st, trials of endurance and efficiency of transmission; April 1st, hill-climbing trial at La Turbie; April 2nd, competition for appearance at Monte Carlo; April 3rd and 4th, exhibition; April 5th, kilometre and mile races; April 6th, De Caters Cup (one kilometre up hill).

In the basement, at the recent Salon I came across a novel motor for bicycles, which is at once simple and practical. It is called the G. V. after the inventor, whose name is Geyey. It has no valves, or rather the valves are replaced by openings in the cylinder which are closed by the piston itself. The crank chamber B is hermetically closed, but has a passage leading to the cylinder. The latter has therefore three different openings,



FIGS. 1 & 2.—SECTION VIEWS OF "G.V." TWO-CYCLE PETROL MOTOR.

namely, one which leads to the crank chamber (1), one which leads to the exhaust box (2), and one which leads to the carburettor (3). The first two orifices are opposite each other and on a higher level than the third. The piston block has on its upper surface a flange or projection on the same side as the orifice communicating with the crank chamber. Supposing the piston to be in its lowest position and that we turn the crank, as the piston rises it causes a vacuum in the crank chamber and draws in gas from the orifice which leads to the carburettor, and which becomes free when the piston passes above it, the exhaust orifice being closed by the piston. When the latter descends it compresses the gases in the crank chamber, but when the piston reaches the lowest part of its stroke the orifice of the pipe communicating between the crank chamber and the cylinder becomes free, and the gases rush into the cylinder, and, being guided by the projection on the piston, rise in the cylinder on the opposite side to the exhaust and thus force the exhaust gases of the last explosion out of the exhaust orifice. The piston next rises again, closing the exhaust and the orifice communicating with the crank chamber and re-compressing the gases, which, of course, are ignited by means of the sparking plug when the piston again reaches the end of its upward stroke. This ingenious little motor appears to work exceedingly well.

THE MALLINSON PETROL MOTOR.

MESSRS. MALLINSON, BROS., LIMITED, of Hipperholme (Yorks), are putting on the market a new petrol motor, which embraces several novel features. On reference to the illustrations, it will be seen from Fig. 2, showing the cover removed from the front of the crank case, that the half-speed shaft is driven by spiral cut gear wheels, and is placed across the front of the motor, the pump, contact breaker, governor, and cams being thus conveniently situated for adjustment. The exhaust cams act upon rollers, the latter revolving freely upon studs placed at the ends of levers secured to two shafts, one within the other. To each is attached a short lever, which lifts the valve-spindle. The speed of the motor is controlled by a governor, arranged to cut off the supply from the carburettor. The compression space in the cylinder head is so arranged that the exhaust discharge leaves the cylinder in a line with the path of the piston, and after taking a curve horizontally, leaves the outlet at an angle of 45 degrees. The cold ingoing charge passes over the head of the exhaust valve,

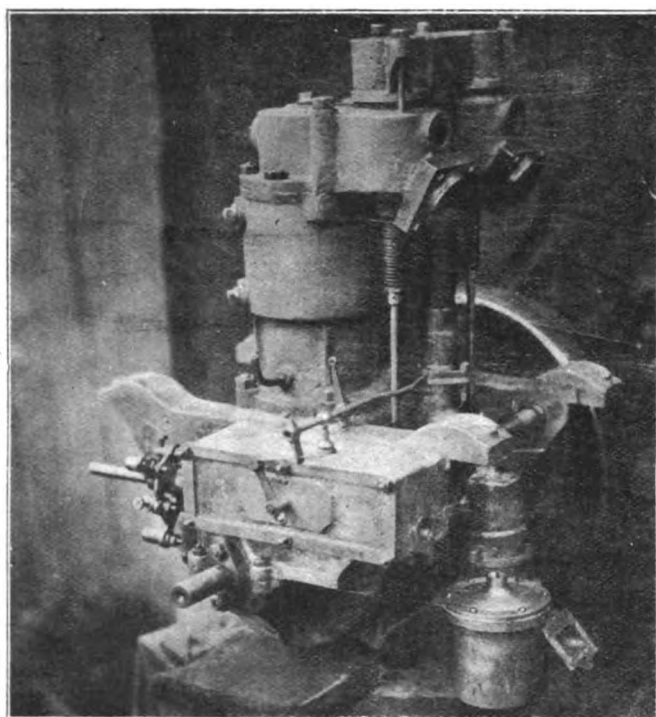


FIG. 1.—GENERAL VIEW OF MALLINSON MOTOR.

which cools it considerably. The sparking plug is placed midway in the compression space, so that the ignition may take place in both directions at once. The reciprocating parts are very light, the connecting rods being made of weldless steel tubing; the piston pins are hollow, and at the bottom of each stroke take a drop of oil from the feed-pipe, distributing the same to the opposite sides of the cylinder and the inner ends of the connecting rods. Balance weights are placed on the crank; the carburettor is of the float-feed type, and the spraying nipple is so fitted that it can easily be removed for cleaning purposes by simply loosening a screw. Messrs. Mallinson inform us that, owing to the reciprocating parts being made very light and the crank shaft being balanced, the vibration is almost imperceptible. The twin-cylinder motor illustrated is 4 in. bore and $4\frac{1}{2}$ in. stroke, and at the normal speed of 900 revolutions per minute develops 9-h.p. The weight is about 145 lbs., not including the fly-wheel, the latter weighing 80 lbs.

THE Brighton Council proposes to acquire a motor fire engine.

AN EARLY STEAM CARRIAGE.

MOST motorists are aware that seventy or eighty years ago there were quite a number of steam motor-cars running about, with more or less success, in the London district. The movement in favour of horseless vehicles was, however, "scotched," partly by adverse legislation, and particularly because of the advent of railways, which quickly attracted the attention of capitalists. We give an illustration on page 1011 of one of these old-time steam vehicles. It was built by Mr. J. Squire and Col. Maceroni in 1833, and was one of the most simple and compact to be seen at that time. It had a multitubular boiler, the joint invention of the builders, provided with a fan draught, and placed at the rear of the carriage, being driven by a horizontal two-cylinder engine, located below the body of the vehicle. On a trial from Paddington to Edgware in October, 1833, with ten persons on board, an average speed of ten miles an hour was attained. This carriage plied daily for some weeks in that year between Paddington and Edgware, and again in 1834 between Oxford Street and Edgware. Maceroni was not a man to hide his light under a bushel, and, accordingly, we find numerous accounts of the doings of his carriages in the newspapers of the time. He

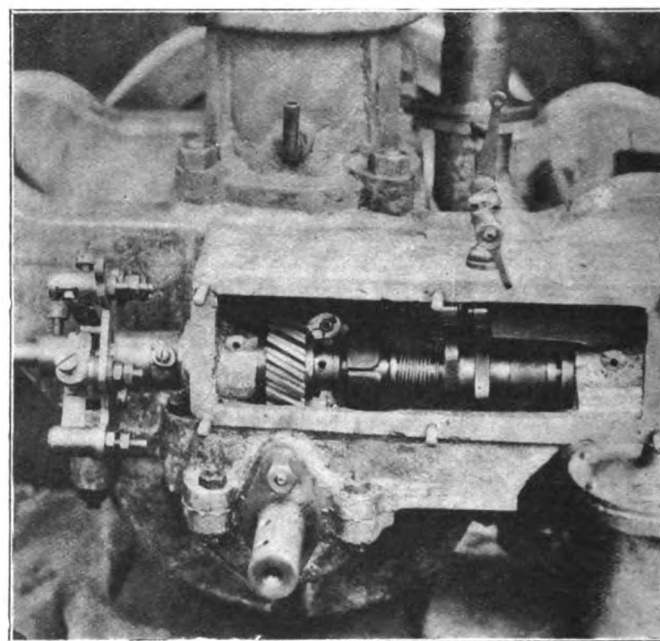


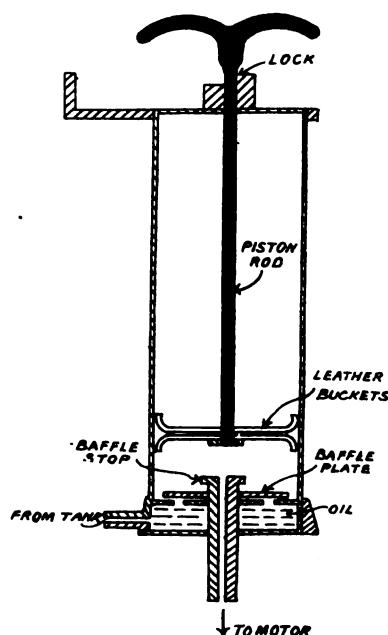
FIG. 2.—VIEW OF MALLINSON MOTOR SHOWING HALF-SPEED SHAFT.

himself wrote several pamphlets on the subject of steam locomotion. The success attained, however, does not appear to have been great, and in 1834 Squire and Maceroni dissolved partnership, after having built two carriages, which remained in the possession of Maceroni, and were soon afterwards taken abroad, one to Paris, and the other to Brussels. They attracted considerable attention in both places. Maceroni made several other attempts to embark upon the building of steam carriages, and as late as 1841 one of his vehicles was built by an engineer at Greenwich for the General Steam Carriage Company, but some hitch arose as to payment, and the carriage remained in the hands of the builders.

MR. T. EISENBERG, of Chicago, who has just returned from a visit to the island of Jamaica, does not hold out much hope of a large demand for motor cars from that part of the world. He made one run on a Locomobile from Kingston to Newcastle, a hard climb of twelve miles, 4,000 feet being ascended in this distance. The roads on the island are very good, although there are many curves which make very high speed impossible.

MOTOR-CYCLING NEWS.

MESSRS. J. C. MEREDITH, LIMITED, have lately introduced a new pump for the forced lubrication of motor-cycles, illustrated in section herewith. The action of the pump is as follows: On the piston being lifted the baffle plate moves upwards, allowing the oil to flow through the feed-holes into the barrel, the flow being assisted by the vacuum caused by the displacement of piston. The piston on being pushed downwards returns the baffle plate to its seat, thereby closing the feed-holes, the oil then flowing through the central hole to the crank case of the motor. At first glance, it may appear that the central hole, being



clear, will pass the air into the pump instead of taking the oil from the tank. This, however, is not so; the resistance in this small hole is sufficient to prevent the air passing through—the natural weight of the oil forces it past the baffle plate immediately the latter is lifted. On the top of the pump a lock, or what may be described as a bayonet fixing, is provided. The object of this is: First to prevent mischievous persons tampering with the pump, and secondly, to prevent the piston moving upwards without the assistance of the operator. All that is necessary in order to lock the pump is to give the handle a quarter-turn either way.

MR. W. M. JENKINS holds the South African motor-cycling record, his time for the mile being 1 min. 36 3-5 seconds, on a 2½-h.p. Holley motor-bicycle, which is now in the possession of Mr. H. L. Jenkins. Messrs. Jenkins are the managers of Messrs. Garlick's Motor Supply at Cape Town.

THE Motor Cycling Club have decided to open the 1903 season with a run to Brighton on Saturday, the 7th prox., the destination being the Ship Hotel, where a dinner will be followed by a paper on Motor-cycle Touring and a musical programme. The starting-point will be Purley Corner at 3.30 p.m., the signal being given by the captain. A short halt will be made at Crawley en route. A few members will leave Hyde Park Corner at 2.15 p.m.

THE new catalogue of the "Coventry Eagle" motor-bicycle calls attention to the fact that the makers are now, with a single exception, fitting the engine in a vertical position. Particulars are also given of the Coventry Eagle Company's trailers, which can be detached, when necessary, in a few seconds.

As we briefly mentioned last week, the inaugural dinner of the Motor-Cycle Union has been held at Dublin, about one

hundred gentlemen taking part in the event, the speakers including Messrs. M. D. Bodkin, K.C., W. R. MacTaggart, F. W. Peare, of Waterford, and R. J. Meccredy. Mr. Shimmins proposed the toast of the evening, and in responding Dr. Lane-Joynt said that as a motorist he thoroughly realised the work of the movement in Ireland, and the benefits that would accrue to the country from it. Mr. J. W. Percy announced that the membership in Dublin had reached eighty, and that there were more than fifty members in the Ulster section.

MESSRS. RICHARD LLOYD AND COMPANY, of the Standard Belting Works, Birmingham, have just introduced a new motor-cycle driving belt which they have named the "Motorite." The leather from which the belt is made is specially selected to stand a great tensile strain, and is also dressed so as to withstand bad weather. It is of V-section, the sides being at an angle of 28 degrees to the vertical; it consists of three layers of leather cemented and sewn together with copper wire. The cement which is used to join the layers is unaffected by wet.

A MEETING of motor-cycle traders will be held at 4 p.m. on Wednesday next at Anderton's Hotel, Fleet Street, London, E.C. It is suggested that the association now being formed be called the Motor-Cycle Trades Association, Limited (limited by guarantee, and not having a capital divided into shares), and that the association should equally forward and protect the interests of all branches of the motor-cycle trade, whether directly or indirectly connected.

MR. CAMPBELL SWINTON, opened the discussion on Mr. Mervyn O'Gorman's paper (an abstract of which appears on another page) at the Automobile Club last week. He instanced the handiness of the motor-bicycle as compared with the car. Then Mr. J. Pennell advised makers to strengthen their frames, and Mr. E. H. Arnott deprecated increased weight in machines, preferring additional cylinder capacity instead of the adoption of the two-speed gear. Mr. C. A. Smith put in a word for the motor-tricycle, and a speaker, whose name did not transpire, declared strongly in favour of the chain drive. Regarded as a whole, the discussion was, however, somewhat disappointing.

MR. ARTHUR CANDLER writes in "Chambers's Journal" almost as enthusiastically as does Mr. M. O'Gorman on the virtues of the motor-bicycle. He has kept a record of his expenses with a Quadrant machine that has run 4,000 miles. A gallon of petrol will take him 200 miles, the electricity costs 6d. for 800 miles, and the lubricating oil 1s. for 1,000 miles. Thus he estimates the cost of running the latter distance at just over 6s., or about 14 miles for a penny. Mr. O'Gorman got to Oxford for 4½d.

AMONG the new details found on the "Bat" motor-bicycle is the belt fastener illustrated herewith. It has been specially designed



The spring arch, showing the niches which secure it to the plate.

The Fastener complete.

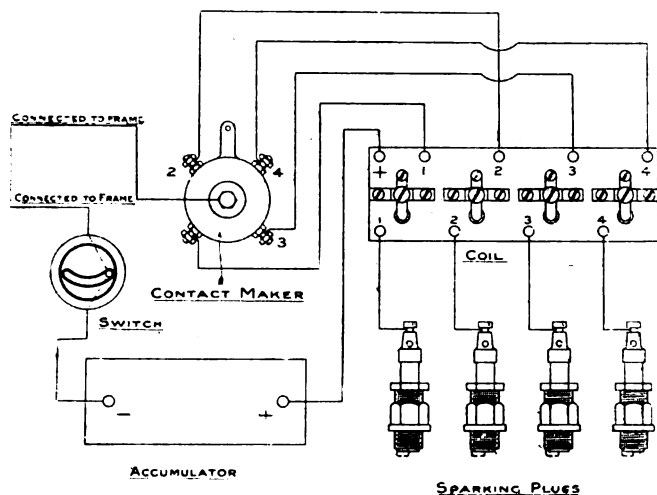
to obviate the possibility of belt breakages. With this fastener, the makers claim that riders may rely on the belt withstanding the heaviest strain that is imposed upon it.

THE London County Council, having recognised the inconvenience to London traffic caused by the streets being up, are now making it a condition in connection with the tenders for the paving of Waterloo Bridge that the whole of the work must be finished within a fortnight. A bonus for completion in less than this time will also be given.

SOME USEFUL NOTES.

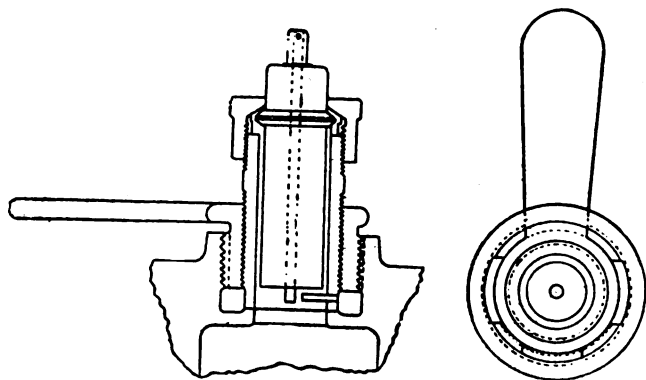
BE sure that the "kit of tools" is complete before you start out for a long journey. If you are not systematic in this regard it is possible that the very thing you need the most has been left at home.

THE accompanying diagram, which is reproduced from the new catalogue of the Brush Motor-Car, may prove useful to those owning four-cylinder petrol cars. It shows the method of connecting up the wires on those vehicles in which the accu-



mulator and induction coil system of ignition is adopted, the contact breaker being of the usual make and break kind, and the tremblers fitted on the coil.

ONE of the features of the new "Columbia" petrol cars is the hand removable valves and sparking plugs. No wrench or tool of any kind is needed to enable the motorist to instantly take out the valves or any of the sparking plugs, examine, clean and return them. The accompanying illustrations, taken from the "Motor World," show the construction of the sparking plug,



which is operated as follows:—Holding the plug in the hand with the wrench arm in a vertical position, insert the threaded end of the plug into the hole in the cylinder provided to receive it, until the shoulder of the plug is fairly against the shoulder in the cylinder. Then turn the wrench arm to the right (which will engage the threads of the plug with those in the cylinder casting), continuing the motion of the wrench arm to the right until the plug is as tight as it would be if screwed up by means of the ordinary thread. The idea of cutting away the thread on the plug and in the cylinder is to simply provide a means by which the plug may be inserted until the shoulders engage by a forward motion of the hand and tighten in place by a rotary motion, which, in any case, will not exceed 50 or 55 degrees.

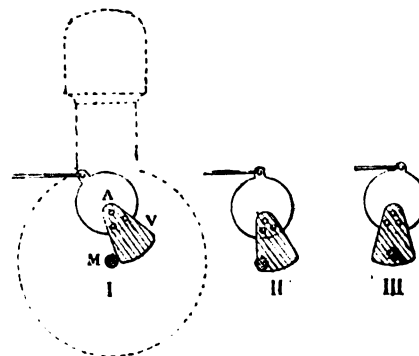
WHEN a sparking-plug is being placed in its socket the points are very liable to be knocked out of adjustment by accidental contact with the cylinder-wall, especially when the operation is being performed at night. The resulting misfires, or the entire refusal of the motor to start, often seem quite inexplicable.

THE steel rim of wire wheels and the iron rim of artillery wheels is very liable to rust. This, when it occurs at the spot where the tyre grips the rim, exerts a deleterious effect on the rubber. Tyres should be removed at least once a year and the edges of the rims coated with enamel after being freed from all traces of rust.

THE intending purchaser of a car should always make a point of seeing that the steering pillar, if not adjustable, is of suitable height, as subsequent alteration may mean considerable expense and annoyance.

THE carburettor should be periodically removed (about every 750 miles), dried, and carefully washed out with *fresh* petrol. In this way particles of dirt and any water which may be present are got rid of, and the chances of trouble on the road lessened.

A FRENCH motorist, M. Paul Debeauve, has devised a simple means by which to prevent the blows due to back-firing, which are often so great at the starting of a petrol motor, when the ignition handle has inadvertently not been drawn back. The device consists of a metal "shutter" V riveted to the contact-breaker cover A. The shutter is so arranged that when the sparking is advanced it falls, as shown at III., in front of the engine shaft on which the starting handle is placed. Thus the motorist, not being able to fix the crank in order to start, at once perceives what is the obstacle, and hastens to remedy the same by retarding the ignition. The shutter can be placed in such a manner that



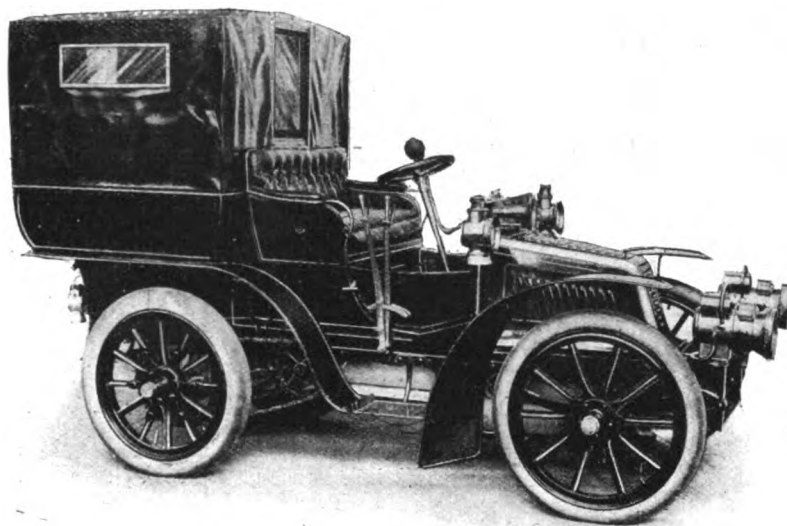
even with only a slight advance of ignition it prevents the starting of the motor (see drawing II.). If, on the contrary, it is known that the motor will only start except with a slight advance given to the ignition, the shutter can be fixed in such a manner that it will only obstruct the handle if the ignition is set at a point in excess of the requisite position. The device, remarks M. Baudry de Saunier in "La Locomotion," cannot be applied in all cases; it can, however, with a little ingenuity, be adapted to the majority of petrol engines.

WHEN a large cut is found in a tyre cover, an early opportunity should be seized for effecting its repair, as the penetration of wet will rot the internal canvas fabric and prepare the way for a subsequent burst. The cut may be repaired from the outside by first carefully cleaning it out with petrol, and then inserting some self-vulcanising solution which may be bought for the purpose.

MR. HARRISON BENN presided over the last meeting of the Yorkshire Automobile Club, when Mr. H. A. Jones, of Bradford, gave a lecture on "Electricity as Applied to Motor-cars."

HERE AND THERE.

THE fire brigade authorities of Nurembourg, Germany, are at present making some experiments with an electrical fire-service wagon.



THE MAUDSLAY 20-H.P. LONSDALE WAGONETTE.
(See issue February 7th, page 942.)

To suit the purposes of the Royal Irish Constabulary, it may be necessary to arrange for the Gordon Bennett race being run a few days earlier than July 9th.

A MOVEMENT is on foot to inaugurate automobile racing on an extensive scale at Charter Oak Park, Hartford, Conn., and Oakley Park, Cincinnati, Ohio, U.S.A., during the coming season.

MESSRS. CAMMELL AND COMPANY, Sheffield, are reported to have purchased the business of Messrs. Mulliner, Wigley, and Company, Coventry and Birmingham, manufacturers of gun mountings, carriages, and motor-car bodies.

DURRANT'S MOTORS, LIMITED, has been registered, with a capital of £5,000, to acquire the benefit, for the British Isles, of an invention of Mr. A. Durrant relating to improvements in gas and oil engines and explosive motors generally; and to carry on the business of motor manufacturers, engineers, launch builders, machinery agents, etc.

SOMEWHAT as a surprise comes the news that the American National Association of Automobile Manufacturers has disapproved of the trial of commercial vehicles which the Automobile Club of America proposes to hold in the spring. The reasons for this decision of the Association are difficult to discover, especially seeing that a number of the members of the Committee which adopted the decision are representatives of firms which a short time ago were reported to have indorsed the plan of holding the trials.

WHAT will happen when the etheric waves transmitting power to motors meet or cross the waves of Marconi telegrams is a question which is suggested by the discovery of Mr. Thomas H. Williams, A.M.I.C.E., by which, he asserts, he can transmit power through space in such a way that it can be picked up by a collector attached to a motor-car and actuate the motor, thus dispensing with wires and accumulators. The inventor believes that further investigation will show that it is possible to run not only motor-cars on the roads by this means, but even an express train. The power would be supplied by a series of generating stations at convenient intervals, one, two, or three hundred miles apart. It might even be possible to apply a kind of penny-in-the-slot system to supply the power to motor-cars.

THE French Automobile Club has dropped the proposal to hold a competition of electric batteries this year.

THE Avignon Automobile Club will hold its annual hill-climbing competition up Mont Ventoux, France, early in July next.

UNDER the new Customs tariff a duty of 10 per cent. *ad valorem* will be imposed on all motor-cars and parts imported into Persia.

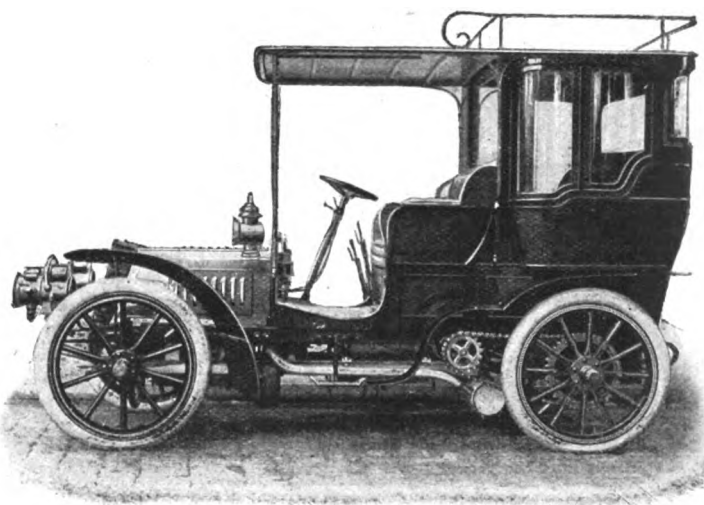
THE Fischer Motor Vehicle Syndicate has several omnibuses under construction for the London General Omnibus and the London Road Car Companies.

THE Earl of Mayo intends questioning the Government in the House of Lords (in view of the increasing number of small steam boilers in use in motor vehicles) as to what system of inspection is adopted with regard to these boilers.

LORD WOLVERTON'S motor-car recently made the first successful trip between Poona and Mahabaleshwar, India. The distance is seventy-six miles. It is reported that at Mahabaleshwar the police had to place a fence round the car to keep off the crowds of natives flocking to see it.

AT the Casino in Paris is being played a sketch in which amusement is derived from the present attitude of the police towards motorists. One of the songs is sung by a policeman, who describes the process of catching motorists who exceed the legal limit. Ambushed in a pleasant, leafy nook by the side of the road, he varies his communings with nature by jotting down the numbers of the cars which pass, and adds an element of chance by selecting at random from his list the motorists against whom he will formulate charges. The villain of the piece accuses the father and mother of the heroine of having travelled at eight miles an hour in the Bois. They are accordingly arrested, and are threatened with ten years' imprisonment.

MR. YERKES, as well as the Royal Commission, is considering the traffic of London, and has come to the conclusion that he will be able by his tramway schemes to carry passengers in the metropolis for 2d. for any distance. In this connection it is interesting to learn from Mr. Atherley Jones, M.P., that there are 1,305 miles of tramways open in this country; and we might add most of them possess rails which are a menace and danger to the motorist.

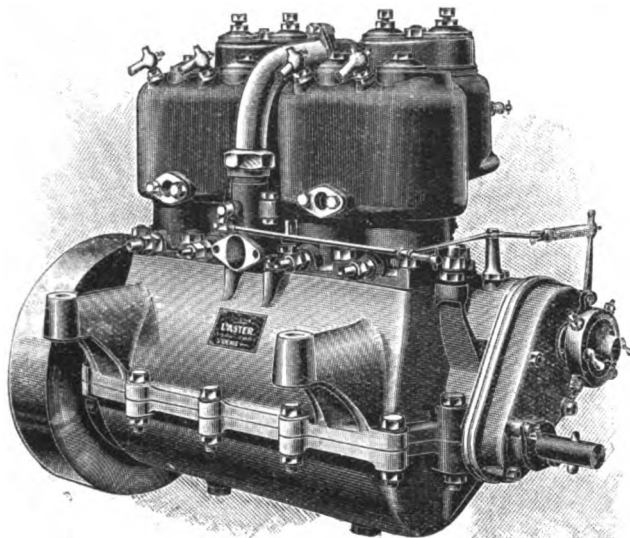


THE BRUSH 16-H.P. LIMOUSINE. (See issue February 14th, page 963.)

A COMPANY has just been formed in Brussels, with a capital of £16,000, to be known as La Compagnie Internationale d'Automobiles. Baron Pierre de Crawhez, M. P. de Crawhez, M. A. Gregoire, and M. E. Coppée, all well-known Belgian motorists, are interested in the new undertaking.

A MOTOR-CAR exhibition is to be held at Frankfort-am-Main from the 18th to the 28th June next.

FOR the 1903 season, the Aster Company have introduced a two and four cylinder slow-running engine developing 12 and 16-h.p. respectively. An illustration of the latter is given herewith. The Begbie Manufacturing Company inform us that the dimensions of the cylinders in the 12-h.p. engine are 105 mm. diameter



THE ASTER 16-H.P. FOUR-CYLINDER MOTOR.

by 130 mm. stroke and of the 14-h.p. 88 mm. by 110 mm., the normal speed of both being 1,000 revolutions. The cylinders are cast in one with the combustion chamber, while the water jacket extends well round the valve chests. The governor is enclosed; it is of the centrifugal type and acts on a valve in the admission pipe just above the carburettor.

A COMPANY has been formed to establish an automobile racing track at Paris-Plage, a popular seaside resort near Boulogne.

THE Board of Trade has now given petroleum spirit a separate heading in its monthly returns, which show that during last month such imports attained a total of 688,240 gallons.

MR. FRANK MORRISS, of King's Lynn, received a somewhat unusual order the other day, viz., to convey a corpse by motor-car from an asylum at Norwich to the village of Hilgay Fen, near Downham Market.

THE growing interest of the public in automobiles is well shown by the fact that the educational department of the Minneapolis Y.M.C.A. has prepared a course of sixteen lectures on petrol motors and motor-cars.

THE Right Rev. Francis Mostyn, Roman Catholic Vicar Apostolic of Wales, has caused a mild sensation in the locality by motoring to the Church of Our Lady of Grace and St. Edward, Chiswick.

OWING to the skidding of a motor-car a fatal accident has occurred at Congresbury (Somerset), a driver named Albert Frank dying from injuries received in being thrown from the vehicle. A verdict of "Accidental death" was returned by the coroner's jury.

"AN AMATEUR ANGLER" is a versatile old gentleman who has written with equal felicity on copyright and bookselling. Now he turns guide, and in "Dove Dale Revisited"—just published by Messrs. Sampson Low, Marston and Company, Limited, tells of holidays spent in regions where old Izaak Walton was wont to go a-fishing. Chapters are also included dealing with the Vale of the White Horse, Berkshire; the Wye in Herefordshire, the Lea, and fishing in the Isle of Wight. Chatterily and pleasantly written, the interest of the book is enhanced by several photographs.

THE Wasp Motor and Cycle Company, Limited, has been registered with a capital of £1,000 in £1 shares.

THE Dordogne Automobile Club is organising a hill-climbing competition, to be held at Perigueux, France, on June 1st next.

THE German Automobile Union is appealing to the Government to make a monetary grant for the establishment of an automobile museum to illustrate the development of the industry.

THE German Secretary of State of the Interior has announced that a Bill providing for uniform automobile traffic regulations throughout the whole of Germany is in course of preparation.

THE Spanish Government has issued a note to the municipal authorities of the towns between Irun and Madrid, asking them, in view of the forthcoming Paris-Madrid race, to see that the roads under their control are kept in good order.

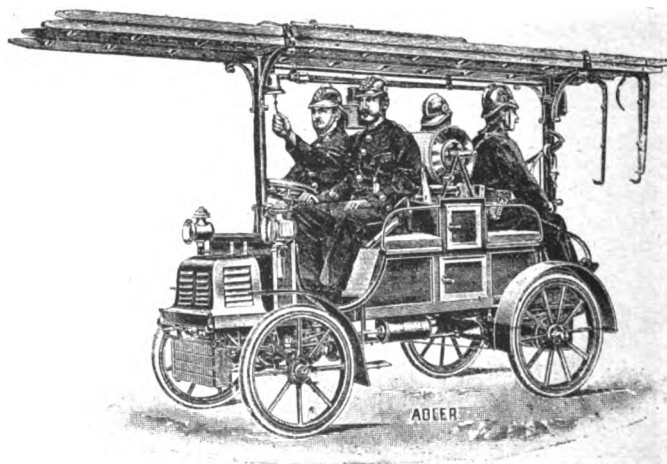
MR. M. BLAKELY has secured the lease of the premises in Otago Street, off Great Western Road, Glasgow, at present occupied by a firm of horse-hirers, which he proposes to convert into a motor-car garage and repairing works.

THE Ilford Motor-Car and Cycle Company, Limited, has been registered, with a capital of £2,000 in £1 shares, to acquire and carry on the business now carried on by Messrs. F. G. Galley and G. T. Galley under the style of the Ilford Motor-Car and Cycle Company at 12, Market Parade, Ilford.

DOGS are becoming familiar objects on motor cars, and their noisy interest in automobiles is well-known to motorists. Hence the interest which attaches to such a book as the "Dog Owners' Annual for 1903," published by Messrs. Dean and Son, Ltd., and containing readable and useful articles by Dr. Gordon Stables and other authorities on the subject.

AFTER repeated rumours to the effect that Columbia University, N.Y., is to have an automobile course have been circulated and denied, it is now officially admitted that such a course is to be introduced in the near future. It will be designated as that of "Traction Engines and Automobile Carriages," and will consist of three lectures a week delivered by Professor Frederick R. Hutton, Dean of the School of Applied Science. The lectures will deal with rolling stock, self-propelling road engines, railway engines and automobiles of all kinds.

THE Adler Fahrradwerke Gesellschaft (Kleyer), of Frankfort-am-Main, Germany, which is now devoting considerable attention to motor-cars, has lately completed the motor service vehicle for the use of fire brigades illustrated herewith. So far as



the chassis is concerned it follows the lines of the Adler cars; it is, however, fitted with a special body to carry four firemen, scaling ladders, and other fire-extinguishing appliances, including a reel carrying 130 ft. of hose. The vehicle can attain a speed of 20 miles an hour on good roads.

AUTOMOBILES AND INDUSTRY.

AUTOMOBILISM is so frequently regarded wholly from the sportsman's point of view, or as a means of rapid locomotion, that its influence on industry is rarely recognised and never acknowledged. And yet it promises to develop a wholly new trade, without—for quite a number of years, at any rate—depreciating any other business or industry.

The way in which the cycle manufacturers are interesting themselves in motor-car work shows that they, at any rate, expect it to become an important adjunct to a trade that stood long in need of a fillip. In America the coach and carriage building industries are watching its progress with keenness and actively participating in the development. All over Europe engineers

In its effect on the aspect of cities and towns it is also likely to make its influence strongly felt. The extended use of the automobile will secure the improvement of our roads—an improvement highly desirable in many countries, notably Ireland and the United States—and so lead to a more scientific consideration of our highways than has ever seemed warranted in the past. The practice or art of road-making is generally a neglected one; often a haphazard performance indeed, and one that apparently leads to endless and extravagant repairs. With the advent of the motor-car and the general adoption of pneumatic tyres there will have to be developed a method of road construction which does not cause punctures and secures a fairly even road surface.

Against these three great advantages to industry—in developing a new outlet for capital, in effecting economies, and in causing great improvements in our roads—there seem to be no



THE MOTOR-CAR IN EGYPT.

The above is a reproduction of the handsome and interesting coloured poster lately issued by Messrs. Beissbarth Bros., Munich.

are experimenting and capital is flowing into the industry associated with automobilism. These are tangible proofs that there is commercial worth in the new movement and that it will enrich the industrial world to no small degree.

In addition to opening up a new sphere of enterprise, the automobile is capable of serving other industries in such a way as to be of real financial value. The great aim of business men nowadays is to ascertain means of economy. This is almost as important as fresh sources of business in some trades. Here the automobile will be of great use in effecting rapidity of delivery and so saving much time now wasted. In addition to that it will obviate the necessity for keeping many horses in large establishments and generally allow of the conveyance of goods at a cheaper and more expeditious rate than is now possible.

arguments of any very telling kind. The general employment of the motor-car would secure a cleanliness in our streets wholly unassociated with horse locomotion; it would tend to gradually reduce the number of stables in crowded localities, a desideratum greatly to be desired in the interests of sanitation; and would, when they were once well laid, contribute to the longer life of our common roads. For the present, horse-drawn traffic is most destructive of all ordinary road surfaces. Not only the wear of the wheels but the continual tramping and stamping of horses' hoofs is a very destructive quantity.

Fortunately the prejudice with which the automobile movement was assailed in its early days is passing away, and within the next decade great things will be done in the motor-car world.

MOTOR-BICYCLES.*

My experience is that as delivered by the maker the machine runs, but not for ever. You must first pass through the overhauling stage or trouble era. This "trouble stage" either makes or mars the machine; in fact, if you remedy every fault in such a way that it cannot recur, it *doesn't* recur, and after 500 miles you have almost doubled the original value of the machine, and thereafter it will never seriously delay you. Having got the motor-bicycle in order, here are its advantages:—(i.) Above all, exquisite simplicity. (ii.) Next in importance is safety. (iii.) Thirdly, there is the question of hill-climbing and speed. Barring breakdowns, the best motor-bicycle may make a better average speed than a car up to five times its price. It is largely due to the easy choice of the best track on the road, whether for surface or for the avoidance of other traffic. It is also ascribable to the ease of tyre repair. (iv.) It is unrivalled in cheapness in every department. It is cheapest to buy. It is cheapest in petrol and oil (Mr. A. Campbell-Swinton and I ran to Oxford on 4½d. each). It is cheapest to house and costs little to clean; it requires no *chauffeur*. Is it not the motor for the man of minute means? (v.) For a given speed it raises less dust than any other "car." Let us consider why this engaging "younger brother" of the motor-car deserves the most earnest and studied encouragement from all motorists, and pre-eminently from the Automobile Club and affiliated bodies:—(i.) It increases the places where petrol and oil are stored. (ii.) It increases the number of people who understand the explosion engine. (iii.) It increases the number of fast travellers on the road, and gives the weight of numbers to the whole automobile movement, and removes from the sport the absurd criticism of "rich men's juggernauts." (iv.) It increases the chance of road improvement, and affords an opportunity for the study of tyres and new devices which may be cheaply tried on a small scale first. (v.) It is a direct feeder to the membership of the Automobile Club, the Road Improvement Association, and the C.T.C.

These generalisations are dull, but I will conclude them by epitomising the drawbacks of the motor-bicycle to avoid being too partial:—(a) The rider is exposed to cold and mud, being only 6 in. off the road; (b) It is a lonely pastime; (c) The machine is punished for its accessibility by being exposed to wet and to blows; (d) The rider is not in an armchair; (e) He must dismount if stopped by traffic, and his machine will not stand (as they say in Ireland) when standing; (f) His carriage is so small and delicate that he is bullied by larger vehicles; (g) He must make violent bodily efforts to start his machine; (h) Skidding means bodily injury; (i) His weight of baggage is very restricted; (j) His position is fatiguing; (k) His mount is not compatible with the town clothes required for calling on friends; (l) Breakdowns are more frequent than on good cars; (m) The motor is not protected from road shocks by springs; (n) The good running of the motor cannot be tested except when the rider is on it; (o) The exposed position of his calves makes him particularly attractive to large dogs.

I want to accentuate a point which is too much overlooked in most road vehicle design—the extreme importance of surface smoothness, of the absence of unnecessary roughness, projections, straps, clamping pieces, mouldings, levers, ornaments, &c. Owing to the independent manufacture of accessories, almost every detail is an accessory, and seems to be added as an afterthought, so that numberless dust-catching straps, buckles, bolts, and holdfasts, Bowden wires, clamps, exposed electric wires, and petrol pipes pervade every part of the frame, and the machine is consequently uncleanable. Cycle makers are complacent about the nickel-plated glamour which these things give, but nickel plating, which will stand a month in the rain without rust peeping through, is apparently not sought for, and this glamour does not long remain.

I have skidded so little that I am scarcely competent to indicate the best way to do it. It is generally known that an exhaust valve lifter is indispensable in this connection; but a very delicate carburettor which does not fail to give mild explosions when the throttle is nearly closed, and which in conjunction with mechanical valves will keep the engine running "dead slow," is a useful safeguard against skidding. The next safeguard is a flexible drive. Advantage in this direction will be derived from fly-wheels being much larger without being heavier. The jerks will be diminished, and as it is the beginning of a slip that must be avoided, every trifle counts. Also, if these larger fly-wheels were to rotate in the opposite direction to the road wheels (like the Enfield), then gyrostatic action would assist the rider in keeping vertical instead of acting in the opposite sense, as they do now. The gyrostatic action would not even then diminish the amount of side pressure on the ground, but it would diminish the amount of slope of the bicycle, and I know from good cyclists that a slip in which the rider and both his wheels take part unanimously is not so disconcerting as one over which they are divided.

A stand is indispensable. Misfires on the road cannot be properly diagnosed without it. To watch the machine running and to attempt to hunt for a fault in the carburettor, induction valve spring, ignition wires, &c., while trotting by the side of a motor-bicycle that will not start is one of the most fatiguing and aggravating exercises that I know. It is better to find some cottage and build up. Shameful as it seems to our intelligence as men, as motorists, as sportsmen, or as engineers, the motor-bicycle is abandoning its simplicity for the sake of a meretricious imitation of the car. Take the vertical engine craze (there never was any question of a horizontal engine on bicycles, mind!). It is a matter of 15 deg. slope, and people will re-design and weaken their frames to make this change. The reasons alleged are that

the valves work better vertical, and the lubrication is better, and that the weight of the piston (forsooth!!) is now removed from the side of the cylinder.

Three things are retarding the progress of motor-cycle design:—(1) There is not enough work done in the engineer's drawing office. (2) The influence of fashion is far too strong, and is only inadequately counter-balanced by cranks and "mania." (3) Ready-made accessories, however good, which must be fitted in hamper and distort the unity of design. Little fads are admirable for us all, because the faddist gives an intensity of study to some excellent detail which results in its perfection. But it is time that an unbiased engineer should mass and collate information and give us first the drawing and then the fact of a well plated 100-lb. machine with a moderately narrow tread, full width bottom bracket, strong front forks and pedal cranks, a flexible chain-drive, two speeds, a cool 3-h.p. engine—with a third bearing on it—that can take its re-start from the road wheels and be free at will, mechanical valves, replaceable parts, sound and well-protected ignition gear, spring seat and handles if not a spring frame, good brakes, a carrier incorporated in the design, and also gear cases, &c., &c. Let even the accessories be so re-designed that they fall in perfectly with the general scheme.

As a basis of discussion, I should put forward the following proposals and reasons for a scheme of competition rules:—A competition ought to be fair, sporting, and useful, e.g., the track must be lengthy enough to equalise out the luck and stiff enough to eliminate the weaklings. (1) *To be fair* there must be artificial barriers, securing similarity between the competitors. (2) *To be useful*: (a) the artificial barriers must be few, and, in my opinion, should take the shape of ruling out some objectionable feature, such as excessive weight, rather than limiting a valuable feature like cylinder capacity, though this might be limited as well. I will return to this point. (b) In making a competition useful, a number of minor improvements can be encouraged by requiring the inclusion in the design of luggage carriers, brakes, spring handles, and seats, and good silencers. A preliminary hill test should eliminate all who do not conform to some standard of climbing speed, and noiselessness:—say the machine shall at 10 m.p.h. be inaudible at 100 yards to a blindfolded man on a still day on Dashwood Hill. (g) The competition should be on an average road, including time-hills, and to be useful should allow pedalling except on the timed hills, should allow of roadside repairs if possible, because, if they are easily done they imply accessibility, and at present they occupy a very important position in the eye of the public. (3) *To be sporting* it is necessary to keep in a special class to themselves mechanical monsters, because of their effect in choking off the more useful competitors. Monsters, however, should not be discouraged entirely; they are important experiments, expensive and educational; they show a determination to win, and require some daring to drive. There should be classes, say, up to 100 lb., up to 150 lb., and over 150 lb. One form of eliminating trial which I should like to hear discussed is the following:—(i.) The competitors' numbers should be reduced to about 25 by having one only of each make or by selection of the judges, or by the hill-climb and the silencer test. They should then run 1,000 miles in eight days, keeping always between a pair of cars to control the maximum and the minimum speed, the minimum to average 11 miles per hour. (ii.) Repairs, alterations, &c., may be made *en route* by the driver only, provided he be not passed by the minimum car, he may therefore pedal, dismount, or push without loss of marks save on the two test hills, which might be Westerham and River Hills. (iii.) Refill of petrol or oil allowed only every 100 miles and measured, the inlet hole being sealed. (iv.) Special timing of two hills, with special marks for accuracy of declared horse-power, for light weight in relation to power, and hill speed, pedalling not allowed. (v.) Maximum weight allowable when loaded, —lbs., all riders' weights to be equalised, and all to have a luggage carrier to facilitate this.

I want to introduce the weight limit, because hitherto the motor-bicycle has unfortunately not been restricted by any accepted standard of desirable weight, and therefore there has been no such studied attempt to get the highest weight efficiency as has been the case with cars competing under a definite weight limit—like the Auto. Club de France, 1,000 kilogrammes. Some of the pros and cons for cylinder capacity being considered as against a weight limit are:—(a) Limiting of cylinder capacity tends to encourage increased motor speeds for given power, so does limiting the weight. (b) Both tend to the disregard of fuel economy. (c) Limiting the weight only tends to turn attention to getting the most work out of a given weight, while limiting the capacity tends to getting the best work from a given volume of cylinder, and favours a two-stroke engine very largely; for I cannot suppose the pump used by such an engine would be measured as "working cylinder," though it might add largely to the weight. Yet the advantage of a two-stroke engine is small if no weight is saved thereby. (d) Limiting the capacity fails to encourage the development of a light vehicle, which is wanted. (e) Limiting the capacity does not tend to saving in weight on the frame, and therefore to a risky type of construction. On the other side, there are always safeguards against these risks, in the fact that nothing would discredit a maker more than a reputation for breaking in half before the end of an eight-day trial.

THE "Electrical Review" has been drawing up new rules with regard to the road traffic, based upon the rule of the road at sea, and it is rather remarkable how easily the two sets of regulations can be assimilated.

* From a paper by Mr. Mervyn O'Gorman, read Feb. 20th, 1903, before the Automobile Club of Great Britain and Ireland, London.

CORRESPONDENCE.

CARS FOR MEN OF MODERATE MEANS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I think "Cautious" could obtain a car for less than £300 to do the work he mentions, and I quite agree with him that steam is the only motive power that can be used with lowest cost of upkeep. As a result of practical experience I consider the extra cost of petrol is of little moment when compared to the bill for repairs to ordinary petrol cars. New clutches, gears, etc., make a sad inroad to one's pocket, whereas the steam car is free from most of these troubles, no speed or reverse gear being used, while for simplicity of driving it is an ideal ladies' car. My experience is that only reasonable care is required to keep a steamer in order, and with ordinary care in driving, a car will last well. The best thing is to have a rubber tread put on rear tyres, preferably when new; this will add to the life of tyres. Steam, air, and water pumps, etc., are very well for people who wish to have everything automatic. If an air pump is required, have one that works from engine cross head. This will answer every purpose. Personally I am not in favour of pneumatic tyres of any kind; I consider them an endless expense as well as worry; they make night driving a terror to me, thinking every moment I shall get a puncture.—Yours truly,

W. T. W.

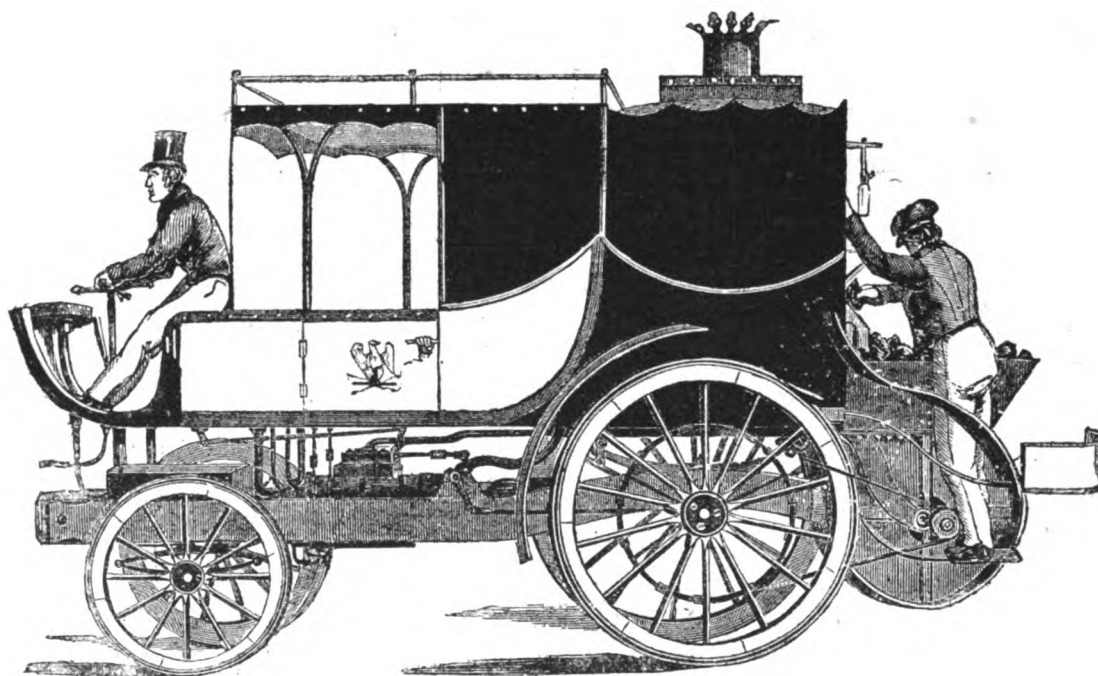
INSTRUCTING WORKPEOPLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—We were very interested in your paragraph, "Instructions to Workmen." We have had an evening class at our Glasgow works for

many guests assembled was a young lady, whose fearless horsemanship I had before remarked in the hunting field. Nothing would satisfy this gallant girl until I had promised her a ride on my trusty bike, so, notwithstanding a few unheeded protests from anxious elders and scandalised matrons, whose antiquated notions of extreme propriety were by no means in accordance with twentieth-century advance, after luncheon the brave Amazon found herself—her garments discreetly arranged by your obedient servant—safely enthroned on my reliable old 2-h.p. "Bucephalus," her feet barely touching the pedal rubbers. Whilst lecturing to an attentive gallery on the mysteries of advanced sparking, and the necessary control and true position for exhaust levers, my remarks were suddenly brought to an abrupt termination by the impatient "jockey" calmly informing me she had already learnt everything necessary, and was anxious to be off as soon as possible.

One or two welcome throbs proclaimed that mademoiselle's wishes were already gratified; the engine was in rapid motion, and away sped bike and rider like a huge swallow across the undulating park, at a pace considerably over twenty miles an hour. A faithful Strephon had already been despatched to catch with cautious care the fleeting maiden as she ascended a steep hill in the distance, for Chloe, although a good cyclist, had no notion how to descend from her perilous position on a gentleman's motor-frame, weighing 100 lbs. or thereabouts. What was our astonishment to find these precautions altogether unnecessary. The valiant rider, selecting a portion of the road that was not fifteen feet across, by opening the exhaust valve exactly at the right moment, whilst cleverly describing a circle not twelve feet in diameter, was soon observed to be safely returning at topmost speed, much to the relief of anxious friends and admiring relatives congregated on the doorstep of the Hall. The same course was traversed many times that afternoon with equal success. An hour had nearly elapsed before my bicycle was returned to me. I had made a



THE SQUIRE-MACERONI STEAM CARRIAGE, BUILT IN 1833. (See page 1004.)

some considerable time, which is greatly taken advantage of by the mechanics and the apprentices in the shop. Our experience is that it has stimulated intelligent interest in all the departments, with the result that better work is produced, and we are confident that this system, when properly organised, is worth adopting in all large motor works throughout the country.—Yours faithfully,

HOZIER ENGINEERING CO.

LADIES AND MOTOR-CYCLING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As a proof of the extreme simplicity and easy manipulation of motor-bicycles, the following incident may amuse some of your readers, as well as those of the fair sex who are interested in automobilism. I had ridden my bike to Leicester for the purpose of testing the new 2½-h.p. Clyde bicycle, which is about to be placed on the market. Its speed, power, and freedom from vibration gave me the fullest satisfaction. On my return journey I was invited to lunch with some old friends who lived in that neighbourhood. Among the

friend for life and an ardent convert of a charming girl to automobilism. Never do I remember seeing anybody more supremely happy.—Yours truly,
EDWARD KENNARD.

THE SPARKING PLUG "DISCOVERY."

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to Mr. R. Winn's letter in your last issue about the sparking plug discovery, and the special arrangement he has made and placed on the dashboard of his car so that the spark can be seen all the time, I may mention that at the Manchester Show last week Messrs. Horsfall and Bickham's 10-h.p. Horbick car was fitted up with this arrangement. Indeed, the firm went a step further, as just over the sparking apparatus a motor-watch was fitted up to enable the driver and others to see the time. The whole thing was very nicely enclosed in a box with a glass cover, and the arrangement has been well tested and found efficient.—Yours faithfully,

PERCY C. BRIGGS.

THE EXHIBITION QUESTION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Regarding the strenuous efforts now being put forth by the Society of Motor Manufacturers to induce exhibitors to participate in a ballot for space and the signing of bonds before the opening of the Exhibition at the Agricultural Hall, I would earnestly suggest to the trade (in view of the fact that the exhibitors at the Agricultural Hall will exceed by more than one hundred the number of those at the Crystal Palace), the advisability of postponing any definite action till after the conclusion of the Exhibition at the former place.

It is a matter of common knowledge that the Agricultural Hall Exhibition—the eighth of its series—promises to be most successful, and therefore in the interests of the industry and those who believe that one annual exhibition is sufficient, I would urge the trade to delay their decision in order to ascertain from exhibitors which has been the most successful show from a business, as well as from an artistic point of view.—Yours truly,

CHARLES CORDINGLEY.

DR. R. N. PICKERING would be obliged if any reader will inform him how to take the clutch in a 4½-h.p. De Dion car to pieces after the gear has been taken away, so as to get at the axle which carries the right and left hand thread for expanding and contracting the fibres in the event of it being broken or jammed.

FURIOUS DRIVING CASES.

COURT.	DEFENDANT.	ALLEGED SPEED.	RESULT.
Shoreham ...	G. Kohn, Grosvenor Sq., W.	28 m. p. h.	£10, etc.
"	Miss D. Levitt, Highbury, N.	22 m. p. h.	£5, etc.
Exeter	W. Topham, Birmingham	—	10s., etc.
Southampton	R. Gater, Swaythling	—	Dismissed.
Coventry	L. Heath, Coventry	—	40s., etc.
Forfar	A. R. French, Forfar	—	(see below).
Handsworth	*H. R. Soutter, Handsworth	35 m. p. h.	1s., etc.
Grantham ...	G. J. Thursby, Grantham	20 m. h. p.	£5, etc.

Where no alleged speed is given it is understood to be above the legal limit.
*Motor-Cycle Case.

ON Saturday, at Coventry, Len Heath, who said he was employed by the Siddeley Autocar Company, was summoned for furiously driving a motor-car in Coventry. The policeman's time was fifteen miles an hour, and defendant did not stop when going up Smithford Street towards a tramcar passing the top of the thoroughfare. Defendant's plea was that it was a French car he had, and it ran out of his control. The Chief Constable said the defence was ingenious, but defendant was doing sixteen miles an hour in a narrower street just after the Smithford Street incident. The magistrates fined him 40s. and costs.

ROBERT GATER, farmer, Swaythling, was summoned at the Southampton Borough Bench for driving a motor-car at excessive speed in High Street, Southampton, on February 5th. Chief Constable Berry said he timed defendant and found he had covered a distance of 175 yards in less than twenty seconds, the speed working out at about fifteen miles per hour. Defendant stated that he was driving at a speed less than twelve miles per hour, but, in reply to the Chief Constable, admitted that that was a matter of conjecture on his part, and his inference might prove as unreliable as the "counting." The magistrates dismissed the case.

BEFORE Sheriff Lee, a case has been called in which Alex. Ross French, dentist, Forfar, was charged with having (1) on February 10th, on the public road leading between Forfar and Kirriemuir, and at a part opposite or near a dwelling-house at Padanarm village, occupied by David Walker, shoemaker, driven a motor-car in a reckless manner while meeting and passing a flock of 327 sheep, then in charge of John Duncan Edgar, shepherd, Carsegray, whereby one sheep was killed and several others injured; and (2) with having on the same road, and at a part some distance northwards from the Zoar Hotel, driven the car in a similar manner while overtaking and passing the same flock, to the danger and injury of the sheep. Accused failed to appear, but it is understood that shortly after eleven o'clock Mr. Findlay, Sheriff-Clerk Depute, received a telegram which had been handed in at Dunblane, stating that Dr. French could not attend, as his motor-car spirit was exhausted, and that the nearest supply was at Stirling. Mr. Hart stated that there were five witnesses in connection with the case. Service of complaint was proved, and the Sheriff granted a warrant for the apprehension of accused.

CLAIM FOR DAMAGES.

At Ipswich County Court, before Judge Eardley Wilmot, Messrs. Jackson Brothers claimed of Alfred F. Garnham, motor-car proprietor, Woodbridge Road, Ipswich, £25 damages for the loss of their pony, owing

to the negligent driving of a motor-car by defendant's servant, on January 6th, at Whitton. Defendant attributed negligence to plaintiffs, and counter-claimed for £15 for damages to his car. The jury retired, and on their return the foreman said they found carelessness on the part of the driver of the motor-car, and that the driver was a servant of the defendant. They gave a verdict for £20.

THE DELIVERY OF A MOTOR-CAR.

IN the King's Bench Division of the High Court of Justice, London, the case of the Long Acre Motor-Car Company v. Browning has been heard by Mr. Justice Ridley and a special jury. It was an action by the plaintiffs, who are the sole agents in London for the Wolseley Motor-Car Company, of Birmingham, to recover a sum of £50, balance of the price of a motor-car. The defendant denied his indebtedness. It appeared from Mr. Acland's statement of the plaintiff's case that in December, 1901, the defendant, Mr. Thomas Browning, who resides in Kent, went to the Wolseley Car Company at Birmingham with the object of purchasing one of their motor-cars, but they could not promise delivery before July or August in the following year. They, however, referred him to their London agents, the plaintiffs. He wrote to the Wolseley Company pressing the matter upon them, and they replied that they might be able to deliver the car about the first week in May. Defendant, after some demur, agreed to accept the car, the list price of which was £380, and to pay a premium of £50 for early delivery, which, according to his interpretation of the agreement, meant delivery the first week in May, 1902. Defendant paid £50 deposit, and a subsequent instalment of £93, but as the car was not delivered until the 29th July, he refused to pay any more money till the action was commenced, and he then paid the balance into court except the £50 which he had agreed to pay for early delivery, and the action had to proceed to recover that amount, to which the learned counsel contended the plaintiffs were entitled, the delay having occurred through an incident over which they had no control—namely, a strike of the men at the Birmingham works. The jury found for the defendant, for whom judgment was entered with costs.

MR. MINTON JAFFRAY, son of the late Sir John Jaffray, founder of the "Birmingham Post," was involved in a motor-car accident at Monte Carlo the other day, owing to his automobile running into a carriage and pair at a sharp curve on a hilly road just outside the town.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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